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BATTERY LIFEPO4 48V 100AH

LITHIUM IRON PHOSPHATE BATTERY

SPECIFICATIONS

PRODUCT	ENERGY STORAGE BATTERY
PRODUCT SPEC	48 V 100 AH

This documentation specific basic performance, technical requirement, testing method, warning and caution of the LIFEPO4 rechargeable battery.

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USE

Kronobat 48V LiFePo4 (lithium-ferro phosphate) battery, capacity 100 Ah total 4,8KW is perfect for, robotics, isolated homes, solar battery bank and multiple applications where a big accumulation battery is needed.

ADVANTAGES

Great economy of use and performance estimated life of 10-15 years with approximately 70% capacity. The useful life of any battery depends on many factors, uses, type of charges and discharges, work environment, etc.
Life and performance estimation in deep cycles (100% charge and discharge):
1- 2,000 cycles 80% dod (dod means depth of discharge) 5 years.
2- 5,000 cycles 65% dod. 13 years.
3- 8,000 cycles 40% dod. 8,000 cycles are equivalent to a daily charge and discharge for more than 20 years of service.
It is the technology that offers the longest duration and significant savings compared to other types of batteries.
A very important advantage in multiple applications is its lighter weight and volume.
Our batteries weigh approximately 70% less than a lead, Gel or AGM battery of the same nominal power.
Allows downloads up to 100%. It is advisable not to regularly exceed 90% of its load capacity and 20% of discharge.
A traditional battery only allows regular use of between 60% and 40% of its nominal capacity. It allows the parallel connection of up to 4 elements, obtaining a higher amperage. They cannot be connected in series. A single 43 kg battery offers the performance of traditional battery bank lead, AGM or gel with a equivalent weight of 150 Kg.
Saving weight, volume, fuel, etc. More safety than in other technologies, the decomposition temperature of lithium iron phosphate is around 600 ° C, thus offering maximum safety and stability unlike other types of lithium battery.
They incorporate a latest generation BMS (Battery Management System) that manages 8 factors of performance, safety, temperature, cell balancing, charges, discharges, overcurrent, short circuits, battery use, etc.
LiFePo4 batteries have no memory effect and can be used immediately after charging.
The self-discharge rate is extremely low, depending on the ambient temperature between 1.5% and 3% per month.
They can be stored for a year without any problem.
Maintenance-free throughout its life.

CHARACTERISTICS

Our LiFePo4 batteries do not contain heavy metals, rare metals, or contaminants such as cobalt. They are built with 3.2V Grade A Prismatic cell with a composition: Lithium Iron Phosphate Carbon Coated (38.86%), Graphite (18.20%), Organic Electrolyte (22.30%), Aluminum (14.76 %), Copper and Polypropylene. No danger of leaking gases, acids or electrode sulphation.
The battery performance curve maintains a continuous voltage delivery for 90% discharge.
Being an accumulation battery, the discharge peak is 9,6KW for a maximum of 2.5 seconds.
Our batteries have a low level of resistance to charging. The ideal charge range is 0.2C, that is, a charge of 20% every hour.
They can be charged up to 0.5C 50% per hour. Bearing in mind that it is not usual to charge 100% in each charge.
The ideal discharge rate is 0.10C to 0.25C this assumes use between 10 and 4 hours. It is possible to reach a rate of 0.5C, discharge in 2 hours. Wide working range, load between 0° and 45° and use between -20° and 60°.
In order to obtain the maximum performance and life from a LiFePo4 battery, a charger suitable for charging LiFePo4 batteries should be used.
All of our batteries have individually passed factory quality control tests to provide a durable and efficient product.

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THE BASIC PARAMETERS OF THE BATTERY

Electrical Characteristics	Nominal Voltage	48V(51.2V)
	Nominal Capacity	100Ah (0.2C)
	Minimum capacity	98AH
	Energy	5120Wh
	Internal Resistance	≤20mΩ
	Cycle Life	>2000 Cycles @ 0.2C Charge/Discharge at 100%DOD,End of Life 70% Capacity.
	Months Self Discharge	≤3.5% per month at 25℃
Standard Charge	Charge Voltage	58.4±0.2V Calculated according to 3.65V voltage of each cell
	Charge Mode(CC/CV)	At 0℃~45℃ temperature, charged to 58.4V at a constant current of 0.2C, and then,changed continuously with constant voltage of 14.6V until the current was not more than 0.02C.
	Standard Charge Current	0.2C
	Max.Charge Current	0.5C
Standard Discharge	Max. Continuous Current	1C
	Peak Current	200A(<3S)
	Discharge Cut-off Voltage	40.0V Calculated according to 2.5V voltage of each cell
Environmental	Charge Temperature	0℃ to 45℃(32℉ to 113℉) @60±25% Relative Humidity
	Discharge Temperature	-20℃ to 60℃(-4℉ to 140℉) @60±25% Relative Humidity
	Storage Temperature	0℃ to 45℃(32℉ to 113℉) @60±25% Relative Humidity
	Water Dust Resistance	IP55
Mechanical	Cell & Method	LFE3.2V battery cell
	Plastic Case	ABS
	Dimension(L*W*H*TH)	640*245*220mm Or Customized
	Weight	Approx. 40±2kg
	Terminal	M8
	In parallel connection	yes

