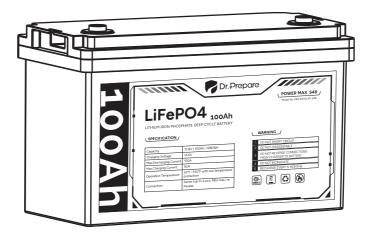


# 12V 100Ah Lithium Iron Phosphate (LiFePO4) Battery

Model: DBT12100LFP-S48



This user manual provides an overview of the unit's features, important safety instructions, and limited warranty information. Please read it carefully before use and keep it for future reference.

Still need help? Feel free to send us an email at <a href="mailto:support@drprepare.com">support@drprepare.com</a>

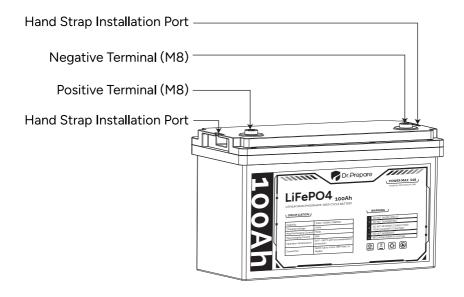


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# **PRODUCT OVERVIEW**

Dr.Prepare 12V 100Ah LiFePO4 Battery is designed to provide dependable, long-lasting power for a wide range of applications. Whether you're exploring the outdoors, powering your RV or vehicle, setting up an off-grid system, or preparing for emergencies, this battery offers the performance and reliability you need.



#### **PACKAGE LIST**

- 1 x 12V 100Ah Lithium Iron Phosphate (LiFePO4) Battery
- 1x User Manual
- 2 x M8 \* 14mm Bolts

# **SPECIFICATIONS**

General		
Rated capaity	100Ah (1,280Wh)	
Rated voltage	12.8V	
Max. charge voltage	14.6V	
Max. continuous discharge current	100A	
Charging current	Optimal: 20A; Maximum: 50A	
Charging voltage	For 12V system: 14.2V ~ 14.6V 24V system: 28.4V ~ 29.2V 36V system: 42.6V ~ 43.8V 48V system: 56.8V ~58.4V	
Discharge cut-off voltage	9.2V	
Over-discharge recovery voltage	11V	
Cycle lifespan	3,000 cycles at 80% DOD	
Protection rating	IP65	
Terminal bolt size	M8 * 14 mm	
Recommended terminal torque	16 - 25 N·m	
Dimensions (L x H x W)	13.07 x 8.66 x 6.77 in/332 x 220 x 172 mm Compatible with Group 31 battery box	
Net weight	22 lbs / 10 kg	

Operation Temperature Parameters			
Charge temperature range	32°F~113°F / 0°C~45°C		
Discharge temperature range	14°	F~113°F / -10°C~45°C	
Low temperature protection		arging: 23°F~41°F / -5°C~5°C charging: -13°F~5°F / -25°C~-15°C	
High temperature protection	Charging: 140°F~158°F / 60°C~70°C Discharging: 158°F~176°F / 70°C~80°C		
Ideal storage conditions	59°F~86°F / 15°C~30°C, 55 - 75% RH		
Connection Options and Limits			
In parallel		Up to 4 batteries	
In series		Up to 4 batteries	
In parallel and series		Up to 16 batteries	
Controller Setting (for reference)			
System voltage		12V (x N*)	
Boost charge voltage		14.2V (x N*)	
Over-discharge voltage		11.1V (x N*)	
Over-discharge recover voltage		12.6V (x N*)	

(x  $N^*$ ): 'N' represents the number of batteries connected in series. The voltage setting should be multiplied by the number of series-connected batteries.

For example:

For a 24V battery system, N is 2.

For a 36V battery system, N is 3.

For a 48V battery system, N is 4.

# **INSTALLATION & CONNECTION**

To ensure safe and optimal performance of your LiFePO4 battery system, please follow the instructions below when installing and connecting multiple batteries in series or parallel.

# **⚠** Before You Begin

- Make sure you are familiar with basic battery safety practices.
- Disconnect all loads and chargers before wiring batteries.
- Use insulated tools to avoid accidental short circuits.
- Wear appropriate personal protective equipment.

