FULBAT FLP12-100B Bluetooth BMS Battery User Manual

Contents

FULBAT FLP12-100B Bluetooth BMS Battery

Product Information

Specifications:

- **Product:** Smart Bluetooth BMS Battery
- **Series:** High Cyclic Series – LiFeP04
- **Voltage:** 12V

Product Usage Instructions

Safety Instructions:

1. Read and understand the manual carefully before using the battery.
2. Only qualified personnel should install the batteries.
3. Work on the battery should only be carried out by qualified personnel.
4. Wear protective eyeglasses and clothing while working on batteries.
5. Keep children away from batteries.
6. Do not dispose of the batteries in a fire or with normal waste.
7. Avoid short circuits, electrostatic charges, and discharges/sparks.

Monitoring via Bluetooth:

1. Download the Android or Apple (iOS) FULBAT application to a smartphone.
2. Open the application on the smartphone within 5 meters from the battery.

3. The application allows monitoring of OCV, state of charge, state of health, charge/discharge currents, cycle counter, and temperature.

Battery Installation/Connection:

1. Ensure the battery is fully charged before installation.
2. Connect the battery following the installation instructions provided in the manual.

FAQs (Frequently Asked Questions)

- **Q: How can I monitor the battery using Bluetooth?**
  A: You can monitor the battery by downloading the FULBAT application to your smartphone and connecting to the BMS via Bluetooth within 5 meters from the battery.
- **Q: What safety precautions should I follow while working with the battery?**
  A: Follow all safety instructions provided in the manual, wear protective gear, keep children away from batteries, and avoid short circuits and sparks.

FOR HIGH CYCLIC SERIES – LiFeP04
This manual contains important safety and operating instruc-tions for 12V High Cyclic Series – LiFeP04.
IMPORTANT SAFETY INSTRUCTIONS. Please read this manual and follow the instructions carefully before using the battery.

WARNING

-  Please read the instructions carefully before using the battery. Fulbat could not be held responsible for the consequences of improper installation and/or misuse of the battery inside your vehicle. If you have any problems or doubt, for your security we recommend you to contact a professional.
-  Observe these Instructions and keep them located near the battery for future reference. Work on the battery should only be carried out by qualified personnel.
-  While working on batteries, wear protective eyeglasses and clothing.
-  Keep children away from batteries.
-  Do not dispose of the batteries in a fire. Do not smoke.
-  Explosion and fire hazard. Avoid short circuits. Avoid electrostatic charges and discharges/sparks.
-  Spent Li-ion batteries must be returned to Li-ion battery collection points. Do not dispose of the battery in normal waste. Do not return Li-ion batteries together with Lead Acid batteries.

SAFETY

General recommendation:

- Each person given the task of operating or maintaining the battery must have read and understood the instructions. Only qualified personnel should install the batteries. Knowledge of the contents of the installation and user manual is a fundamen-tal requirement to protect people from danger, to avoid errors and to operate the system safely and fault-free.

Installation / Operation:

- For the first use, before connecting the battery packs to your equipment fully charge the battery.
- The operating conditions given in the product documentation must be observed.
- The battery contains a BMS with integrated protection and with the capability to disconnect all battery power resulting in 0 V and 0 A.
- A battery which gets disconnected by BMS during use can lead to immediate loss of function for connected equipment. Do not install or use in systems where sudden loss of battery power may lead to dangerous situations or result in malfunction or damage of connected equipment.
- The battery is intended for equipment use only. Do not use for starting power (engine crank) or other similar applications.
- If the battery is damaged, deformed, abnormally hot or emits an odor, please cut off the power immediately and stop using it and contact your local dealer.

Battery Maintenance:

- A LiFePO4 charger (or lead acid charger without desulfation step) must be used. The charger must respect the charging requirements of the battery.
- If the battery voltage is lower than 10 V the BMS will disconnect (over discharge protection) and enter sleep mode to protect the battery from further discharge. Apply charging voltage to wake up BMS and recharge battery immediately.
- The user should verify the condition of all external cables and connections prior to each operation.
- Before carrying out any inspection of cables the battery must be disconnected from the application and the charger.

Storage conditions:

- Disconnect all loads from the battery before storage.
- In case of long term storage (>6 months), battery must be kept dry and frost free. Storage temperature 0 °C to 45 °C, recom-mended storage humidity 5 ~ 75%.
- In case of long term storage (>6 months), maintain battery state of charge (SOC) close to 50% by maintenance charge every 6 months.
- For seasonal storage (up to 6 months) charge the battery to above 50% SOC before disconnecting.
- Before taking the battery into use after storage, fully charge the battery.

Charge recommendations:

- For maximum long term performance and endurance of the battery the standard charge method should be used.
- Never charge the battery with voltages or currents above the max levels as indicated on the battery specification..
- For optimal charge process and to facilitate correct function of the charger all loads should be removed during charge.