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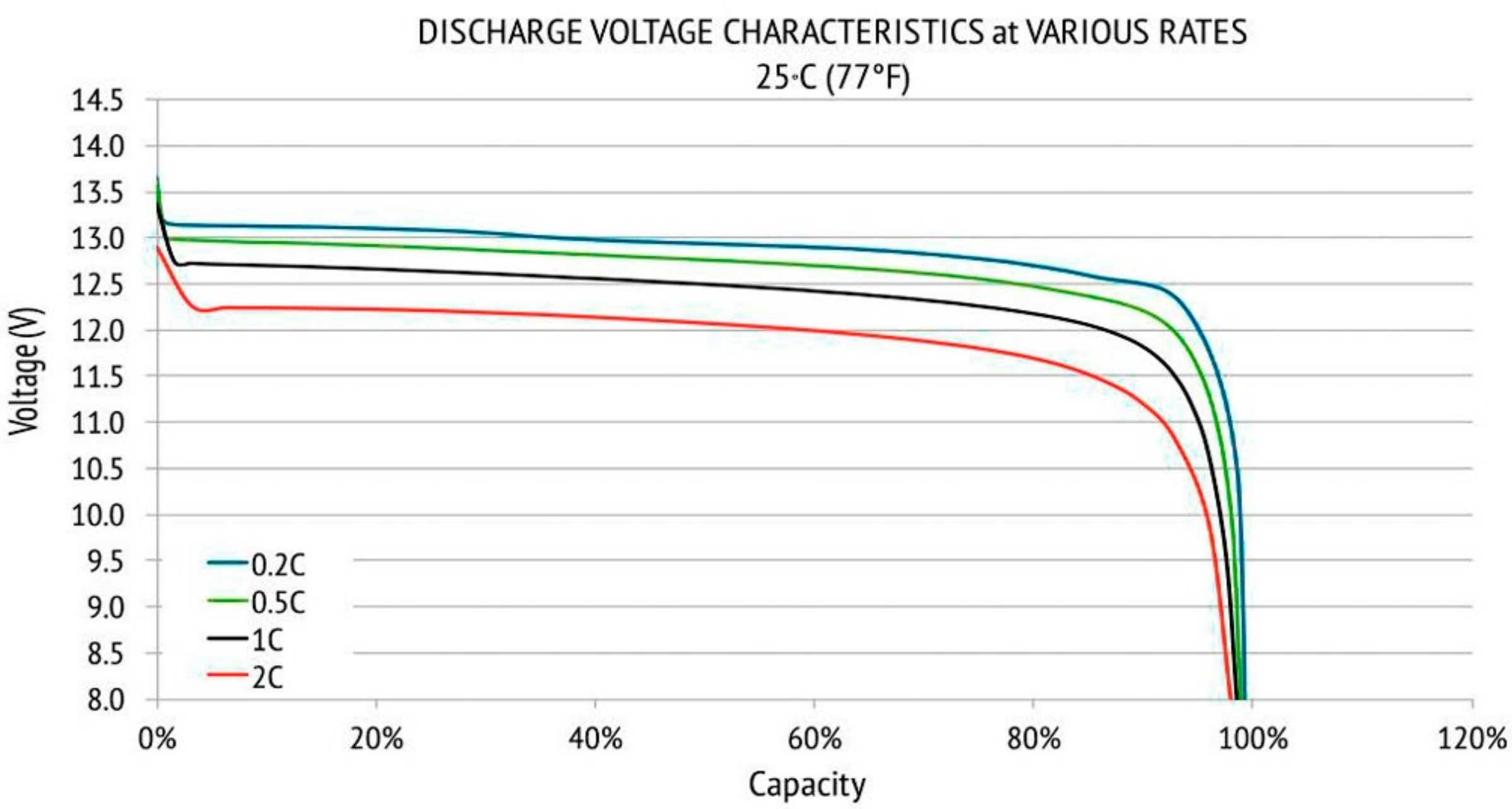