#### 1. Battery Compatibility Requirements

When connecting batteries together, all batteries must:

- Be the same brand, model, voltage, capacity, and BMS.
- Be purchased at the same time, ideally from the same retailer.

Using mismatched batteries may cause imbalance, overheating, reduced lifespan, or damage not covered by warranty.

# 2. Pre-Charge Preparation

- Individually charge each battery to 100% using a charger specifically designed for LiFePO4 batteries before connecting them.
- This ensures voltage consistency and balance between batteries.

# 3. Voltage Matching

- Use a voltmeter to check the voltage of each battery.
- Ensure that the voltage difference between batteries is less than 0.1V before connection. This prevents unbalanced charging and discharging.

# 4. Cable Consistency

- Use interconnect cables of the same wire gauge (AWG), same length, and same brand.
- Inconsistent cables can lead to uneven power flow and reduce battery efficiency.

#### 5. Connection Limits

- Series Connection: Up to 4 batteries (e.g., 4 × 12V = 48V system)
- Parallel Connection: Up to 4 batteries of the same voltage

**Note:** Do not exceed the manufacturer's series or parallel connection limits. Refer to the product datasheet for confirmation.

#### 6. Secure Connections

- Tighten all terminal connections to the recommended torque (refer to the torque spec in this manual).
- Loose terminals can cause overheating, arcing, or even fire.

#### 7. Additional Safety Recommendations

- For series connections, do not include any battery that has already been cycled more than 50 times.
- Install a circuit breaker or fuse (60A–100A) between the battery system and your devices to protect against overcurrent.
- Ensure your system is equipped with appropriate BMS protections and, if needed, pre-charge circuits to prevent inrush current damage.

# **HOW TO SIZE CONNECTION CABLES**

Proper cable sizing is essential to ensure safety, minimize voltage drop, and maximize system performance. Before choosing the cable gauge (AWG), consider the following key factors:

# **Key Factors Before Selecting Cables**

#### 1. Electrical Load (Current Draw):

Determine how many amps your devices or inverter will draw at full power. This is the minimum current your cables need to support.

# 2. Cable Length:

Longer cables cause more voltage drop. If your cable run exceeds 10 feet (3 meters), consider upsizing the cable to reduce energy loss and heat buildup.

#### 3. System Voltage:

Higher-voltage systems (e.g., 24V or 48V) can use thinner cables for the same power, while 12V systems require much thicker cables to carry the same current.

#### 4. Allowable Voltage Drop:

For most DC systems, aim for a voltage drop of less than 3%. For sensitive electronics, <2% is recommended. Voltage drop calculators are available online.

#### 5. Environment & Safety Margins:

If the cables will be installed in hot environments or enclosed spaces, use heavier gauge wire. Always include a safety buffer—choose cables that can handle 125% of the expected continuous current.

- **Tip:** It's better to oversize your cables than risk overheating or underperformance due to undersized wire.
- Once you've considered the factors above, refer to the following charts for typical wire sizing recommendations:

# Cables from Controller to Battery (Typical for Solar Systems)

This chart is suitable for 12V/24V systems using PWM or MPPT solar charge controllers.

Solar Input Current	5A	10A	20A	30A	40A	60A
Wire Size (mm²)	1.5	2.5	5	8	10	12
Wire AWG	15	13	10	8	7	6



Note: For 36V or 48V systems, current is lower for the same power level, so smaller wire may be acceptable. However, always verify based on your system's current draw and distance.

# **Cables Between Battery and Inverter**

The table below shows maximum ampacity under short-run, ideal conditions. Use this as a general guide, and adjust based on your specific setup (especially for 12V systems):

Cable Gauge (AWG)	Copper Diameter (inch)	Maximum Current (Ideal Conditions)
6 AWG	0.20	115
4 AWG	0.23	150
2 AWG	0.30	205
1/0 AWG	0.37	285
2/0 AWG	0.43	325
4/0 AWG	0.56	440



⚠ Important: These values assume cable runs under 5 feet. For longer cables or high-powered inverters, use thicker cables to reduce voltage drop and overheating risk.

### Inverter Sizing Reference Table (Up to 5 ft Cable Run)

Inverter Power (W)	System Voltage	Est. Amps	Suggested Cable Gauge
1000W	12V	~ 83A	2 AWG
1500W	12V	~ 125A	1/0 AWG
2000W	12V	~ 167A	2/0 AWG
3000W	12V	~ 250A	4/0 AWG
2000W	24V	~ 83A	2 AWG
3000W	48V	~ 62.5A	4 AWG

# Example:

Scenario: A user installs a 12V 2000W inverter connected to a 12V LiFePO4 battery bank.

