



User Manual

OzCharge[®] Lithium Batteries



IMPORTANT! PLEASE READ THIS MANUAL IN CONJUNCTION WITH THE PRODUCT DATA SHEET AND MATERIAL SAFETY DATA SHEET (AVAILABLE FROM OUR WEBSITE). THIS MANUAL CONTAINS IMPORTANT INSTRUCTIONS THAT SHOULD BE FOLLOWED DURING STORAGE, INSTALLATION, OPERATION AND MAINTENANCE OF OZCHARGE[®] LITHIUM BATTERIES. IT WILL HELP TO ACHIEVE THE HIGHEST PERFORMANCE FROM YOUR BATTERY AND EXTEND THE LIFESPAN OF YOUR PRODUCT.

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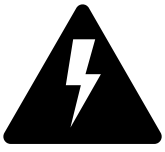
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PLEASE ENSURE YOU CHARGE THIS BATTERY BEFORE FIRST USE USING A COMPATIBLE LITHIUM LIFEPO4 BATTERY CHARGER.

DO NOT ATTEMPT TO CHARGE OR DISCHARGE THIS BATTERY OUTSIDE OF THE RATED CHARGING AND DISCHARGING VOLTAGE, CURRENT AND TEMPERATURE SPECIFICATIONS.

1. Safety First



There is a real risk of fire, explosion, gases or burning as a result of handling this product incorrectly. Failure to install or use the product according to the instructions in this manual may result in premature battery failure or cause electrical shock or fire damage to the battery, the surrounds, connected equipment or accessories and may cause personal injuries.

The OzCharge® Lithium battery range is designed with an integrated Battery Management System (BMS) to prevent internal damage to the battery under varying conditions. When the BMS activates, power can be abruptly cut off to connected equipment or accessories and this interruption of power may cause damage to these connected items or systems.

The installer must understand the automatic safety functions of the BMS and shall assume all responsibility and liability for any damages to the battery OR connected items and systems if these functions are not properly applied.

Only a competent person or a suitably qualified person should install this battery.

Safety When Handling

- ✓ Wear personal protective equipment such as eye protection, gloves, and protective footwear before handling.
- ✓ Use insulated tools when working on or with the battery. If you don't have insulated tools, we suggest you at least wrap the shafts of spanners or ratches with insulation tape to prevent shorting.
- ✓ Keep sparks and open flames away from the battery.
- ✓ Do not dispose of battery in household waste or incinerator.
- ✓ Keep an appropriate and updated first aid kit within reach.
- ✓ Avoid contact with any fluids that leak from the battery.



In Case of Fire

Do not douse or extinguish with water, use dry powder only. Only if it is safe to do so, place the battery in a safe, well vented location, away from anything combustible and allow it to consume itself and burn out.

Disclaimer

UNLESS SPECIFICALLY AGREED TO IN WRITING, ZYLUX ENERGY:

- MAKES NO WARRANTY AS TO THE ACCURACY, SUFFICIENCY OR SUITABILITY OF ANY TECHNICAL OR OTHER INFORMATION PROVIDED IN ITS MANUALS OR OTHER DOCUMENTATION.
- ASSUMES NO RESPONSIBILITY OR LIABILITY FOR LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL, WHICH MIGHT ARISE OUT OF THE USE OF SUCH INFORMATION. THE USE OF ANY SUCH INFORMATION WILL BE ENTIRELY AT THE USER'S RISK.

2. Precautions & Safety Warnings

Failure to follow these safety warnings and instructions contained within this manual and on the battery may result in personal and/or property injury, as well as reduced battery life or battery failure.

