



## POWER UNIT

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# Operator's Manual

ELECTRIFY YOUR WORLD

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## Introduction

The Oso Power Unit is an electric motor that is powered using a Lithium Iron Phosphate battery.

Batteries are charged using the supplied Oso charger or charging station from a standard 120V plug.

Battery power is used to turn the motor shaft and power on-board computer.

**WARNING** To reduce the risk of injury, user must read and understand operator's manual.

**ADVERTENCIA** Para reducir el riesgo de lesiones, el usuario debe leer y entender el manual.

# Important Safety Instructions

## Warning

**Read all safety warnings, instructions, illustrations, and specifications provided with this power tool.** Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. **Save all warnings and instructions for future reference.** The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.



## WORK AREA SAFETY

- ➔ **Keep work area clean and well lit.** Cluttered or dark areas invite accidents.
- ➔ **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools could create sparks which may ignite dust or fumes.
- ➔ **Keep children and bystanders away while operating a power tool.** Distractions can cause you to lose control.



## ELECTRICAL SAFETY

- ➔ **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce risk of electric shock.
- ➔ **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
- ➔ **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- ➔ **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged or entangled cords increase the risk of electric shock.
- ➔ **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
- ➔ **If operating a power tool in a damp location is unavoidable, use a ground fault circuit interrupter (GFCI) protected supply.** Use of a GFCI reduces the risk of electric shock.



## PERSONAL SAFETY

- ➔ **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- ➔ **Use personal protective equipment. Always wear eye protection.** Protective equipment such as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.
- ➔ **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.
- ➔ **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- ➔ **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- ➔ **Dress properly. Do not wear loose clothing or jewelry. Keep your hair and clothing away from moving parts.** Loose clothes, jewelry or long hair can be caught in moving parts.
- ➔ **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.
- ➔ **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** A careless action can cause severe injury within a fraction of a second.



## POWER TOOL USE AND CARE

- ➔ **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
- ➔ **Do not use the power tool if the switch does not turn it on and off.** Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- ➔ **Disconnect the plug from the power source and/ or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** Such preventive safety measures reduce the risk of starting the power tool accidentally.

- ➔ **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
- ➔ **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
- ➔ **Use the power tool, accessories, and tool bits, etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.
- ➔ **Keep handles and grasping surfaces dry, clean and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.
- ➔ **Do not use the equipment around fire or extreme heat environments.** Use of the power tool in extreme heat or fire can cause the tool to overheat and/or shut off.



## BATTERY TOOL USE AND CARE

- ➔ **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- ➔ **Use power tools only with specifically designated battery packs.** Use of any other battery packs may create a risk of injury and fire.
- ➔ **When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another.** Shorting the battery terminals together may cause burns or a fire.
- ➔ **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.** Liquid ejected from the battery may cause irritation or burns.
- ➔ **Do not use a battery pack or tool that is damaged or modified.** Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, explosion or risk of injury.
- ➔ **Do not expose a battery pack or tool to fire or excessive temperature.** Exposure to fire or temperature above 265°F (130°C) may cause explosion.
- ➔ **Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions.** Charging

improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.



## SERVICE

- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.
- **Never service damaged battery packs.** Service of battery packs should only be performed by the manufacturer or authorized service providers.



## SPECIFIC SAFETY RULES FOR POWER UNIT

### **⚠ DANGER**

- **When using electric power unit, basic safety precautions should always be followed to reduce the risk of serious injury or death. User must read, understand, and follow operator's manual and all labels on the equipment carefully. Be thoroughly familiar with the controls and the proper use of the equipment before use. Failure to observe all safety instructions could result in serious injury or death.**



### Preparation

#### **⚠ DANGER**

- **Do not operate the equipment unless it is functioning properly.** Check frequently for signs of wear or deterioration and replace as needed.
- **Keep bystanders away. Do not operate within 100' of children, bystanders, or animals.** Stop the equipment if anyone enters the area.
- **Keep children out of the area and under the watchful care of a responsible adult other than the operator.**
- **Be alert and turn the equipment off if a child enters the area.**
- **Never allow children to operate the machine.**
- **Use equipment only in daylight or in good artificial light.**
- **Do not expose to water or operate in wet conditions.** Do not use in rain.
- **Always wear eye protection.** Dress properly.