Current Draw: 2000W / 12V  $\approx$  167A

Recommended Cable: While 2 AWG is technically rated up to 205A, it's safer to use 2/0 AWG due to high draw, potential cable length, and startup surges.

#### **HOW TO USE THE BATTERY**

#### **Charging the Battery**

Your battery may arrive partially charged due to shipping and storage. For best performance and longevity, fully charge the battery before first use.

#### 1. Use a Compatible Charger

- Compatible charging methods include: solar charge controllers, lithium iron phosphate (LiFePO4)-compatible AC chargers, and DC-DC chargers.
- If using a solar controller/DC-DC charger, set the battery type to "Li" or LiFePO4.

#### 2. Set Proper Charging Voltage

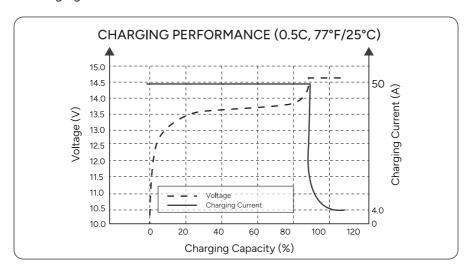
• Charge voltage (bulk/boost): 14.4V ± 0.2V

#### 3. Optimal Charging Current

- Ideal charging current: 20A
- Maximum continuous charging current: 50A (Do not exceed)

# 4. Charging Temperature Range

- Recommended temperature: 32°F to 113°F (0°C to 45°C)
- Charging outside this range may activate temperature protection and stop charging.



#### **Important Charging Tips**

- Avoid immediately charging at high current after deep discharge. For example, if the battery was discharged at 100A, do not start charging right away at 50A to prevent overheating and trigger of protection modes.
- Always check charger compatibility with LiFePO4 chemistry to prevent battery damage.
- Never exceed the maximum charge current of 50A.

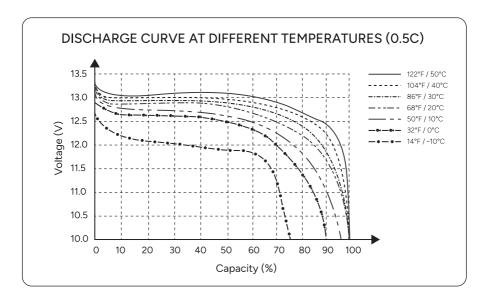
#### **Discharging the Battery**

#### 1. Maximum Discharge Current

- Maximum continuous discharge current: 100A
- Cutoff voltage: 9.2V (Do not discharge below this voltage)

### 2. Discharging Temperature Range

- Recommended temperature: 14°F to 113°F (-10°C to 45°C)
- Operating outside this range may cause protection systems to activate.



#### Connecting the Battery to an Inverter (Powering Appliances)

Understanding your battery bank's power capacity and inverter sizing is critical for safe and efficient operation.

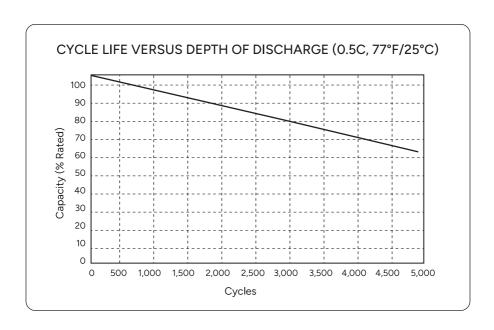
Connection Type	Number of Batteries	Battery Bank Voltage	Rated Power Capacity
	2	12V (12.8V)	2.56 kW
Parallel	3	12V (12.8V)	3.84 kW
	4	12V (12.8V)	5.12 kW
	2	24V (25.6V)	2.56 kW
Series	3	36V (38.4V)	3.84 kW
	4	48V (51.2V)	5.12 kW

### **Notes on Inverter & Appliance Power**

- $\bullet$  The maximum rated power of a single 12V 100Ah battery is 1,280W (12.8V  $\times$  100Ah).
- When multiple batteries are connected in series or parallel, power capacity increases proportionally.
- Choose an inverter with 1.5 to 2 times the power rating of your highest-demand appliance to accommodate surge power.
- Appliances with AC motors (air conditioners, water pumps) often require 2× their rated power at startup.
- Some appliances may have peak power needs up to 3× their rated power check appliance specs carefully.

