

# ozcharge®

JUST SMARTER 24/7



Model: OC2404M

## OWNER'S MANUAL

AUSTRALIAN & NEW ZEALAND STANDARD AS/NZS 60335.2.29 APPROVED



Congratulations on purchasing the Oz Charge Mobility OC2404M fully automatic switched mode 24 Volt / 4 Amp battery charger, maintainer and rejuvenator. Please take the time to carefully read and understand this manual before using this product.

## IMPORTANT SAFETY ADVICE AND WARNINGS

- The charger is designed to charge and maintain conventional lead-acid batteries only. (VRLA), AGM, GEL & WET.
- Always refer to the battery manufacturers specifications and recommendations if you're unsure of your battery charging requirements. E.g. Such as removing or not removing cell caps whilst charging.
- Explosive gases may escape from the battery during charging so please ensure the battery is charged in a well ventilated area.
- This charger is designed for indoor use only and should never be exposed to water, rain, snow, liquids etc.
- Do not attempt to use the charger if it has been dropped or damaged.
- Do not attempt to use the charger if the cables or plugs are damaged.
- If battery acid contacts your skin or clothing, wash immediately with soap and water. If acid enters your eye, immediately flush the eye with running cold water for at least 10 minutes and seek medical attention. Someone should always be within range of your voice.
- Never attempt to charge a damaged battery, frozen battery or non rechargeable battery.
- Never place the charger on the battery or battery on the charger.
- When working with lead-acid batteries, remove personal metal items such as rings, bracelets, necklaces, watches and make sure you don't short circuit the battery terminals with any type of metal tool or piece of jewellery as this will cause an explosion. You can wrap your spanner with insulation tape to minimise the risk of a short circuit.
- NEVER smoke, use an open flame or create sparks near a battery or charger during charging operation as this may cause an explosion and explosive gases.
- Do not disassemble the charger. Take it to a qualified and authorised person for repair.
- If using a generator, you must ensure you use a surge protector to protect the charger from voltage spikes.
- The charger must not be used or played with by infirm persons or children. Also keep it away from any pets.

## MAIN FEATURES

- **100% automatic smart battery charger & maintainer with reconditioning.**
- **The battery charger is easy to use and requires no technical experience.**
- **Fully microprocessor controlled with safety timers at every stage.**
- **Battery condition analysis.**

- **Multi Stage:**
  - 1 - Qualification - Battery condition check
  - 2 - Battery rejuvenation (recondition mode)
  - 3 - Soft start charging
  - 4 - Bulk charging
  - 5 - Absorption charging
  - 6 - Equalisation charging
  - 7 - Battery analysis
  - 8 - Float mode
  - 9 - Long term maintenance pulse charge
- **Automatic diagnosis and charge:** On power up, the charger will automatically diagnose the battery condition and determine if the rejuvenation mode (reconditioning) or charge cycle is required.
- **Patented battery rejuvenation technology:** The charger has a unique and patented rejuvenation feature which uses high voltage equalising and peak pulse reconditioning to repair sulphated batteries. This feature is fully automatic and depends on the internal impedance of the battery and battery voltage.
- **Can be left on 24/7 to ensure your battery is always maintained and fully charged:** The battery charger can be left unattended and left permanently connected all year round. The intelligent charger will monitor the battery voltage and will maintain it at peak performance with a special pulse charge during long term maintenance.
- **Short circuit and reverse polarity protection.**
- **ECO Mode:** Ultra low power consumption.