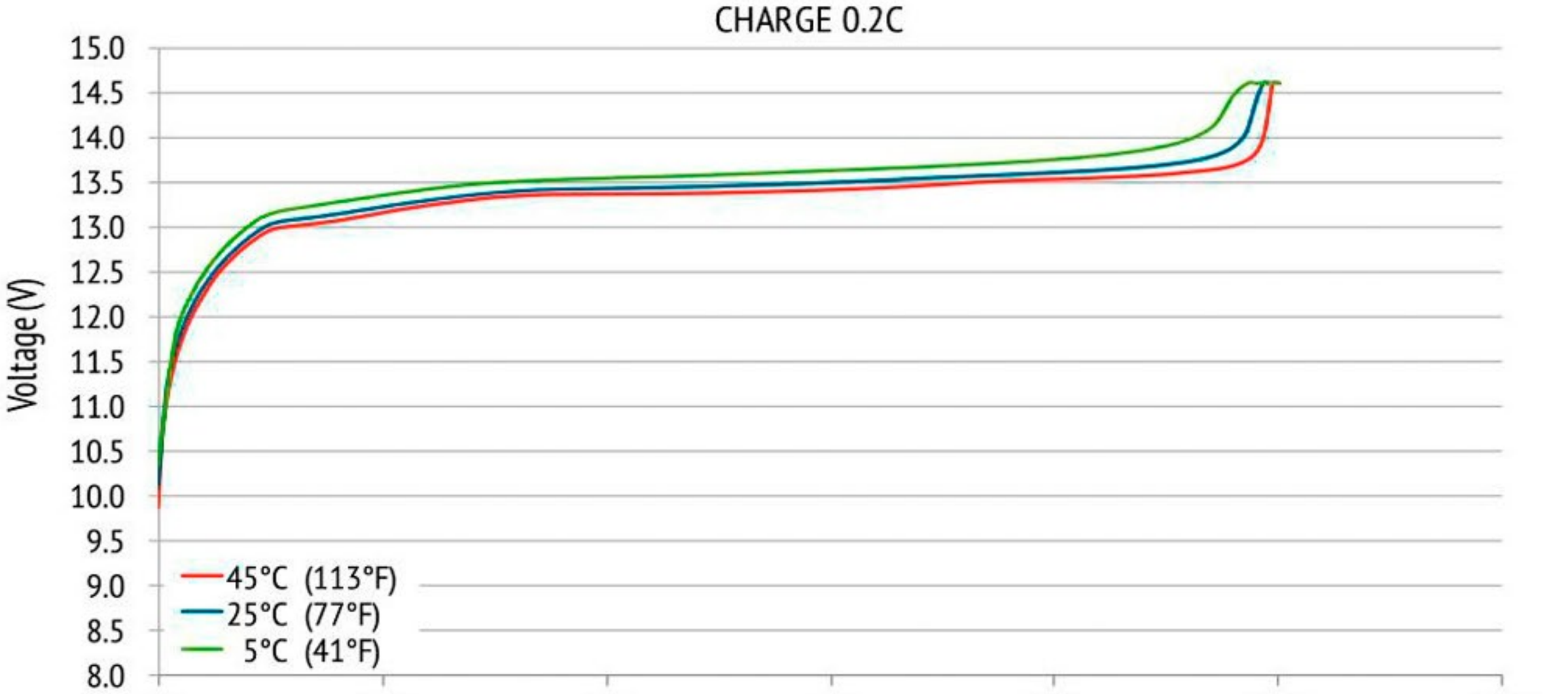
TYPICAL CHARGE-DISCHARGE CURVE