# **Important Discharging Tips**

- Avoid connecting large loads when battery capacity is low.
- Do not exceed the battery's maximum continuous discharge current of 100A to prevent damage.



# **TROUBLESHOOTING**

If you experience any issues with your battery, the table below can help you identify and resolve common problems.

Still need help? Contact our support team at support@drprepare.com.

**Issue 1: Battery Cannot Be Charged** 

Possible Cause	Solution
1. Loose connection	Check all cable connections. Ensure they are properly tightened and secure.
2. Incompatible charger	<ol> <li>Use a charger specifically designed for LiFePO4 batteries.</li> <li>Set charge voltage between 14.0V – 14.6V.</li> <li>Recommended charging current: 20A, maximum: 50A.</li> </ol>
3. Temperature out of range	Charging is only allowed between 32°F ~ 113°F (0°C ~ 45°C). If the temperature is outside this range, wait until it returns to normal.
4. Low voltage protection	If the battery voltage drops below 10V, it enters low voltage protection:  1) Disconnect all wiring.
	<ul><li>2) Use a LiFePO4-compatible charger or solar controller with activation function.</li><li>3) Charge above 41°F (5°C) until voltage rises above 11V.</li></ul>

Issue 2: Battery Cannot Be Fully Charged

Possible Cause	Solution
Charging current is     too low	Charging will take much longer with a very low current. Use a charger that provides at least 5A or more for optimal performance.
Battery is powering loads while charging	Disconnect all connected appliances or devices during charging. If the load draws more current than the charger can supply, the battery will not fully charge.

**Issue 3: No Power Output from Battery** 

Possible Cause	Solution
1. Battery is fully discharged	Recharge the battery using a compatible charger. Ensure the charger is functioning correctly.
2. Loose or poor cable connections	Inspect all wiring. Make sure cables are tight and free from corrosion. Re-seat or replace if needed.
3. Dirty or corroded terminals	Clean the battery terminals with a dry, non-metallic cloth. Avoid using water or chemicals.
4. Battery specs don't match device	Check that the battery voltage and wattage are compatible with your appliance. Refer to both device and battery manuals.
5. Battery is in BMS protection mode	Disconnect the battery from all devices and let it rest for a few minutes. Then measure voltage: it should be between 10V – 14.2V before reconnecting.
6. Device malfunction	Test the battery with a different device to rule out issues with the connected appliance.
7. Battery is faulty	If the battery is old or shows no voltage output, test with a multimeter. If defective, replacement may be necessary.

# **IMPORTANT SAFETY GUIDELINES**

To ensure the safe and optimal use of your LiFePO4 battery, please carefully follow these guidelines during installation, operation, transportation, and disposal.



Improper use may result in battery malfunction and may void your warranty.

# **Installation Safety**

- Do not install the battery in areas prone to flooding or excessive moisture.
- Never short-circuit the battery terminals.

- Double-check polarity before connecting do not reverse the positive and negative terminals.
- Keep the battery away from open flames, heaters, or any source of extreme heat.
- Do not drop, crush, strike, or puncture the battery.
- Always secure the battery firmly to avoid movement or vibration during use, especially in mobile or vehicle installations.
- Avoid installing the battery in sealed or poorly ventilated spaces.

# **Operation Safety**

- Only use chargers certified and compatible with lithium iron phosphate (LiFe-PO4) batteries.
- Do not attempt to open, disassemble, repair, tamper with, or modify the battery in any way.
- Before connecting or disconnecting the battery, turn off all loads and power sources.
- Do not insert any foreign objects into the battery terminals.
- Keep all wiring cables under 15.4 feet (5 meters) to minimize voltage drop and maintain system performance.
- Do not allow the battery to over-discharge. If the battery level drops below 10%, recharge it immediately.
- Avoid using the battery if it shows signs of swelling, leakage, or unusual odor
   contact support immediately.