### Operation

#### **⚠ DANGER**

- **Keep hands and feet away from moving parts.**
- **Do not block any vents on unit.**
- **Equipment can get hot. Take care when touching hot surfaces and observe all warning labels.**
- **Always be sure of footing; keep a firm hold when moving equipment.**
- **Do not stare at LED lights.**



### Maintenance

- **Inspect the power unit frequently and for signs of wear or deterioration.**
- **Do not wash with a hose; avoid getting water on the equipment.**

- ➔ **Disconnect battery before maintaining, assembling, adjusting, cleaning, or when equipment not in use.**
- ➔ **Store equipment indoors.** When not in use, equipment should be stored in an indoor, dry, and locked-up place. Remove batteries for storage.
- ➔ **Always use common sense and be cautious when using equipment.** It is not possible to anticipate every situation that could result in a dangerous outcome. Do not use this equipment if you do not understand these operating instructions or you feel the work is beyond your capability.
- ➔ **Maintain labels and nameplates.** These carry important information. If unreadable or missing, contact Oso Electric Equipment for a free replacement.

**READ AND SAVE ALL INSTRUCTIONS FOR FUTURE USE.**

# Specifications



## Power Unit Specifications

- 2600W maximum power
- 48 VDC
- 50A maximum current



## Technical Specifications

- Power Unit
  - Battery – No Maintenance needed, Sealed LifePO4
  - Motor – Custom Brushless DC
  - Runtime – Dependent upon RPM and load
- Charger
  - Voltage – 120V 15A/20A AC
  - Charge time – Overnight
  - Cost/battery – 2KWh @ local electricity cost/KWh



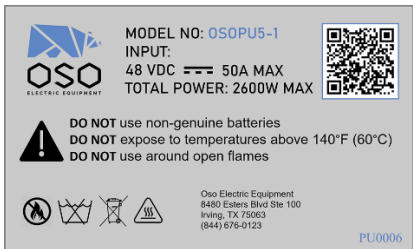





## Safety Features

- Current protection that detects and responds to excessive current draw to prevent damage to system and components.
- Temperature protection that continuously monitors the temperature of the unit and will temporarily shut down the unit in the case of overheating. Once the temperature returns to a safe level, press the speed selector to automatically resume operation.
- RPM protection that prevents the unit from operating beyond safe rotational speed limits.
- Low Battery SOC Warning that will trigger a warning when the battery charge drops below 10%.



# Understanding the Warning Stickers

	<ul style="list-style-type: none"> <li>Keep all vents clear of obstructions to prevent overheating and failure.</li> </ul>
	<ul style="list-style-type: none"> <li>Indicates the most essential warnings on the equipment.</li> <li>Do not submerge equipment in water or expose to wet conditions.</li> <li>Do not use equipment if there are signs of damage.</li> <li>Do not obstruct any vents or intakes.</li> <li>Extreme temperatures can reduce the runtime.</li> <li>Read and understand the Operator's Manual before using this equipment.</li> </ul>
	<ul style="list-style-type: none"> <li>Use only genuine batteries that are rated for use with the specifications indicated on this label.</li> <li>Do not expose to temperatures above 140 degrees F or 60 degrees C.</li> <li>Do not use equipment around open flames,</li> </ul>

	<ul style="list-style-type: none"> <li>▪ This label shows you what each LED indicator light means.</li> <li>▪ The first (top) light with the "!" symbol indicates the status of the equipment.</li> <li>▪ The second (middle) light indicates that the unit has a LTE/GPS connection to the network. This light may or may not be on. You can continue to use the equipment regardless of the status of this light.</li> <li>▪ The last (bottom) light indicates that the battery is low. Prepare to change batteries or recharge soon.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Areas of the equipment can get hot during use. Take special care when touching unit, as areas of the surface will be hot.</li> </ul>
	<ul style="list-style-type: none"> <li>▪ This label indicates the active RPM setting of the power unit.</li> <li>▪ The RPM setting from 1 to max are as follows: <ul style="list-style-type: none"> <li>○ 1: 1000 RPM</li> <li>○ 2: 1500 RPM</li> <li>○ 3: 1760 RPM</li> <li>○ 4: 2000 RPM</li> <li>○ MAX: varying RPM that maintains the 50 amp current limit under load</li> </ul> </li> </ul>

