

OCELL IFM12-60E2

O'CELL 12V 6Ah LiFePO4 Lithium Battery User Manual

Model: IFM12-60E2

1. INTRODUCTION

Thank you for choosing the O'CELL 12V 6Ah LiFePO4 Lithium Battery. This manual provides essential information for the safe and efficient use, installation, and maintenance of your battery. Please read this manual thoroughly before operating the product and retain it for future reference.

This O'CELL LiFePO4 battery is designed for deep cycle applications, offering a long lifespan and high energy density. It is a lightweight and compact power solution suitable for various portable and stationary uses.

2. PRODUCT OVERVIEW

2.1 What's in the Box

- 1x O'CELL 12V 6Ah LiFePO4 Battery Pack
- 1x O'CELL 14.6V 2A LiFePO4 Battery Charger
- 1 Set Silicone Wire with Insertion Spring
- 1x LiFePO4 Battery Pack Manual (This Document)
- 1x LiFePO4 Battery Charger Manual

2.2 Key Features

- **High Capacity Usage:** Maintains above 12V for up to 95% of its capacity usage.
- **Extended Cycle Life:** Offers 4000+ charge cycles for long-term reliability.
- **Long Lifespan:** Designed for a 10+ year operational lifespan.

- **Integrated BMS:** Built-in Battery Management System for enhanced safety and performance.
- **Compact & Lightweight:** Significantly lighter than traditional lead-acid batteries, making it portable.
- **Wide Application Range:** Suitable for various uses including ice fishing sonar, kids' scooters, solar systems, alarm systems, outdoor camping, and CCTV.



Image: The O'CELL 12V 6Ah LiFePO4 battery, accompanied by its dedicated 14.6V 2A charger and silicone connection wires.



Image: Visual comparison highlighting the compact size and lightweight nature of the O'CELL LiFePO4 battery (1.98 lbs) compared to a 12V 7Ah SLA battery (4.4 lbs).

3. SAFETY INFORMATION

Always prioritize safety when handling batteries. Improper use can lead to damage, injury, or fire.

3.1 Battery Management System (BMS) Protection

The integrated BMS provides multiple layers of protection:

- **Over-charge Protection:** Prevents the battery from being charged beyond its safe voltage limit.
- **Over-discharge Protection:** Protects the battery from being discharged below its minimum safe voltage.
- **Over-current Protection:** Safeguards against excessive current draw.
- **Short-circuit Protection:** Automatically disconnects the battery in case of a short circuit.
- **Low/High Temperature Protection:** Monitors battery temperature to prevent operation outside safe ranges.

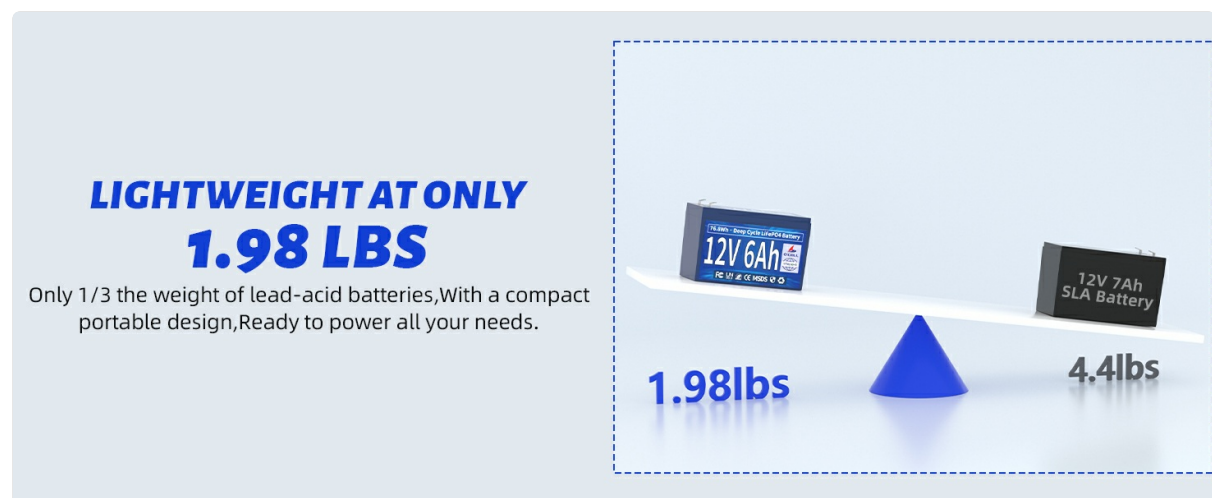


Image: Detailed diagram showing the internal components and the five key protection features provided by the BMS.