- Do not use this battery for starting or cranking applications.
- Do not install this battery under bonnet.
- Do not short circuit the battery terminals.
- Do not reverse polarity charge or discharge the battery or you will damage the battery.
- Do not connect this battery in series or parallel to batteries with different chemistries or older manufacture dates.
- Do not penetrate, puncture, impact or drop the battery.
- Do not use the battery in a location where static electricity and magnetic fields are high or you may damage the battery management system (BMS).
- Do not expose the battery to fire, sparks, high voltage (DC or AC).
- Do not exceed the operating temperatures in accordance with the technical specifications in this manual.
- NEVER charge the battery at or below Zero Degrees Celsius (0°C)
- Do not disassemble the battery or remove the case lid. Opening the case may cause electric shock or fire and will void your warranty.
- Check the datasheet for your battery to determine how many batteries can be joined in series or parallel.
- Do not submerge the battery in any kind of water.
- Do not store the battery at a voltage lower than 13.0V
- Do not overtighten the battery terminals. See battery label for correct tensions.
- To charge the battery, you must use a charger with a specific charging profile for lithium batteries. Your warranty may be reduced or voided if you use an unsuitable charger. Refer to the Data Sheet for your battery for specific charging information.
- Never charge your battery directly from an alternator or VSR (Voltage Sensitive Relay).
- Always ensure that any solar panels connected to the battery are done so via a solar regulator with a Lithium setting. Never charge your battery with an unregulated solar panel.
- If the battery emits any unusual smells, appears to be hot or is hot to touch, shows any signs of distortion or displays any other abnormality during operation or storage, discontinue use or charging/discharging immediately and contact OzCharge® for assistance.

3. Support When You Need It

If you have any questions or difficulties with any OzCharge® product, simply contact our dedicated technical support team and we will do our utmost to assist you. We would rather take a call **before** something goes wrong. This is our OzCharge® service guarantee!

Zylux Energy Pty Ltd
166 Christmas St, Fairfield VIC 3078
Australia



Hours: Monday to Friday 8.00am – 5.00pm

Phone: (03) 9482 2203

info@zylux.com.au

4. Introduction

Congratulations on purchasing an OzCharge® Lithium battery. The OzCharge® brand is forged on a reputation for quality, reliability and affordability and our new premium Lithium range is no exception. Our R&D team have scoured the globe to find cell manufacturing partners who meet our high standards for quality, reliability, and durability in the harsh Australian conditions.

We bring you:

- ✓ A battery that is fully certified to international and local safety standards.
- ✓ Exceptionally high-quality cell technology. We only work with global cell manufacturers of the highest standards. In fact, we even chose a manufacturer who sources Australian Lithium.
- ✓ A massive service life of up to 8 years (based on 3000 cycles to 80% DOD - one cycle per day).
- ✓ Inbuilt safety & protection via an active cell balancing, battery management system (BMS).
- ✓ OzCharge® Lithium that has faster charging.
- ✓ A battery that can handle our harsh environment and temperatures.
- ✓ A low rate of self-discharge less than 3% per month.
- ✓ OzCharge® Lithium is 100% Cobalt Free which increases fire safety and is both environmentally and socially conscious.
- ✓ Optional Bluetooth models so that you can interact with your battery.
- ✓ Slimline options for those compact installations.

5. The Power of ONE

ONE brand of state-of-the-art lithium battery and ONE brand of trusted and proven battery charger that are specifically designed to work as ONE. Through the **Power of ONE** you get optimised charging, fantastic performance and durability, all at ONE great price.



To learn more about OzCharge Lithium range visit our website www.ozcharge.com.au

6. Applications

OzCharge® Lithium Batteries can be used in a wide range of recreational applications where traditional lead acid, lead Gel batteries or AGM Batteries are used today, including, but not limited to:

- Caravan, camper, RV & 4WD
- Power boxes and packs, portable power solutions
- Marine depth sounders, trolling motors & lighting
- Motive and electric vehicles (golf carts, mobility scooters, golf caddy etc)
- Solar, wind, or wave energy storage systems
- Security, surveillance, and remote monitoring

- Emergency or remote lighting systems
- Off-Grid living
- Tiny homes and powering sheds
- Home automation and more...

7. Care & Maintenance

To ensure that you get the best performance and life from your OzCharge® Lithium battery, take a moment to familiarise yourself with the following care and maintenance information.

Whilst your OzCharge® Lithium battery comes with a 5 Year Manufacturer's Warranty against major defects and workmanship, the life of your OzCharge® Lithium battery will be very much determined by the Depth of Discharge (DOD) and the number of cycles. The OzCharge® Lithium range is rated at 3000 cycles to 80% DOD (i.e. you have used 80% of the battery capacity and have just 20% of the energy remaining). If only discharged to 50% DOD once a day the battery could last for many years beyond the warranty. You may get a service life of up to 10 years or more years.