## TEMPERATURE & SAFETY PROTECTION:

- **INTERNAL OVERHEAT PROTECTION:** The charger has a built-in overheat and an overload electronic circuit. This protects the charger from being damage if overheated or overloaded and will automatically decrease the charging current. Once the units internal temperature decreases to a safe level, the charger will resume normal charging.
- **SAFETY TIMER PROTECTION:** The charger has safety timers for every stage. If the battery voltage doesn't reach a certain voltage within a certain time, the unit will stop charging as it's highly likely that you're attempting to charge a severely discharged or heavily sulphated battery. If any of the stages time out, the charger will immediately stop charging in order to protect the battery. This will be indicated with the fault LED flashing slowly.
- **REVERSE POLARITY:** The charger has reverse polarity protection. If the charger output leads are connected reverse polarity, the fault LED will come on and the charger will be disabled. Simply unplug the charger from AC power and then connect the output leads to the correct polarity.
- **SHORT CIRCUIT PROTECTION:** The charger will automatically turn off if the output leads are short circuited and the fault LED will come on. This prevents the charger from being damaged if the positive and negative crocodile clips or ring terminals accidentally touch each other while the charger is turned on.
- **ECO MODE:** This Oz Charge battery charger has a built in ultra low power consumption circuit. If AC power is connected and the battery is disconnected, after 10 seconds the charger will automatically go into an ECO mode. During this mode the power drawn is less than 0.36W which totals 0.01kWh per day power consumption. If AC power is connected and the battery is connected, once the battery is fully charged and during the long term maintenance stage, the total power consumption is around 0.03kWh per day.

The Green power LED flashes to indicate ECO mode.

## BATTERY TYPES & CAPACITY:

- Suits 24V conventional lead acid batteries (VRLA) AGM, Gel & Wet. It can also be used as a maintenance charger only for Calcium batteries if required.
- The Ah (Ampere-hour) capacities shown below are to be used as a general guide only. Some batteries may be able to handle a higher charge current. Refer to the battery manufacturers specifications and recommendations for your charging requirements.

Battery Capacity: Charging	5 - 45Ah (up to 80Ah)
Battery Capacity: Maintaining	<120Ah

## ELECTRICAL PARTS & ACCESSORIES:

AC Power Cord:	1.8m with SAA 3 Pin AU Plug
DC Output Lead:	1.8m amphenol 3 pin XLR Type Connector

## TECHNICAL SPECIFICATIONS:

Model Number	OC2404M
Output	4A @ 24V
Input Voltage	220-240Vac / 1.2A
Input Frequency	50/60Hz
Charge Voltage	28.8V
Equalising Voltage	29.2V
Float Voltage	27.2V
Start Voltage	4V
Operating Temperature	-15 to 50° C
Storage Temperature	-25 to 85°C
Operating Humidity	90% RH Max.
Size (L*W*H)	214mm x 103mm x 55mm
Weight	1.1kg
Approvals	CE, UL/cUL, AS/NZS, EMC

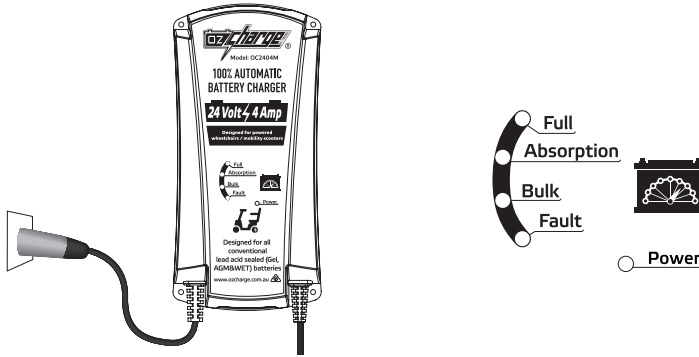
## CHARGING INSTRUCTIONS:

### **STEP 1 - Pre charge check & electrolyte level check**

- Check the Battery Electrolyte levels (Not required on sealed & maintenance free batteries). If necessary, remove the vent caps and add distilled water so the levels are halfway between the upper and lower fill lines.
- Check the battery voltage, type and Ah capacity to ensure the charger is compatible.
- Ensure the battery is in a well ventilated area and the charger should be as far away from the battery as the cables permit.

## **STEP 2 - Connecting the battery charger to your battery**

- Simply push the round charger plug into the battery charge socket of your wheelchair or mobility scooter, ensuring the pins are not stressed and lined up straight and correctly.



## **STEP 3 - Connect the battery charger to AC mains (230-240Vac) power and turn ON**

- Switch the AC power ON and the battery charger will automatically start.  
(Note: If the Fault Indicator LED illuminates or flashes Red, please check your connections.)

## **STEP 4 - Disconnecting the battery charger from battery**

- Switch the AC power OFF.
- Disconnect the battery charger from the battery charger socket.  
**Note:** The charger has been designed to be left turned on and switching the charger on-off to connect/reconnect is not necessary.