#### **Application Usage**

#### • Suitable Applications

This battery is designed for low to moderate continuous power systems that require stable energy storage and delivery. Typical use cases include:

- ✓ RVs and camper vans (house battery)
- ✓ Off-grid solar systems (cabins, home backup, sheds)
- Marine applications (trolling motor, lighting, appliances)
- Portable power stations
- ✓ Home energy storage (when used with compatible inverters)
- ✓ LED lighting systems and DC appliances

#### Not Suitable For

This battery is not designed for applications with high starting currents or surges, such as:

- X Engine cranking (car, boat)
- X Golf carts
- X Power tools or welders
- X Subwoofers or high-wattage car audio
- X Life-support or medical equipment
- UPS systems without pre-charge or surge protection
- When using the battery with a trolling motor, install a 60A-100A circuit breaker to prevent damage from sudden current surges. An over-current protection device (circuit breaker or fuse) must be used. Coast Guard requirements dictate that each ungrounded current-carrying conductor must be protected by a manually reset, trip-free circuit breaker or fuse. The type (voltage and current rating) of the fuse or circuit breaker must be sized accordingly to the trolling motor used.
- Do not submerge the battery in water or expose it to direct rain.
- Keep the battery out of reach of children and pets.

#### **Transport Safety**

- Comply with local, national, and international transport regulations for lithium batteries when shipping.
- Always transport the battery in its original packaging or equivalent protective container.
- Ensure the terminals are covered and protected against short circuits during transport.
- Do not transport damaged, leaking, or swollen batteries.

#### **Disposal & Recycling**

- Do not dispose of the battery in household trash or incinerate.
- Follow local regulations for battery recycling or hazardous waste disposal.
- Recycle through certified battery recycling programs or return to a licensed electronics or battery disposal center.
- Contact your local waste management authority for detailed disposal instructions.

#### **MAINTENANCE AND STORAGE**

### Cleaning

To maintain optimal battery performance and longevity, follow these cleaning steps:

- Disconnect the battery from the system before cleaning.
- Remove any leaves, dust, or debris around the battery.
- Wipe the battery casing with a soft, lint-free cloth.
- For heavier dirt, use a cloth slightly dampened with water or a mild soap solution.
- Dry the battery completely with a clean, dry cloth before reconnecting.
- Keep the battery surroundings clean and well-ventilated.

#### Storage

Follow these storage guidelines to prevent performance degradation and extend battery life:

- Partially charge the battery to 50% 70% State of Charge (SOC) before storage. Avoid storing the battery at 100% for extended periods, as it can accelerate capacity loss.
- Disconnect the battery completely from the system. Some systems may have parasitic loads that drain the battery even when not in use.
- Store the battery in a dry, well-ventilated location, away from direct sunlight, moisture, and corrosive substances.
- Ideal storage temperature: 59°F to 86°F (15°C to 30°C). Avoid storing in freezing or high-heat environments.
- Handle with care; avoid dropping, puncturing, or applying heavy pressure to the battery housing.
- If storing for more than 3 months, check the battery every 3~6 months. Recharge if SOC drops below 30% to prevent over-discharge.
- Fully recharge the battery before bringing it back into service.

# **Long-Term Storage Tips**

- For storage beyond 6 months, consider checking voltage more frequently to prevent deep discharge.
- Label the last charge date on the battery for easy maintenance tracking.
- Avoid stacking or compressing batteries during storage, especially if they're not in a rigid protective enclosure.

#### **BATTERY CARE TIPS**

To extend the lifespan and maintain the optimal performance of your LiFePO4 battery, please follow the care tips below. Improper use may reduce the battery's cycle life or cause damage not covered by warranty.

#### What to Avoid

#### 1. Overcharging or Undercharging

- Do not charge above the recommended voltage (14.2V-14.6V for 12V batteries).
- Avoid consistently undercharging (below 13.2V) as it can cause long-term capacity loss.
- Always use a compatible LiFePO4 charger.

#### 2. Storing the Battery with Low Charge

- Do not store the battery for long periods at a low state of charge (SOC).
- Before storing, charge to 50–70% SOC. Never store the battery when it's empty.

# 3. Storing in Extreme Temperatures

- Avoid storing the battery in temperatures below 32°F (0°C) or above 113°F (45°C).
- Extreme heat or cold can damage internal components and shorten lifespan.