It is also important that you keep a Lithium battery charged when not in use. We recommend that you charge your battery at least every 3-6 months and try not to let the battery get below 13V when in storage.

To ensure a long battery life:

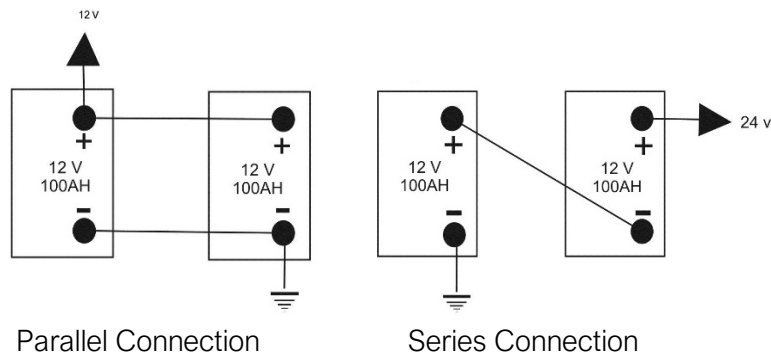
- Endeavour to keep the battery above 30% State of Charge (SOC) or above 13.0V where possible.
- Charge the battery correctly with a charger that has a dedicated Lithium setting. Check that the charger will charge to the correct voltage and current (refer to the Data Sheet for your battery for specific charge voltages and current requirements)
- Do not overload the battery. The maximum discharge specification can be found in the technical specifications of the Data Sheet for your specific model of battery.
- Do not clean the case with solvents.
- Do not store or leave exposed to direct sunlight for extended periods of time.
- Keep battery terminals clean and free from corrosion, dust and dirt. Clean regularly to ensure a good electrical contact.

TIP - To meet international freight safety standards your OzCharge® Lithium battery will only be 60% charged when you receive it. We recommend you charge the battery prior to first use to get the most out of your battery.

8. Installation & Connecting Your Batteries

When installing your OzCharge® Lithium battery, always consider the environment in which it is being installed. Avoid areas of high temperature like under a bonnet, next to a heat source or against a tin shed wall. Consider if sparks or solvents can reach the battery, consider the location, size, and quality of any connecting cables, and install the battery in a well-ventilated area. NEVER fully enclose or encapsulate a battery. Here are some further considerations:

- Never lift the battery by the terminals.
- Ensure positive and negative battery cables are of an equal length and type.
- Ensure cables are appropriate for the size of charge or discharge load.
- Do not overload battery terminals with connection lugs. As a general rule of thumb, we don't recommend any more than 4 connection lugs per terminal. If you need more, we recommend using a quality Busbar.
- Do not connect more than 4 batteries in series (maximum 48V for 12V batteries) or 4 batteries in parallel.
- When connecting batteries, do not connect batteries of different chemistry i.e., don't connect a Lithium to an AGM. And don't connect old batteries to new batteries. Always try and connect batteries of a similar age or serial number range for best performance.



Parallel Connections

You can parallel up to 4 OzCharge® Lithium batteries together. Always ensure you use appropriate size cable and all cables (linking cables and the cables to & from the battery) must be of the same length, size, and type. Always connect chargers or loads to the first positive and the last negative...never both from the one battery. Also note that batteries in parallel can become unbalanced over time and we highly recommend that you periodically charge each battery independently (to full) to restore balance in the pack and extend the life of your batteries.

Important: All batteries must be same state of charge (we recommend fully charged) and within 100mV of each other before connecting them in parallel or series.

Series Connections (For 12.8V batteries only)

The OzCharge Lithium Battery Management System (BMS) will accommodate up to 4 batteries in series (max 48V). However, there are a few things to be aware of when charging Lithium in series.