3.2 Important Considerations

- **Temperature for Charging:** LiFePO4 batteries should **not** be charged below 32°F (0°C). Charging in freezing temperatures can cause irreversible damage to the battery cells. Ensure the battery is at an appropriate temperature before initiating charging.
- **BMS Current Limits:** While the BMS offers protection, it is crucial to adhere to the specified maximum continuous charging and discharging currents (refer to Section 6, Specifications). Using currents exceeding these limits may compromise battery health and safety.
- **Water Exposure:** Avoid exposing the battery to water or excessive moisture. If the battery gets wet, do not attempt to charge or use it.
- **Physical Damage:** Do not use the battery if it shows any signs of physical damage, swelling, or leakage.

4. SETUP AND INSTALLATION

4.1 Initial Charging

Before first use, fully charge the battery using the included 14.6V 2A LiFePO4 charger. The charging process typically takes approximately 3 hours.

1. Connect the positive (red) alligator clip from the charger to the positive (+) terminal of the battery.
2. Connect the negative (black) alligator clip from the charger to the negative (-) terminal of the battery.
3. Plug the charger into a standard wall outlet. The charger's indicator light will show the charging status (refer to the charger manual for specific light indications).
4. Once charging is complete, disconnect the charger from the wall outlet, then disconnect the alligator clips from the battery terminals.



Image: The O'CELL LiFePO4 battery connected to its dedicated charger, illustrating the charging process.

4.2 Connecting to Devices

Use appropriate connectors and wiring for your application. Ensure correct polarity when connecting the battery to your device. Connect the positive terminal of the battery to the positive input of your device, and the negative terminal of the battery to the negative input of your device.

4.3 Mounting Options

The battery can be mounted in various orientations. However, it is recommended to avoid installing the battery with terminals facing directly downwards to prevent potential issues with connections or moisture

accumulation.

5. OPERATING INSTRUCTIONS

5.1 Charging Methods

Your O'CELL LiFePO4 battery can be charged using two primary methods:

- **Included 14.6V 2A LiFePO4 Battery Charger:** This is the recommended and most straightforward method for charging.
- **Solar Panel:** The battery supports charging via 30W, 50W, 60W, or 70W solar panels. Ensure a compatible solar charge controller is used to regulate voltage and current.