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COMMON FAULT JUDGMENT

Solutions to general failures of lithium iron phosphate batteries

FAULT CONDITIONS	SOLUTION
The battery pack cannot be charged and discharged normally	1) Check if the line connection is correct
	2) Check whether the battery pack voltage is normal
	3) Check for loose battery connections
	4) Turn off the load and then turn it on again
	5) Replace the protective plate
The battery heats up when in use	1) Continuous working current is too large
	2) The connection between the batteries is not tight

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BATTERY OPERATING INSTRUCTION

Charge

Charge current: Never out of the max charge current as mentioned in specification.
Charge voltage: Never out of the max charge voltage as mentioned in specification.
Charge temperature: Please refer to the temperature range as specification.
Charge as constant current before constant voltage, Never reverse charge the battery.

Discharge current

The discharge current is not allowed to out of max current as specification.
Otherwise, the battery will be over heat and capacity fading.

Discharge temperature

Please refer to the temperature range as specification.

Over-discharge

It's workable if over charge and discharge for a short while but not allow to do it for a long time.
Over discharge may result in self-energy disappear .
Please keep a certain electric quantity to prevent over discharge.

BATTERY MAINTENANCE

(1) After completing the installation of the battery according to the installation manual, before the battery is discharged for the first time, the battery should be fully charged before use. After the battery is fully charged and discharged 3 to 5 times, the battery can reach its maximum capacity.
(2) When the battery power is insufficient, it should be charged in time, which will help prolong the battery life.
If the battery is not charged in time, leaving the battery in a state of power shortage for a long time will affect the service life of the battery. If the battery needs to be put on hold for a long time, it is best to leave the battery in a half-charged state, and charge the battery once every 2 months, and the charging time is one hour.
(3) The battery should be installed in a well-ventilated, dry and clean environment; when charging, avoid fire sources and flammable items from approaching and disconnect the load (turn off the electrical equipment).
(4) The working environment temperature of the battery is 5~40℃ (the best working environment temperature is 15~35℃). If it is outside this temperature range, the performance of the battery may change. The intuitive expression is that the battery capacity changes. Or the device runtime varies, which is normal.
(5) Do not use organic solvents to clean the battery case. When an accidental fire occurs in the battery, carbon dioxide cannot be used to extinguish the fire, but a fire extinguisher such as carbon tetrachloride or sand should be used to extinguish the fire.
(6) The battery is a consumable item, and the life of the battery is limited. Please replace the battery in time when the battery capacity is lower than 80% of the rated capacity.

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PRECAUTIONS FOR USE

In order to prevent accidents such as battery leakage, abnormal heat generation, fire, performance degradation, explosion, etc. please use the battery correctly according to the following specifications. The company is not responsible for any accidents caused by not following the instructions in this manual.

(1) Handle with care to avoid violent vibration.
(2) Do not immerse the battery and its accessories in water or other liquids, and pay attention to moisture.
(3) Short circuit of the positive and negative output terminals of the battery pack should be avoided.
(4) It is forbidden to disassemble the battery. Removing the battery may cause an internal short circuit, causing internal decomposition, fire, explosion, etc. In addition, disassembling the battery may leak the battery electrolyte; if any electrolyte spills on the skin, eyes or other parts of the body, immediately rinse with water and see a doctor immediately.
(5) It is forbidden to throw used batteries into fire, otherwise dangerous accidents such as explosion will occur.
(6) If the battery is damaged, deformed, leaking electrolyte or smells peculiar smell and other abnormal phenomena, do not use the battery again; please send it to the authorized office of the manufacturer or relevant institutions for proper disposal. In addition, batteries leaking electrolyte should be kept away from fire sources to avoid explosion.
(7) Battery replacement. The battery should be replaced and installed by the battery supplier, and the user is not allowed to replace it without authorization.
(8) Unauthorized disassembly is prohibited. Users are not allowed to disassemble the battery pack and charger without permission, otherwise, our company will not be responsible for the loss caused by this.

TRANSPORTATION PRECAUTIONS

(1) The battery pack is suitable for transportation such as automobiles, trains, and airplanes, but the sun, rain and severe vibration should be avoided during transportation.
(2) The battery pack should be packed with insulating and shockproof materials, and marked with a label with the word "fragile" to avoid damage to the battery pack caused by bumps on the way.
(3) The pole of the battery pack should be upward, and the upward label should be marked. Do not put it upside down, sideways, etc.
(4) The battery pack must be handled with care during transportation, loading and unloading. Do not throw it at will to avoid collision.
(5) Do not put heavy objects on the battery pack during transportation to avoid damage to the battery pack caused by squeezing.
(6) Do not mix and transport with flammable, explosive and sharp metal objects.

STORAGE

The battery should be stored in a clean, dry and ventilated environment with a temperature of 5°C～+40°C and a relative humidity of ≤90% (40°C ±2°C). Avoid contact with corrosive substances and keep away from fire and heat sources.
And the battery should be in a half-charged state of about 50% to 60%. To prevent over-discharge of the battery, charge the battery for about an hour every 2 months.

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WARRANTY PERIOD

Quality assurance for contractual stipulation against manufacturing defects, but. We are not responsible for the damage caused by inadequate and improper use. The information (subject to change without prior notice) contained in this document is for reference only and should not be used as a basis for product guarantee or warranty.
For applications other than those described here, please contact our office.
Manufacturer reserves the right to alter, amend the design, model and specification without prior notice.

OTHER CHEMICAL REACTION

The battery performance will reduce if over time using or unused for a long time due to it's a reaction of chemical.
In addition, the battery life will be shorten or injury or damage itself from electrolyte leakage, heating ignition or explosion for improper handling. It's necessary to replace battery if unable to charge even with proper way.

HOW TO USE BATTERIES IN SERIES AND PARALLEL

Make sure the batteries are of the same voltage before connecting in series or parallel. It is recommended to charge separately when charging. If you need a series connection, please buy a battery that supports series connection.
(12V supports 4 in series, 24V supports 3 in series)
Parallel connection does not exceed the power of a single battery, and the number is not limited.