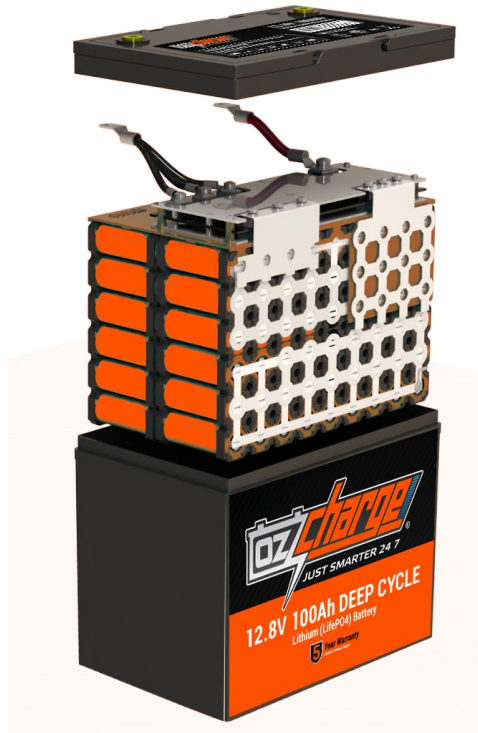
1. Each battery has its own independent BMS protection which monitors voltage and will disconnect the battery to protect over voltage
2. Each individual battery has no way of knowing that it is in series with another battery.
3. It is almost impossible to equally charge, or maintain equal charge, to batteries in series with a single charger.

To prevent uneven charging and possible charging issues (i.e. chargers cutting in and out as some batteries hit full but others are not yet full), we HIGHLY RECOMMEND that each battery be charged independently (e.g. 4 chargers for a 48V pack). Or even better still, simply purchase one of our dedicated 24V, 36V, or 48V batteries. By buying a dedicated voltage battery, every cell is evenly balanced by the BMS and you will avoid potential issues.

TIP: We recommend that batteries in series or parallel be given a periodical charge to FULL, independently of each other, to help balance each battery. This will extend the life of your batteries and ensure optimal capacity.

Battery Orientation

You may think that because Lithium doesn't contain any fluid, it can be mounted in any orientation. This is technically true, however in motive applications (or anything that is moving or vibrating) we always recommend installing the battery in the upright position (terminals to the top). The reason for this lies in the construction of the internal chassis and mounting systems of the individual Lithium cells. In the upright position you are afforded the best protection from vibration and minor impacts and bumps. That doesn't mean mounted to a chassis rail while you smash your way up the Gunbarrel Highway either.



9. Storage

Whilst your OzCharge® Lithium battery has one of the world's lowest self-discharge rates of less than 3% per month, the battery will self-discharge over time. Therefore, it is important for the life of your battery to keep the battery charge maintained. Every 3-6 months we recommend that you connect your dedicated Lithium battery charger and top up the batteries charge to FULL again.

Due to the low self-discharge (unlike traditional lead acid batteries) Lithium does not require a constant maintenance pulse. So once fully charged, turn your charger off and help us all do our part to reduce the power required to run the world.

When storing the battery, ensure you:

- Refit the caps terminal caps that came with the battery OR tape battery terminals on batteries that are in storage or being taken to recycling.
- Never lift the battery by the terminals.
- Always store in a cool dry place (so don't stack it against the tin shed wall).
- Try to avoid storing in higher than 85% humidity for extended periods.

10. Shipping

Lithium is classified as Class 9 Dangerous Goods. Please ensure you comply with local, national and international (if applicable) regulations for the transportation of these goods. In Australia, the following label must be displayed on the packaging when transporting.



UN38.3 (Cell & Pack) Certified

All OzCharge® Lithium batteries are **UN38.3 (Cell & Pack) certified**. This is an international test that demands only the highest quality Lithium products can pass, so that they are safe for air and land transport. It's not always easy to see the inside of a Lithium battery but this certification gives you peace of mind that you have purchased a quality product.

If you must transport the battery via couriers, please try to retain the packaging and re-use. This will help create less waste and ensure the battery is correctly protected in transit.

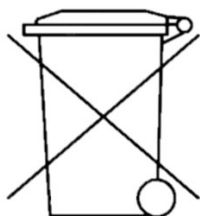
11. Recycling

Here at Zylux and OzCharge® we are committed to helping our customers (and the planet) by being environmentally conscious. We start this process by supplying you a product with a significantly longer life cycle than traditional lead acid batteries. We consider very carefully who we partner with to manufacture our products and we look at the complete life cycle. We give you lifetime product support so that you get the most from your battery.

