



# Iron phosphate battery temperature

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Proper storage is crucial for ensuring the longevity of LiFePO<sub>4</sub> batteries and preventing potential hazards. Lithium iron phosphate batteries have become increasingly popular due to their high energy density, lightweight design, and eco-friendliness compared to conventional lead-acid batteries. However, to optimize their benefits, it is essential to understand how to store them correctly.

Even if disconnected from external devices, internal chemical reactions can occur in batteries over time. LiFePO<sub>4</sub> batteries require fewer safety precautions than lithium-ion batteries because they employ stable iron compounds that do not generate hazardous gases or explode. However, they are a significant investment, and proper storage ensures that your investment doesn't go to waste.

Most manufacturers recommend switching off lithium batteries before storing them. For RVs and motorhomes, disconnecting the [+] and [-] wires connected to the battery pack terminals is necessary.

Keep lithium batteries away from sources of heat, radiators, or other heat sources. These batteries contain chemicals that can overheat and explode when exposed to high temperatures for extended periods.

When storing LiFePO<sub>4</sub> batteries for short durations, charge them to at least 50% of their maximum capacity, and store them in a dry place. The ideal temperature range for short-term storage is 10° to 30°/ 50° to 86°.

To maintain the health and longevity of LiFePO<sub>4</sub> batteries during long-term storage, it is important to take certain precautions. One key factor to consider is the self-discharge rate, which increases over time. Additionally, storing the battery outside the recommended temperature range can further accelerate self-discharge.

To mitigate these issues, it is recommended to store LiFePO<sub>4</sub> batteries in a warm location and ensure they are adequately charged before disconnecting them. The ideal temperature range for storage is between 10° and 35° (50°F and 95°F).

For batteries that will be stored for three or more months, it is advisable to perform a charging and discharging cycle every three months. This helps to keep the battery healthy and in optimal operating condition when it is eventually used.

Cold temperatures can actually benefit battery health by halting internal chemical reactions. Thus, storing the battery at or near freezing temperature can be advantageous for long-term storage. However, it is important to consider the self-degradation rate of the battery during this time. To maintain optimal condition, it is suggested to charge the battery to a level of 40% to 50% of its capacity before storage.

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Avoid storing LiFePO<sub>4</sub> batteries in extremely hot temperatures or direct sunlight, which can cause internal overheating and lead to voltage drops or battery fires. Similarly, although cold temperatures slow down internal chemical reactions within the battery, extremely low temperatures can cause some battery components such as plastic casing to fracture.

Yes, we recommend disconnecting the LiFePO<sub>4</sub> battery system from the device when not in use. Simply switching off the main switch is insufficient. It is advised to disconnect the battery terminal cable before storing the battery.

If the battery remains connected, even when idle, there will still be minor current leakage that can adversely affect the battery's health or the device connected to the battery. Some components, such as sensors, often bypass the main circuit breaker switch.

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