BMS – BATTERY MANAGEMENT SYSTEM

The battery is equipped with an advanced integrated electronic Battery Management System, BMS. The BMS monitors the state of the battery by measuring voltages, temperatures and the electri-cal current in and out of the battery. The BMS performs balancing of the battery cells inside the battery. Battery models with Blue-tooth allow the user to receive information of the battery status from the BMS.

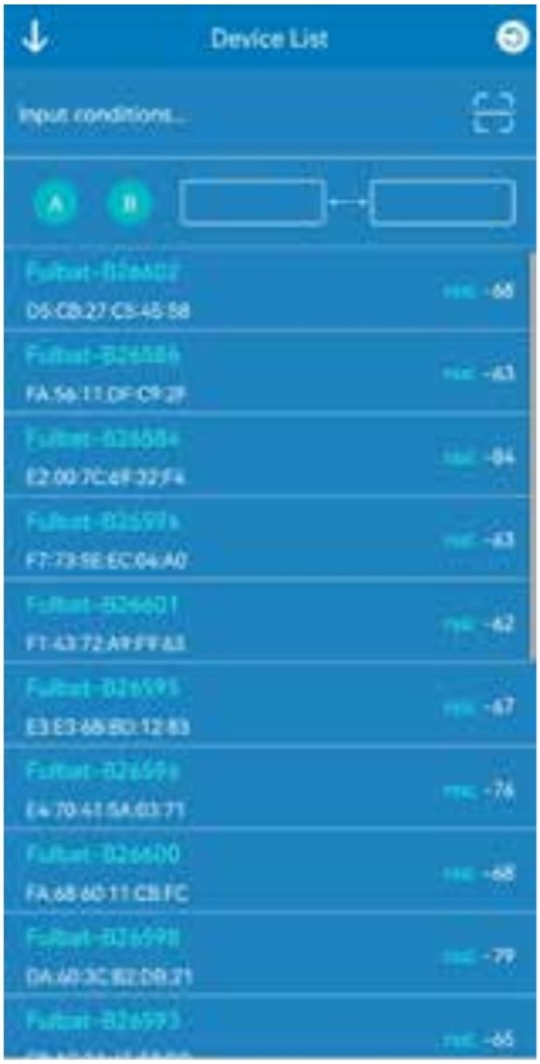
BMS integrated protection:

- To protect or minimize damage to the battery from abuse situations there are built-in protection limits for voltage, tem-perature and current. Systematic or intentional triggering of the BMS protection must be avoided and may cause permanent damage to the battery.
- **Warning!** If the battery is used outside the permitted ranges the BMS will enter protection mode and trigger an electronic disconnect of the battery. Disconnection by the BMS results in sudden loss of battery power and may lead to total loss of function for connected equipment.

BLUETOOTH

OCV, state of charge, state of health, charge/discharge currents, cycle counter and temperature can be monitored easily by simply downloading the Android or Apple (iOS) FULBAT application to a smartphone directly connected to the BMS via bluetooth.

Open the application on the smartphone (within 5 meters from the battery). The serial number printed on the side of the casing* (Fulbat-B26602, Fulbat-B26586, etc.) will show on this page automatically. Select your battery with the serial number, click to connect to the battery. If several batteries are connected in series or parallel, different serial numbers will appear on the page.



*serial number sticker example:

When the battery is connected to the application, the page displays information about:

- Operating current battery.
- Battery voltage.
- SOC in %.
- State (standby, charging, or discharging).
- Cycle quantity.

On this screen, the page displays informa-tion about:

- Battery temperature in °C.
- Remaining battery capacity.
- DCAP (designed capacity).
- FCC (full-charge capacity).
- Average Time To Empty, Average Time To Fully Charge.

On this screen, the page reveals the voltage of each series cell.

BATTERY INSTALLATION / CONNECTION

Battery Installation:

- Do not install the battery in a place where it is exposed to direct sunlight or sources of heat (e.g. engine compartments, engine exhaust systems, electrical/hydraulic pumps or any other device which generates heat under normal or exceptional operating conditions).
- Keep any flammable material away from the battery and its connected loads or chargers.
- Do not install in compartments with zero clearance, always leave space around the battery for ventilation and cooling.
- Li-ion batteries must always be kept in a well-ventilated, dry, clean and dust-free environment.
- Never expose the battery to fire or extreme heat.
- Keep the battery dry and clean from dirt.
- Battery surface should be cleaned with a soft, dry cloth made of non-electroconductive material.
- Under no circumstances should liquids, cleaning agents or sol vents be used to clean a battery.

Precautions for battery serial connection:

- The batteries connected in series must be of the same model, voltage and preferably from the same batch.
- Before connecting batteries in series all batteries must be fully charged.

Precautions for battery parallel connection:

- The batteries connected in parallel should be of the same model, voltage and preferably from the same batch.
- Ensure that all parallel wires are identical (length, section and insulation).
- Before connecting batteries in parallel all batteries must be fully charged.

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Documents / Resources

	FULBAT FLP12-100B Bluetooth BMS Battery [pdf] User Manual FLP12-100B Bluetooth BMS Battery, FLP12-100B, Bluetooth BMS Battery, BMS Battery

References

- User Manual