# 4. High-Current Charging or Discharging for Long Periods

- Regularly operating at maximum charge or discharge current can cause faster wear.
- For daily use, keep charging/discharging current within 60-80% of the battery's rated maximum.

# 5. Physical Damage

- Do not drop, crush, puncture, or improperly mount the battery.
- Always install the battery in a secure and protected location.

### 6. Ignoring BMS Protections

- If the battery shuts off due to high/low temperature, overcurrent, or over-discharge, allow it to recover under safe conditions.
- Do not attempt to bypass the Battery Management System (BMS).

#### 7. Frequent Deep Discharges

- Repeatedly discharging the battery below 10% SOC (approx. 11.8V) reduces cycle life.
- Recharge before the battery drops below 20% SOC when possible.

#### 8. Leaving Loads Connected During Storage

- Some devices draw power even in standby mode, slowly draining the battery.
- Always disconnect the battery from the system for long-term storage.

# **LIMITED WARRANTY TERMS AND CONDITIONS**

Note: The warranty information in this manual is a summary.

For the complete Dr. Prepare Limited Warranty for Batteries, please visit:

# G | drprepare.com/pages/downloads

- The full warranty document provides detailed information on eligibility, exclusions, coverage limits, and claim procedures.
- Dr.Prepare ("we" or "the Warrantor") warrants that this battery product will be free from defects in materials and workmanship under normal use and in accordance with the instructions provided in this manual.
- This limited warranty is valid for the original purchaser and becomes effective on the date of original retail purchase.

#### **Warranty Coverage Period**

Warranty Duration: 10 Years

This warranty covers eligible defects in materials and workmanship for ten (10) years from the original date of purchase.

### Important Notes:

- This warranty only applies when the battery is used as intended and maintained according to the user manual.
- It does not cover damage caused by:
  - Misuse, negligence, or improper installation
  - Unauthorized modifications or repairs
  - Accidents, abuse, or external forces (e.g., water, fire, overvoltage)
- The warranty period will not reset or extend if the product is repaired or replaced.
- Dr. Prepare reserves the right to revise or discontinue this warranty policy at any time. Any updates will be published on our official website. In general, changes will apply only to future purchases. However, under certain conditions (e.g., for legal compliance or safety reasons), updated terms may also apply to previously purchased products, as allowed by law.

# **Conditions That Void Warranty Eligibility**

# Prohibited use in life-critical or high-risk applications:

Without the involvement of the Warrantor in the system design and express written authorization from the Warrantor, the battery is not intended for use as a primary or backup power source for life support systems, medical equipment, or any application where battery failure could lead to injury, loss of life, or catastrophic property damage.

Use in this manner is at the Purchaser's own risk. To the extent permitted by law, the Warrantor disclaims any and all liability arising from such use. Furthermore, the Warrantor reserves the right to refuse service for any battery used in these applications and disclaims any liability arising from such refusal

#### The warranty does not cover failures or damages resulting from:

- normal wear and tear (including capacity attenuation due to use);
- · improper installation, operation, or storage;
- · insufficient ventilation;
- · inadequate maintenance;
- incorrect handling or transportation;
- unauthorized repairs, modifications, conversions, or additions;
- intentional or accidental misuse, abuse, or neglect;
- contamination with hazardous substances;
- exposure to radiation and water (unless otherwise stated by the Warrantor as waterproof);
- unusual electrical stress, including power surges, uncontrolled voltages and currents, excessive or deficient energy supply, system harmonics, and lightning;
- · exposure to extreme temperatures;
- or force majeure events, including fires, floods, earthquakes, hurricanes, severe weather, wars, and acts of terrorism.

For further clarity, the warranty will be void under any of the following conditions.

To maintain warranty coverage, please avoid the following improper practices and refer to the recommended best practices.

# A. Installation & Electrical Configuration Issues

- 1. Mixing Different Brands, Models, or Incorrect Series/Parallel Configuration
  - Recommended Practice:
  - All batteries must be identical in brand, model, type, voltage, capacity, and BMS. Ideally, purchase and install batteries at the same time.
  - Charge each battery fully before connecting them together.