But here is the thing...we need you to do your part at the end of the product's life. **PLEASE recycle your lithium battery** by returning it to us or dropping it off at any approved Lithium recycling station.

<https://recyclingnearyou.com.au/>

WARNING Lithium batteries must never be disposed of with ordinary refuse or by incineration, as this can cause significant fires and significant environmental contamination.



100% Cobalt Free

OzCharge® Lithium batteries contain NO Cobalt at all. Lithium free Cobalt is much safer as it is the Cobalt in Lithium that assists in the creation of oxygen if the battery catches fire. With the rise of Lithium globally the poor are being exploited, literally scratching at the ground to extract cobalt to meet the huge demand. OzCharge® Lithium batteries are not only safer, but they are more socially responsible.

12. Battery Management System (BMS)

Thanks to years of research and development your OzCharge® Lithium battery has state of the art technology monitoring the battery. Internally within your battery, an active Battery Management System or **BMS** constantly monitors the individual cells for voltage, temperature, state of charge, cell balance, discharge loads, charge voltage and charge current.

BMS Protections:

Event	Model	Protection Condition	Reset Condition
Over Discharge	OCBL12-44 & OCBL12-55	<10V / 50—300mS	>10V / Cut Load ,Auto release
	OCBL12-80, OCBL12-100, OCBL12-120, OCBL12-200 & OCBLS12-160	<10V / 3.7-5.7S	>10.6V / Cut Load ,Auto release
	OCBL36-100	<30V / 10-300ms	>31.2V / Cut Load ,Auto release
Over Charge	OCBL12-44 & OCBL12-55Ah	>14.8V / 0.5-2S	<14.4V
	OCBL12-80, OCBL12-100, OCBL12-120, OCBL12-200 & OCBLS12-160	>14.88V / 0.5-1.5S	<14.4V
	OCBL36-100	>44.4V / 0.8-2S	<42V / 5S
Over Discharge Current	All Models	Please Refer to Product Label and / or Specific Data Sheet	
Short Circuit Current	All Models	Please Refer to Product Label and / or Specific Data Sheet	
High Discharge Temperature Protect	All Models	65°C±	45°C±
High Charge Temperature Protection	All Models	65°C±	48°C±
Active Cell Balance	OCBL12-44, OCBL12-55, OCBL12-80,OCBL12-100, OCBL12-120, OCBL12-200 & OCBSL12-160	>14V	Automatic as required
	OCBL36-100	>42V	Automatic as required

13. General Specifications

Nominal Voltage	12.8V, 24V, 36V or 48V (model dependant)*
IP Rating	IP65 or IP67 (model dependant)*
Parallel Connection	4 Max**
Series Connection	4 Max** (12.8V Models only) 0 for 24V, 36V and 48V models
Case Material	Flame Retardant ABS Plastic
Battery Terminal Torque Setting	M6 (4-6 Nm Torque) M8 (7-9 Nm Torque)
Operating Temperature Range	-20°C~+60°C Relative Humidity ≤85%
Charge Temperature Range	0°C – 55°C
Charge Voltage 12.8V (for OCBL12-XXX)	14.4V ± 0.2V @ 0°C to 55°C
Charge Voltage 24V (for OCBL24-XXX)	28.8V ± 0.4V @ 0°C to 55°C

Charge Voltage 36V (for OCBL36-XXX)	43.2V ± 0.6V @ 0°C to 55°C
Charge Voltage 48V (for OCBL48-XXX)	57.6V ± 0.8V @ 0°C to 55°C
Charge Current	0.2C – 0.3C
Fast Charge Current	0.5C
Maximum Charge Current	0.75C – 1C (model dependant)*
Maximum Discharge current	0.75C – 1C (model dependant)*
Discharge Efficiency	98-100% @ 1C
Self Discharge	Less than 3% per month
BMS Discharge cut-off Voltage	(12V) (24V) (36V) (48V) <10.0V <20.0V <30.0V <40.0V
Certifications	UL1642(Cell) IEC62133(Cell) IEC62619 (Cell) CE(Pack) UN38.3 (Cell / Pack) ROHS (Cell)

*Please refer to the individual product label or Data Sheet for details, these are readily available from the OzCharge website.