## **LED STATUS INDICATOR TABLE:**

LED	Status	Description
<b>Charging Status LED's</b>		
Full Green	Flash/ON	Flashing if Analysis failed or ON if fully charged - Float / Maintenance mode
Absor. Green	Flash/ON	Flashing during equalisation charging or ON during Absorption charging
Bulk Blue	Flash/ON	Fast Flash - Rejuvenation / Slow Flash - Soft Start charging / ON - Bulk charging
<b>Fault LED</b>		
Red	ON	Short circuit/reverse polarity or Rejuvenation failed if Bulk LED also flashing slow
Red	Flashing	Over temperature protection mode / Soft start charging timed out if Blue Bulk LED also flashing fast / Bulk charging timed out if Blue Bulk LED also ON

## THE CHARGING PROCESS:

### 1) Qualification - Battery Condition Check

When the charger is first switched on it checks the battery condition to determine whether the battery needs reconditioning. During this qualification process it checks the internal impedance and initial voltage of the battery and it will determine how much charge current, if any that the battery will accept.

### 2) Enhanced Battery Rejuvenation - Blue Bulk LED Flashing Fast

If the initial qualification detected that the battery was in poor condition, the patented rejuvenation process will begin automatically. During the rejuvenation process a high voltage equalising and peak pulse reconditioning charge is used to repair the sulphated battery. This unique patented feature will break down and dissolve the lead-sulphate crystal build up on the battery plates which will extend the life of your battery. It can also balance out high concentrations of acid. The equalisation voltage will be 32V maximum. If the battery voltage doesn't reach 18V within 24 hours, the Rejuvenation process will time out.

### 3) Soft Start Charging - Blue Bulk LED Flashing Slow

Gently charges the battery using a reduced charge output until the battery voltages reaches 22V. If the battery voltage doesn't reach 22V within 6 hours, the safety timer protection will stop the unit from charging and the Red Fault LED and Blue Bulk LED will start flashing.

### 4) Bulk Charging - Blue Bulk LED ON

Uses the maximum charge output until the battery voltage reaches 28.8.

If the battery voltage doesn't reach this within 24 hours, the safety timer protection will stop the unit from charging and the Red Fault LED will start flashing and the Blue Bulk LED will be ON.

### 5) Absorption Charging - Green Absorption LED ON

Uses a constant voltage while reducing the charging output current to ensure the battery receives a full charge without overcharging the battery.

### 6) Equalisation Charging - Blue Bulk LED and Green Absorption LED both flashing

A well proven process that carefully overcharges the battery to restore it's full capacity. The Equalisation stage only occurs if the initial start voltage is below 22 Volts.

### 7) Battery Analysis - Green Full LED ON

The battery analysis stage checks the condition of the battery after the charge cycle is completed. If the battery voltage drops too quickly during the analysis mode, this means the battery is probably faulty. If the battery analysis failed, this is indicated by the Green Full LED flashing.

### 8) Float Mode - Full Green LED ON

This stage allows you to keep the charger connected 24/7 to ensure your battery is well maintained and kept 100% fully charged. Float mode will maintain the battery at a constant 27.2V.



## TROUBLE SHOOTING

Problem	Indication	Possible Causes	Suggested Solution
Charger does not work.	No Indicator lights are not on	<ul style="list-style-type: none"> <li>- No AC power</li> <li>- Unit not connected to battery</li> <li>- Blown AC fuse (Internal)</li> </ul>	<ul style="list-style-type: none"> <li>- Check AC connection and make sure Power Point and Charger are switched ON</li> <li>- Check Battery is connected to Charger properly.</li> <li>- Contact Supplier for Service. (No user serviceable parts inside)</li> </ul>
Charger has no DC output.	Fault LED is Flashing.	<ul style="list-style-type: none"> <li>- Output is short circuited</li> <li>- Output cables are not connected to the battery.</li> <li>- Output Reverse polarity connection</li> <li>- Battery Weak / Damaged</li> <li>- Charger has overheated</li> </ul>	<ul style="list-style-type: none"> <li>- Check that there are no foreign objects inside the XLR connectors.</li> <li>- Check that the XLR plugs have been securely connected.</li> <li>- Check that the XLR plugs have not been forced together incorrectly.</li> <li>- Move charger to a cooler area.</li> <li>- Refer to LED Indicator Table.</li> </ul>
No charging current.	Fault LED is ON	<ul style="list-style-type: none"> <li>- Battery is severely sulphated</li> <li>- Battery has a damaged cell</li> </ul>	<ul style="list-style-type: none"> <li>- Check the Battery condition, age etc.</li> <li>- Battery may need replacement</li> </ul>
Long charging time, Full light does not come on	Fault LED is Flashing	<ul style="list-style-type: none"> <li>- Battery capacity too large</li> <li>- Battery is defective</li> <li>- 6 hours Soft Start timed out</li> <li>- 24 hours Bulk Charge timed out</li> </ul>	<ul style="list-style-type: none"> <li>- Check the charger specification matches the battery capacity.</li> <li>- Battery cannot be charged and must be replaced.</li> </ul>

