

# Proper Handling of Lithium Iron Phosphate Batteries

Lithium Iron Phosphate batteries (LiFePO4) are a popular choice for a wide range of applications due to their high energy efficiency, long service life and safety. To ensure the best possible performance and lifespan of these batteries, it is important to handle and maintain them correctly. This white paper provides comprehensive guidance for everyday handling of LiFePO4 batteries, from delivery and installation to usage and storage.

## After Delivery

### INSPECTION AND STORAGE

After receiving the battery, you should unpack it and check it for external damage. If you intend to store the battery for longer than four weeks, charge it to 80 %. Check the voltage at least every six months and recharge the battery if necessary. Please note that the battery's own consumption is around 3 % per month. The battery should be stored in a dry place and at moderate temperatures.

### NOTE

Small leakage currents cannot be detected by the BMS, i.e. the minimum discharge can result in a discrepancy between the display and the actual charge level. For this reason, leakage currents should be checked and recorded - recharging more frequently if necessary.

## The Installation

### INSTALLATION AND SAFETY

When installing the battery, it is important to avoid reverse polarity or short circuits. In such cases, the battery management system (BMS) can lock the battery. If this happens, the BMS can be reactivated by the 'BMS awakening' procedure (see corresponding instructions).

### CHARGE CONTROLLER AND INVERTER

Ensure that the charge controllers used, whether solar, B2B or chargers, do not load the battery beyond the recommended charging current. In particular, the maximum charging current must not be exceeded, otherwise the BMS will lock. With the inverter, it is important to ensure that the continuous discharge current of the battery is at least equal to the power of the inverter. For example, a 3000W inverter requires a minimum continuous discharge current of 240A.

Please note that inverters have a higher starting current (at least twice the value). Check the technical data sheets whether the peak discharge current of the battery can be maintained for at least 3 seconds.

### CHARGING CHARACTERISTICS

We generally recommend charging lithium batteries with an LFP charger to ensure optimum charging. Many motorhomes are fitted with chargers for lead batteries as standard. If your charger has a gel charging characteristic with 14.4V, this can also be used to charge lithium batteries.

The ECTIVE LC 100 LT Lithium Supply Battery can also be charged with the following chargers in the AGM charging characteristic 14.7V

Dometic MCA 1225	Schaudt EBL 252
Dometic MCA 1235	CBE 516-3

For lithium charging characteristics, please pay attention to the recommended charging voltage, usually 14.4V or 14.6V and adjust it accordingly. A float voltage of 13.8V should also be taken into account.

## Utilisation

### CAPACITY MANAGEMENT

LiFePO4 batteries offer a greater usable capacity compared to other battery types. If only a small part of the capacity is utilised, incorrect capacity or SOC (State of Charge) values may be displayed. In this case, discharge the battery to 5-10 % and then fully charge it. Repeat this cycle 2-3 times to calibrate the displays.

### GENTLE USE

LiFePO4 batteries work best when the voltages remain constant during charging and discharging. It is gentler on the cells if the batteries are charged to 80 % and discharged to 20 %. This increases the lifespan of the cells. The LT versions of our batteries in particular are suitable for installations in unheated environments inside the vehicle or in an external compartment.

## Prolonged Non-Utilisation / Overwintering

### OPTIMAL STORAGE CONDITIONS

If the battery is to be stored for a longer period of time, a charge level between 60-80 % is optimal. A monthly check is recommended to avoid damage due to improper storage. The optimal storage temperature is between 10-25°C, and the battery should be stored in a dry place.

**CONCLUSION:** By following these instructions and recommendations, you can maximise the performance and lifespan of your ECTIVE LiFePO4 Battery. Proper handling will ensure the safety and long-term satisfaction of your energy storage system.