# Setup Guide

## Getting Started









1. Unpack all the contents and make sure they match the items included in your order.
2. Inspect all parts for any visible transportation damage.
3. Batteries are delivered between 80% to 100% charged.
4. To charge a battery, connect it to a battery charger. Confirm the charging status light is Red.
  - a. A Red light means the battery is being charged.
  - b. A Green light means the battery has been fully charged.
5. Once the battery shows 100%, place it in the Battery Holder Bay. Ensure the battery is placed in the proper orientation and that it fits in the holder. Connect the battery plug to the unit connector. Ensure you hear an audible click.
6. To turn on the Power Unit:
  - a. Turn the Main Switch to the "ON" position.
    - i. The Cooling Fan will start running immediately after the battery is plugged in and the Main Switch is turned ON. If you don't hear the Cooling Fan, please call Oso Customer Support or your Sales Representative.

### Warning

*Using the unit without the Cooling Fan running can cause the unit to overheat under some conditions. This could result in permanent damage to the electrical and electronic components*

- b. The Power Unit Status Light (top light, depending on the orientation of the lights on your model) should turn Green in less than 15 seconds. If this Status Light does not turn on, or it turns Red, please review the troubleshooting steps, or contact Oso Customer Support.
- c. Your power unit is ready to be used. Follow the Operation Instructions and Training while using.
- d. When finished, please turn the Main Switch back to the "OFF" position.


## General Safety Guidelines

-  This is a professional product capable of causing injury if improperly used or if the user fails to follow the instructions. Follow all safety instructions to avoid serious injury or death.
-  Read and follow the instructions and warnings in this Operator's Manual before using the equipment.
-  Do not put your hands or feet near moving parts. Do not operate the machine without all systems and components in place and functioning properly on the machine.
-  Keep bystanders and children out of the operating area. Do not allow children to operate the machine.
-  Allow only people to operate the machine who meet the following:
  - Understand the Operating Instructions
  - Fully trained and physically capable
  - Familiar with higher-power commercial equipment
-  If the equipment shows signs of damage, do not use the equipment.
-  To turn off the equipment, engage the Emergency Stop button by pressing it down.
-  For servicing, engage the Emergency Stop button by pressing it down and turn the main power switch to the "OFF" position. Ensure that all moving parts have stopped moving. Disconnect the battery.

# Basic Operation

1.

## Power Unit

- a. Make sure the power unit shaft and connecting equipment are aligned and that the power unit is properly secured both at the base and to the equipment.
- b. Place and secure the battery within range of the plug on the power unit and plug it into the unit, turn the main switch to the "ON" position.
- c. Wait for about 15 seconds while the power unit fully powers on. The LED light next to the  symbol on the lid will light up green when the unit is ready to use.
  - i. **Note:** *The shaft will not start until the unit has fully powered on and all internal systems have initialized. This is only needed when a battery is re-connected.*
- d. Speed Selector
  - i. Press the toggle switch up to increase the RPM and press down to decrease the RPM. The LEDs above the speed selector indicate the RPM setting 1-MAX; 1 being lowest RPM and MAX being highest.
- e. Self-Cooling System
  - i. If unit reaches excessive temperatures, the unit will automatically shut off while fans are running to bring down internal temperature. The unit can resume operation by pressing the speed selector once a safe temperature has been reached.
  - ii. If battery is plugged in and the unit reaches an excessive temperature, fans will automatically power on to cool the unit regardless of the power unit being on or off.
- f. If you see the power unit status lights all turn red at any time, please contact Oso Customer Support or your sales representative.

2.

## Charger

- a. Ensure the charger(s) are placed indoors, in a dry, flat area, and connected to a 120V grounded outlet with at least a 15A breaker. Consult with an electrician to understand how many dedicated amps you have available on your circuit when plugging in multiple chargers.

