VOLTX a_l1vb-h2-a0-ta-xx 12V 100Ah LiFePO4 Lithium Battery User Manual

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Product Usage Instructions

Charging Recommendations

When charging the battery:

1. Use a 14.6V lithium AC to DC or DC to DC battery charger.
2. Ensure tight and secure battery cable connections.
3. Do not exceed the battery's nominal voltage during charging.
4. Avoid using a lead-acid vehicle battery charger.
5. You can also charge the battery using a solar panel with a compatible regulator in LiFePO4 mode.

Battery Re-Activation

To re-activate a battery that no longer charges:

1. Method 1 (Easy): Disconnect the load, charge using a regular lithium battery charger, and wait for the BMS to reset automatically.
2. Method 2 (Requires 0V function charger): Charge fully using a charger with a 0V setting to reset the BMS automatically.
3. Method 3 (Requires a second battery): Connect in parallel with another fully charged 12V lithium battery to reset the BMS.

Long-Term Storage

For long-term storage:

1. Store the battery at an 80% charge level.

2. Cycle through the battery power every 6 months by connecting it to an appliance and discharging without reaching over-discharge levels.

FAQS

- **Q:** Can I charge the battery directly through a vehicle's alternator?
- **A:** No, it is not recommended to charge the battery directly through a vehicle's alternator. Use a suitable charger or solar panel setup.
- **Q:** What should I do if the battery does not reset using Method 1?
- **A:** If Method 1 does not work, try Method 2 with a charger equipped with a 0V function or Method 3 with a second fully charged lithium battery.

WHAT'S IN THE BOX

- 1 X User manual
- 1 X 12V 100Ah LiFePO4 Lithium Battery

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- Troubleshooting your battery
- Detailed battery specifications

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SAFETY

CAUTION: RISK OF FIRE, EXPLOSION OR BURNS.

- DO NOT Short-circuit
- DO NOT Reverse connections from a charger to the battery
- DO NOT Disassemble
- DO NOT Throw into fire or incinerate
- DO NOT Heat above 60°C
- Discontinue charging your battery if you see smoke or swelling.
- Never leave your battery unattended at any time when being charged or discharged.

- Do not expose the battery to moisture or water.

TIPS

- It is highly advisable to invest in a dedicated Low Voltage Disconnect (LVD) to safeguard your battery from being discharged to a low voltage, which can negatively affect its lifespan. If an LVD is not available, the battery must always be adequately charged to prevent over-discharge.
- The voltage of a LiFePO4 battery measured during the charging process is not a reliable indicator of its actual voltage. To obtain an accurate measurement, it is recommended to let the battery rest for 15 minutes before testing its voltage.

CHARGING RECOMMENDATIONS

NOTE: Use a 14.6V lithium AC to DC or DC to DC battery charger to maximise the battery`s usable capacity.
DO NOT USE A LEAD-ACID VEHICLE BATTERY CHARGER.
You won't be able to fully utilize the battery's usable capacity if you use an inappropriate charger or charge it at a lower voltage.

When charging, don't set the charger to a voltage greater than the battery's nominal voltage, as it may permanently damage the battery.

1. Ensure the battery cables are tight, secure and have a good connection.
2. Follow the instructions on the battery charger.

You can also charge the battery using a solar panel and a compatible regulator with a lithium profile (select LiFePO4 mode on the solar regulator).
We recommend setting the solar regulator to the following parameters:

- Overcharge Protection Voltage: 14.4V
- Overcharge Recovery Voltage: 14V
- Over-discharge Protection Voltage: 10.8V
- Over-discharge Recovery Voltage: 11.2v

The battery should not be charged directly through a vehicle's alternator.

BATTERY RE-ACTIVATION

HOW TO RE-ACTIVATE A BATTERY THAT NO LONGER CHARGES

The over-discharge protection voltage for this battery is set at 10V, and if the voltage drops below this level, the Battery Management System (BMS) will trigger a safety cutoff to protect the battery.
In such an event, you must follow the reset procedure for the battery as outlined below:

METHOD 1 (EASY)

1. Disconnect the load from the battery and set it aside for at least 30 minutes.
2. The battery should recover to a normal voltage level automatically. lily

3. The battery can then be fully charged for normal use.

It is important to note that in some cases, METHOD 1 may not be sufficient, and you may need to proceed with METHOD 2 or METHOD 3 to reset the battery.

METHOD 2 (REQUIRES A CHARGER WITH 0V FUNCTION)

1. Use a charger equipped with a 0V charging function.
2. Charge the battery fully using this charger on its 0V setting.
3. Once the battery is fully charged, the BMS will reset automatically.
4. The battery can now be used as normal.

METHOD 3 (REQUIRES A SECOND BATTERY)

1. Connect the battery in parallel with another fully charged 12V lithium battery.
2. Allow the battery to charge in parallel for at least one minute.
3. Disconnect the second battery and charge your battery fully using a regular lithium battery charger.
4. Once fully charged, the BMS will reset automatically, and the battery can be used normally.

A lead-acid battery with a voltage more than or equal to 12V and less than or equal to 14.6V will also work.

LONG-TERM STORAGE

To prolong the battery's lifespan, it is advisable to store it at an 80% charge level.

- LiFePO4 batteries have a low self-discharge rate of 2% per month.
- To prevent excessive discharge during storage, store LiFePO4 batteries at an 80% state of charge (SOC) if storing for longer than six months.
- Failure to charge the battery before storage can cause over-discharge, resulting in the battery's discharge level falling below the protection level of the BMS.
- It is strongly recommended to store the battery at room temperature, particularly for extended storage periods.

Cycling through the battery power every 6 months is an excellent way to add to the longevity of your battery.
To cycle through the battery's power:

1. Connect the battery to an appliance and allow it to discharge without reaching the over-discharge voltage level.
2. Charge the battery until it reaches 100%.
3. Reconnect the battery to an appliance and discharge it to reduce its charge level back to 80% before storing.

Store the battery in a fireproof container Keep out of reach of children

SPECIFICATIONS

- **Nominal Capacity:** 100Ah
- **Usable Capacity:** 100Ah

- **Nominal Voltage:** 12.8V
- **Energy:** 1280wh
- **Charge Voltage:** 14.6V
- **Discharge Cut-off Voltage:** 10V
- **Charge Method:** CC/CV
- **Charger:** 14.6V50A
- **Standard Discharge Current:** 100A
- **Max. Continues Discharge Current:** 200A
- **Max. Discharge Current 5 Sec:** 600A
- **Standard Charge Current:** 50A
- **Max. Charge Current:** 100A
- **Dimensions:** L: 600 x W: 270 x H:65mm
- **Working Temperature Range:** Charge 0°C to 45°C, Discharge: -20°C to 60°C
- **Storage Temperature:** -10°C to 50°C

STATE OF CHARGE

BATTERY % VOLTAGE

- 100%: 13.5V
- 99%: 13.4V
- 90%: 13.3V
- 70%: 13.2V
- 40%: 13.1V
- 30%: 13.0V
- 20%: 12.9V
- 10%: 12.8V
- 1%: 11.0V
- 0%: 10.0V

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References