- 2. Failing to Tighten Battery Terminals to the Specified Torque
  - Recommended Practice:
  - Tighten terminals to a torque of 16–25 N·m as specified in the user manual.
  - Loose terminals may cause overheating, arcing, or melted terminals.
- 3. Failing to Use Proper Protection Devices in High-Current Applications (e.g., Trolling Motors, Boats, RVs, Marine, or Direct DC Motor Use)
  - Recommended Practice:
  - Always use appropriate over-current protection devices such as manual reset circuit breakers or fuses - as required by safety standards (e.g., Coast Guard regulations for marine systems). Ensure the fuse or breaker matches the system's voltage and current.
  - For direct DC motor applications, never connect the battery without using a compatible motor controller and voltage clamping system. This prevents inrush current that could damage both the battery and the motor.
  - Over-current protection is also strongly recommended for RV, cabin, and home backup systems to ensure safe operation.
- 4. Operating the Battery Outside the Specified Temperature Range
  - Recommended Practice:
  - $\bullet\,$  Optimal operating temperature: 68°F to 86°F (20°C to 30°C).
  - For batteries with low/high temperature cutoff, refer to the datasheet for specific limits. If the battery stops charging or discharging due to extreme temperatures, move it to a moderate environment and allow the temperature to return to normal before using again.
  - For batteries without cutoff protection: strictly follow allowable range in datasheet.
- 5. Using an Incorrect Charger or Charging Settings
  - Recommended Practice:
  - Always use a charger specifically designed for lithium iron phosphate (LiFe-PO4) batteries.

- Select a charger that matches your battery system voltage:
- For 12V (12.8V) systems, use a 14.6V AC-to-DC charger
- For 24V (25.6V) systems, use a 29.2V AC-to-DC charger
- We strongly recommend using a Dr.Prepare LiFePO4 charger to ensure full compatibility and optimal performance.
- Do not use chargers designed for:
- Lithium-ion or lithium polymer batteries
- Sealed Lead-Acid (SLA) batteries
- Generic chargers like ordinary NOCO battery chargers
- Always check that the charger's voltage and current settings match those specified in your battery's user manual or datasheet.

#### ∧ Note:

LiFePO4 batteries are a specific subtype of lithium batteries and require unique charging parameters. Charging with the wrong algorithm can damage the battery or trigger fault protection.

# **Example of a Non-Warranty Case:**

A customer uses a general-purpose lithium battery charger. The charger shows a red fault light and fails to charge the battery properly.

Result: This is considered user misuse and is not covered under warranty. Always confirm that the charger is compatible with LiFePO4 battery before use.

# B. Improper or Prohibited Usage

- 6. Using the Battery in Prohibited Applications
  - Recommended Practice: Do not use this battery in applications that require high starting currents, surge loads, or specialized performance conditions not supported by LiFePO4 technology.
  - Prohibited Uses Include:

- Car starting (engine ignition)
- Boat cranking
- Golf carts
- Lawn mowers
- UPS systems without pre-charge or surge protection
- Inverter-based welding machines
- High-powered audio systems (e.g., car subwoofers with high startup draw)
- Power tools with high startup torque (e.g., grinders, chainsaws)
- DC motors without soft-start or inrush current protection
- Off-grid solar systems with improperly sized inverters or controllers
- Medical devices or life-support systems

Reason: These applications require high instantaneous current or extremely stable voltage, which LiFePO4 batteries are not designed to provide without additional system protection. Using the battery in these ways may result in overcurrent damage, voltage collapse, BMS failure, or permanent cell degradation. This type of misuse is not covered under warranty.

# **Example of Non-Warranty Scenario:**

A customer installs four 12V 100Ah LiFePO4 batteries in a riding lawn mower, converting it from lead-acid. The mower works twice but loses power during the second run. Three batteries read 13.3V, one drops to 9.1V.

Result: The load exceeded safe discharge limits, causing cell imbalance and failure. Warranty voided due to misuse.

- 7. Disassembling, Modifying, or Repairing the Battery Without Authorization
  - Recommended Practice:

Do not open, alter, or repair the battery unless explicitly authorized by Dr.Prepare in writing.

- 8. Damaging or Modifying the Communication Ports
  - Recommended Practice:

Do not tamper with communication ports. Always follow manual instructions for connections.