### Warning

*Do not charge the batteries inside living or working areas. Recommended areas include any covered area such as a garage or dedicated shop. We do not recommend charging the batteries outdoors. Do not charge the battery if there is any visible damage to the battery casing or the battery appears to be visibly swollen. Do not attempt to charge the batteries using any method other than the Oso Charging Station.*

- b. The chargers contain an internal GFCI (Ground-Fault Circuit Interrupter). If the battery charger lights do not come on once it is connected to the wall plug, make sure there is no visible water present in or around the charger. On the enclosed charger boxes, the GFCI will reset automatically once any issues are resolved. On the regular charging stations, there is a GFCI reset button on the side of the unit. Press this button to reset.
  - i. This is an electric charger, and as such, please take all basic safety precautions when dealing with electricity. There is a risk of electric shock or death. Make sure all components are dry and all wires do not have any signs of fraying or other damage.
- c. To charge the batteries, if using the enclosed charging station, insert them into any of the empty charger bays and connect each battery's plug to the connector from the charger. Close the lid to start charging. If using the next generation battery charging station, simply place the batteries within range of the charging cables and connect each battery's plug to the connector from the charger. If using the single-battery charger, simply connect the battery to the charger and plug the charger in.

### Tip:






*You can use the charger without having a battery connected to every port.*

- d. For the charging stations, the charging status light for each bay will turn Red when charging and Green when charging has been completed.
- e. Charging time varies based on the battery charge state when plugged in as well as other safety factors. To extend the usable life of the battery, plan each charging to take up to 10 hours.
- f. The Oso single-battery charger requires at least 2 amps from a 120V outlet. Multiple battery chargers can be plugged into the same circuit, but please consult with an electrician to understand how many dedicated amps are available in order to avoid tripping a breaker.



## Tips for a Better Experience



-  Allowing the power unit to idle for extended periods of time can result in a higher load on the unit, consuming battery power faster.
-  Always place the battery in the charger at the end of the day and ensure the charger is connected to a 120V plug and the status light is either red or green. Red indicates the battery is charging.
-  Charger is designed to be weather resistant, but please charge the batteries under a covered roof to avoid electrical hazards.
-  Do not charge batteries inside a residence, office, or any enclosed space where people could be living or working.
-  The Battery is heavy and weighs over 30 lbs. Use caution when lifting and transporting. Do not attempt to lift the battery if you have any condition that would prevent you from lifting heavy weights.

# Understanding the Indicator Lights



The equipment comes with three indicator lights, as well as lights that indicate the current speed selection. These lights are important to understand for the operation of the equipment.



## Status Light – (Top Light)

- ➡ Green – Indicates everything is normal and unit is ready to be used.
- ➡ Red – Indicates an error condition.



## Network Light – (Middle Light)

- ➡ Indicates that the unit is connected to the network

### Tip:

*This light will not always be on. That's ok. None of the Network Lights affect the performance of the equipment.*



## Battery Light – (Bottom Light)

- ➡ Indicates that the battery is low

## Proper Care and Maintenance



### Cleaning

- ➡ Clean the equipment after each use. Before performing any cleaning, make sure the battery is disconnected and all moving parts have stopped rotating. Blowing compressed air is the recommended cleaning method.
- ➡ Wipe clean the area with LED lights to ensure status visibility.
- ➡ Do not hose down the main housing and control panel with water.



### Storage

- ➡ Store the Power Unit, batteries, and charger in a dry, ventilated, and flat indoor space. Make sure it is properly secured.



## Maintenance

- ➔ Our equipment was designed for minimal maintenance.
- ➔ Follow cleaning steps detailed on the Proper Care and Maintenance section of this manual
- ➔ Before operating the equipment, ensure it is free from damage and that all controls move and function properly.
- ➔ Once a week, inspect there are no missing, broken, or bent parts.
- ➔ Once a week, inspect that all buttons on the control panel are functional and move normally.

## Disclaimer

- ☑ If the tamper proof seals on the equipment are tampered, all warranties will be voided.
- ☑ If there is visible damage to the unit and you continue to operate the equipment, all warranties will be voided.
- ☑ If you operate the equipment in wet conditions or extreme temperature conditions, all warranties will be voided.
- ☑ If you block any vents on the equipment resulting in overheating and damage, all warranties will be voided.
- ☑ If you do not read, understand, and follow all safety guidelines from the Operator's Manual, all warranties and injury claims will be voided.
- ☑ If you don't read this manual before operating the equipment, all warranties will be voided.
- ☑ California Proposition 65 Warning
  - ➡ The power cord on this product contains lead, a chemical known to the State of California to cause birth defects or other reproductive harm. Wash hands after handling.
  - ➡ Use of this product may cause exposure to chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm

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ELECTRIC EQUIPMENT

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