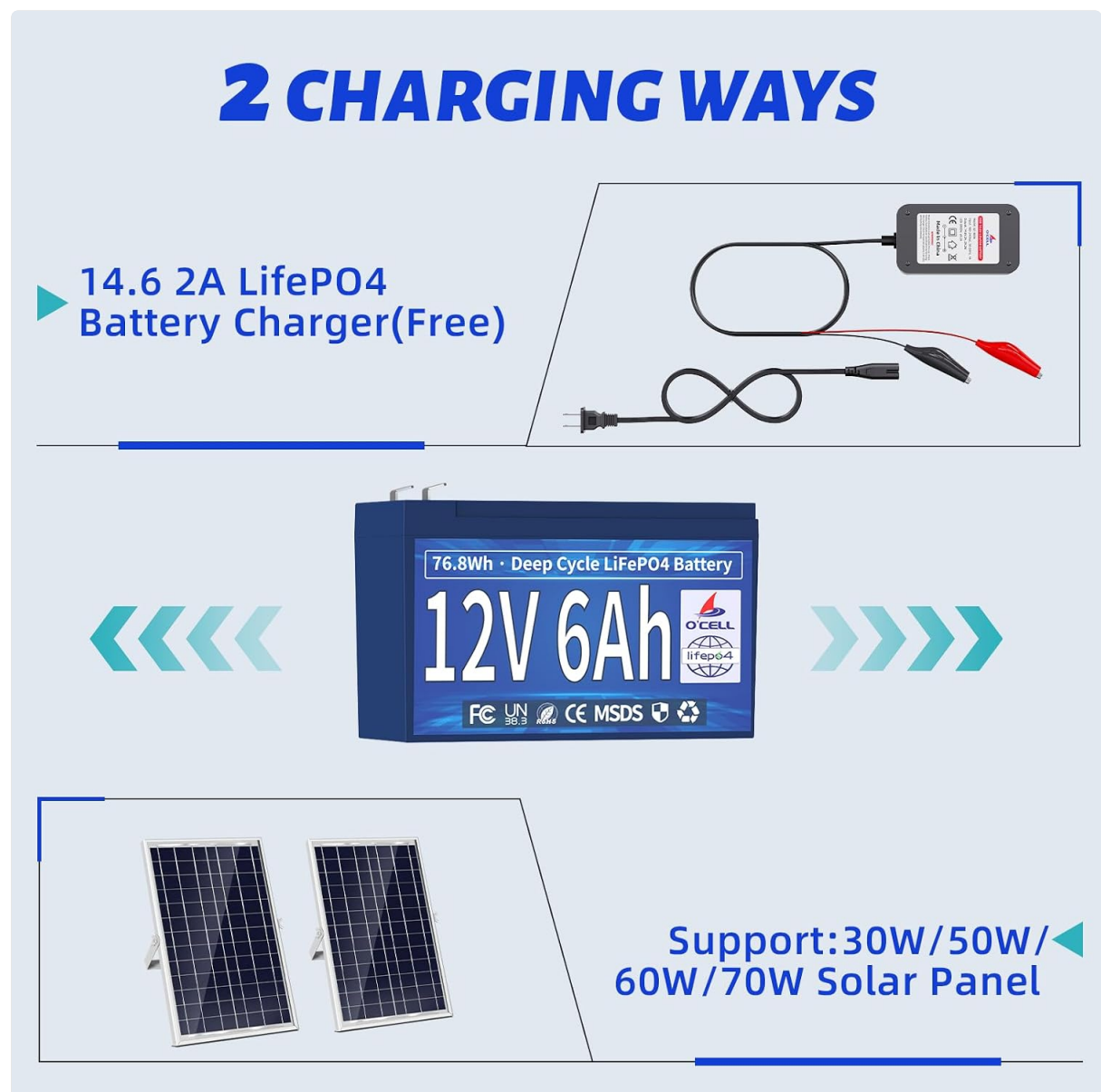


Image: Illustration of the two charging options: using the provided AC charger or connecting to solar panels.

5.2 Discharge Characteristics

The O'CELL LiFePO4 battery features a flat discharge curve, meaning it maintains a stable voltage above

12V for a significant portion of its discharge cycle. This ensures consistent power delivery to your devices.

5.3 Typical Applications

This battery is versatile and suitable for a wide range of applications, including but not limited to:

- Fish Finders
- Kids' Scooters/Ride-on Toys
- Solar Home Energy Storage Systems
- UPS Backups
- Digital/CCTV Cameras
- Portable TVs
- E-Robots
- 12V Routers
- Alarm Systems
- Outdoor Camping Equipment
- Emergency Lighting

Security Camera



Fishing Finder



Toy Car



Emergency Light



Gallon Sprayer



Image: Examples of common applications for the O'CELL LiFePO4 battery.

6. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your O'CELL LiFePO4 battery.

- **Regular Charging:** For optimal lifespan, avoid leaving the battery in a fully discharged state for extended periods. Charge it regularly, especially if stored.
- **Storage Temperature:** Store the battery in a cool, dry place within the recommended storage temperature range of -4°F to 140°F (-20°C to 60°C).
- **Avoid Extreme Temperatures:** Do not charge the battery below 32°F (0°C) or discharge it above 113°F (45°C) or below 32°F (0°C).
- **Cleaning:** Keep battery terminals clean and free from corrosion. Use a dry cloth to wipe the battery casing.

7. TROUBLESHOOTING

7.1 Low-Voltage Battery Recovery (0V Charging Mode)

If the battery has been left uncharged for a long time and enters a low-voltage state (0V cut-off protection by BMS), it may require a special recovery process. The included 14.6V 2A charger with silicone wire and insertion spring is designed to help 'wake up' such a battery.



LONG LASTING FOR 10-YEAR

With Grade A+++ cells and built-in Top BMS, enjoy 4000+ cycles for a 10-year lifespan.

10 Years Lifespan

5 Years Service

Image: The 0V charging mode, demonstrating how the dedicated charger can help recover a low-voltage battery.

7.2 Battery Not Charging

- Ensure the charger is properly connected to both the battery and a working power outlet.
- Check the battery temperature. If it's below 32°F (0°C), move the battery to a warmer environment before attempting to charge.
- Verify that the charger is specifically designed for LiFePO4 batteries and matches the voltage requirements (14.6V).

7.3 Battery Not Providing Power

- Check all connections for proper contact and polarity.
- Ensure the battery is sufficiently charged.
- Verify that the device connected to the battery is functioning correctly and within the battery's discharge current limits.

8. SPECIFICATIONS

Feature	Specification
Rated Capacity	6 Ah
Rated Voltage	12.8 V
Voltage Range	10 - 14.6 V
Maximum Continuous Charging Current	6 A
Maximum Continuous Discharging Current	7 A
Charging Voltage	14.6 V
Dimensions (LxWxH)	5.9" x 2.6" x 3.7"
Weight	1.95 lbs
Operation Temperature Range	32°F ~ 113°F (0°C ~ 45°C)
Storage Temperature Range	-4°F ~ 140°F (-20°C ~ 60°C)
LiFePO4 Charger	14.6V 2A Charger (Included)
Model Number	IFM12-60E2

9. WARRANTY AND SUPPORT

9.1 Warranty Information

O'CELL provides a **three-year warranty** on this product from its date of purchase by the user. This warranty covers defects in materials and workmanship under normal use.

9.2 Customer Support

For technical assistance, warranty claims, or any questions regarding your O'CELL LiFePO4 battery, please contact O'CELL customer support through your retailer or the official O'CELL website.