- 9. Exposing the Battery to Excessive Vibration or Shock
  - Recommended Practice:
  - Do not drop the battery.
  - Secure it properly in mobile environments (vehicles, boats, etc.)
- 10. Leaving the Battery Uncharged for Long Periods After Full Depletion
  - Recommended Practice:
  - Recharge the battery immediately when the capacity drops to 10%.
  - For long-term storage: 1) Charge the battery to approximately 50% before storage. 2) Recharge it at least once every 3 to 6 months. 3) Disconnect the battery from the system during storage. 4) Store in a well-ventilated, dry area. 5) Optimal storage conditions: 59°F~86°F (15°C~30°C), 55 75% RH.

### Why It Matters:

Allowing the battery to remain in a fully discharged state for an extended period can lead to over-discharge, which causes irreversible damage to the internal cells, significantly shortens the battery lifespan, and may render the battery unrecoverable or unsafe to use. This kind of damage is not due to defects in materials or workmanship, but rather improper maintenance.

# **Example of Non-Warranty Scenario:**

A customer discharges the battery to a low capacity level, does not recharge it, and leaves it unused for several months. When they attempt to use it again, the battery is no longer functional due to deep discharge damage.

Result: This type of damage is not covered under warranty. Please follow the recommended storage guidelines.

- 11. Improper Maintenance or Storage That Doesn't Follow Guidelines
  - Recommended Practice:

Refer to and follow all maintenance/storage instructions in the user manual and datasheet.

#### D. Performance Misunderstandings (Not Warranty-Eligible)

#### 12. Experiencing Reduced Runtime in Cold Weather

- Recommended Practice:
- Be aware that LiFePO4 battery performance (especially discharge capacity and runtime) naturally decreases in low temperatures due to chemical limitations.
- Plan for shorter runtime in winter and adjust your system usage accordingly.
- If operating in cold conditions, consider using battery insulation or a heating solution if continuous runtime is critical.
- Always refer to the datasheet for the recommended operating temperature range.

#### **Example of Non-Warranty Scenario:**

A customer purchases a battery to power a lighting system, which operates for about 12 hours during the summer. However, in winter, the runtime shortens noticeably. The customer is concerned that the battery is faulty.

Result: This is normal behavior, not a defect.

If Dr.Prepare determines the issue is not due to a manufacturing defect, the purchaser will bear all related costs (diagnosis, repair, replacement, transport, etc.). The warranty does not cover removal, reinstallation, testing, downtime, or indirect damages.

# How to Submit a Warranty Claim

To file a warranty claim, the Purchaser must contact the Warrantor (Email: support@drprepare.com) in writing and provide the following documentation:

- A copy of the original purchase invoice or receipt
- A detailed description of the defect or performance issue
- Clear photos or videos showing the issue
- Your contact information, including email address, phone number, and shipping address

The Warrantor will not accept any product return without prior written authorization.



All returns must be pre-approved by the Warrantor. Unauthorized returns will not be accepted, and the Warrantor is not responsible for any shipping costs, loss, or damage associated with such returns. Returns sent without a valid RMA number or outside of the approved return window may be rejected and sent back at the Purchaser's expense.

After the claim is reviewed and accepted, the Warrantor will issue a Return Merchandise Authorization (RMA) number and provide return shipping instructions. The product must be returned within fifteen (15) days of receiving the RMA number. Any product returned without a valid RMA number may be rejected. All replaced parts become the property of the Warrantor upon shipment of the repaired or replacement product.

For valid warranty claims, if the Warrantor requests the return of the product, we will cover the cost and assume the risk of return shipping. Upon receipt of the returned product, we will make reasonable efforts to repair or replace it within thirty (30) days.

If the claim is determined to be invalid, the Purchaser will be responsible for all associated costs, including inspection, labor, repair, and return shipping, in accordance with Dr.Prepare's current service rates.

# Warranty Eligibility Based on Point of Purchase

We provide limited warranty service only for product(s) sold by Dr.Prepare or through authorized retailers and distributors. If you purchased your product(s) through other channels, please contact the seller directly for information about returns and warranty coverage.

#### **CUSTOMER SUPPORT**

If you encounter any issues or need assistance, please reach out to us with:

- a. Your purchase order number
- b. A detailed description of the defect or performance issue
- c. Clear photos or videos showing the issue
- d. An email to support@drprepare.com
- e. Or scan the QR code below to submit a contact form (Please make sure to enter a valid, contactable email address)



#### **BRAND INFORMATION**

- Want to explore more products? Visit us at **drprepare.com**
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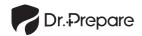


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