## REPLACEMENT PARTS

For the full range of replacement parts and accessories, please visit our website:

[www.ozcharge.com.au](http://www.ozcharge.com.au) / [www.ozcharge.co.nz](http://www.ozcharge.co.nz)

# CHARGING CURVE

CHARGING / MAINTAINING PROCESS									
	QUALIFICATION	REJUVENATION	SOFT START	BULK CHARGE	ABSORPTION	EQUALISATION	ANALYSIS	FLOAT	MAINTENANCE
<b>Voltage (VOLTS)</b> 	Checks battery condition to determine whether the rejuvenation stage or charge cycle is required.	Automatic stage for batteries in poor condition. Breaks down sulphation using new patented technology.	Increases your battery life by gently starting to charge the battery until the battery reaches a set voltage.	Reduces charging time by delivering maximum charge until the battery reaches a set voltage.	Uses constant voltage and ensures the battery receives a full charge without overcharging the battery.	Restores full capacity to batteries by removing acid stratification.	Checks the battery condition to ensure it's fully charged.	Maintains the battery at 100% charge.	Special pulse charge for long-term maintenance to ensure the battery is in optimal condition.
<b>Current (AMPS)</b> 									

## 2 YEAR PRODUCT WARRANTY

Zylux Distribution Pty. Ltd. (ABN 66 101 378 009) of 166 Christmas Street, Fairfield, Victoria, 3078, Australia warrants to the Customer that this product is substantially free from defects in materials and workmanship under normal use for a period of Two Years from the Date of Purchase. Please ensure you keep a copy of your purchase receipt on file as this will be required to validate your warranty.

### **Obtaining Warranty Service:**

Within the warranty period, the Customer must contact the authorised supplier / retailer where the product was purchased or alternatively you can contact the Oz Charge service centre through one of the following methods:

**Service help phone:** Within Australia (03) 9482 2203

**Outside of Australia:** +61 3 9482 2203

**Website:** [www.ozcharge.com.au](http://www.ozcharge.com.au) / [www.ozcharge.co.nz](http://www.ozcharge.co.nz)

If the Authorised Supplier and / or Oz Charge service centre concludes that while under normal use, a product failure or malfunction occurred during the warranty period and was caused by a defect in material or workmanship (see Exclusions), the Customer will be asked to ship to the nearest service point for repair or replacement, at our discretion. The product must be packaged appropriately for safe shipment. To prove that the product is under warranty, the customer should enclose a copy of their receipt for proof of purchase. It is recommended that returned products be sent by registered mail as Zylux Distribution Pty. Ltd. (Oz Charge) accepts no responsibility / liability for goods lost or damaged in transit.

### **Exclusions:**

If upon receiving a product for repair and if testing and examining the product has disclosed that the alleged defect or malfunction in the product does not exist or was caused by the Customer or any third persons misuse, neglect, physical abuse, water damage, unauthorised attempts to open, exposure to extremely high temperatures, tampered with or repaired by an unauthorised persons, this will not be covered under this warranty. Also charges may apply to any product returned which has no fault found or if the warranty has expired or been void.

### **This Warranty is also void if:**

1. The warranty seal is broken or altered.
2. The warranty period has expired.
3. The product has been tampered with or repaired by an unauthorised person.
4. If used on a generator without using a surge protector.

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. For New Zealand customers, this warranty is in addition to statutory rights observed under New Zealand legislation.



SAA Approval No. GMA-102826-EA-002