** Please refer to Section 8 of this User Manual for important information about batteries in Series or Parallel.

14. Charging Your OzCharge® Lithium Battery

Lithium batteries need to be charged slightly differently to other batteries to ensure they live a long life and provide maximum capacity. There are several charging devices you can utilise, but whichever device you choose, it must have a lithium charge profile.

We recommended that you use a charger that can deliver a charge current or amperage of 20% to 30% or less of your battery capacity. You can charge at much higher rates (refer to the product label on the battery) however you will reduce the cycle life of your battery at higher charge currents.

Check the “Maximum Charge Voltage” on your products Data Sheet and ensure the maximum output voltage of any charging device connected to the battery does not exceed that voltage.

Charge Method	Important Note
A/C Domestic Battery Charger	Ensure your charger has a dedicated Lithium setting.
Vehicle Alternator D/C	Never directly charge from an alternator without an appropriate regulator or DCtoDC charger in place between the alternator and the Lithium battery. Not recommended for under bonnet installations.
DCtoDC charger	Ensure your DCtoDC charger has a Lithium charge setting.
Solar D/C	Never directly connect an unregulated solar panel to the battery or you may exceed the maximum voltage allowed and damage may occur. Use a solar regulator between the panel and the battery.
Solar Regulator D/C	Ensure your solar regulator has a dedicated Lithium charge setting.
A/C Mains Power	NEVER connect your battery directly to A/C Mains power. Always use a dedicated charger

WARNING Do not use a charge profile with an Equalisation setting. This may damage the battery and void the warranty.

15. Warranty

OzCharge® Lithium batteries are designed to provide long lasting power in a range of recreational Deep Cycle applications.

It is important that you read the product user manual in conjunction with the Data Sheet and Material Safety Data Sheet for your model of battery. These can be found on our website at www.ozcharge.com.au. These documents contain important care and handling information that may affect your warranty. You will also find tips and advice to help maximise the life of your battery and information regarding operation, charging, storing, care, maintenance and recycling.

WARRANTY INFORMATION

This battery is warranted against defects for 5 years (60 months) from date of purchase for recreational cyclic use. Warranty is void if the battery is used outside of the operating temperature range, in a starting or cranking application, if installed under the bonnet, in any industrial application, in a float charge application or is reverse polarity connected. Assessment of the battery is based upon Zylux Energy Pty Ltd warranty testing procedures. If Zylux Energy Pty Ltd determine this battery is defective we will replace it, however all costs associated with the delivery of the battery for warranty are at your cost. This includes, both to and from, or for any replacements. Claims must be made within the warranty period detailed here within. Proof of purchase and the date the battery was purchased is also required. This Warranty is to the original purchaser and is not transferable. For any replacement batteries, the Warranty period for a replacement battery starts on the date of the original battery purchase.

This warranty is offered by Zylux Energy Pty Ltd (ABN 75 104 986 254): 166 Christmas Street, Fairfield, VIC, 3078, Australia.

To make a claim please call +61 (3) 9482 2203 or email info@zylux.com.au in Australia

Warranty does not cover defects due to normal wear and tear, abuse, damage, neglect, reverse polarity connections, over or under charging, incorrectly charging, charging using a non lithium-ion compatible charger or incorrect application, installation, storage or maintenance.

The benefits of this warranty are in addition to other rights and remedies available at law. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

HELP US HELP THE EARTH AND PLEASE RECYCLE RESPONSIBLY

Do not dispose of your battery with household waste or by incineration.

We advise you complete the following and keep in a safe place for future reference. It's also a good idea to attach a photocopy and the original receipt to this manual.

Battery Model: _____ Voltage: _____ Size/AH: _____

Date of Purchase: _____

Sellers Name (i.e. OzCharge® Website or XYZ Batteries): _____

Sellers Address: _____

Suburb: _____ State : _____ Postcode: _____

Sellers Contact Number: _____

Did you know that OzCharge® manufactures a range of Lithium compatible battery chargers. Visit our website today to find out more. <https://www.ozcharge.com.au/>

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