

# Multi-Current Selectable 4 Stage Automatic Battery Chargers

Operating Instructions  
Please read these instructions before use



The new GSL Battery Chargers are revolutionary 4 Stage charger conditioners, utilising high efficiency Switchmode technology and microprocessor control and designed to charge 12 Volt Lead Acid Batteries. These new intuitive design chargers can be selectable for three different charging rates: 5A, 15A and 30A.

This versatility creates a new era in battery charging. Eliminating the need for a range of battery chargers for different capacity batteries. The unit provides a safe and fast method of restoring discharged batteries and maintaining them, via precisely controlled Bulk, Absorption, Float and Pulse stages. The chargers feature a high operating efficiency of above 85% and virtually no power consumption during standby with no battery connected. The charger is fully protected against overload, short circuit, over temperature, over voltage and with a bulk charge timeout for additional safety.

The chargers are built in a compact and strong aluminium extrusion which can be easily secured to both vertical and horizontal surfaces and will be fully operational with voltages as low as 180Vac or as high as 260Vac.

### **Charging Cycle:**

Before starting the charge cycle, the battery voltages are evaluated to detect faulty batteries.

**BULK MODE** – This mode of the battery charger delivers bulk charging current regulated to 30 Amps into the battery being charged. When the battery voltage rises to approximately 14.3V/ 14.6V and the battery is 70% recharged. The charger will switch automatically to Absorption Mode.

**ABSORPTION MODE** – In this mode the battery charger output voltage is maintained at 14.3V until the current drops below a controlled threshold. The battery is brought up to a 90% recharge.

**FLOAT MODE** - The voltage is reduced to 13.3V/ 13.5V and maintained at that level with the charger supplying just enough current to maintain the battery at full capacity.

**PULSE MODE** – Periodic low current pulse to maintain maximum battery life.

### **Installation & Safety Precautions:**

- a. This appliance is not meant for use by young children.
- b. **During charging process, do not use a naked flame near a battery, due to gases emitted from the battery, which may ignite and explode.**
- c. **Never smoke or light cigarettes near a battery.**
- d. Do not place tools on top of battery or allow tools to fall on battery.
- e. Always wear eye protection near a charging battery.
- f. Ensure a "well" ventilated area is used when testing or re-charging batteries.
- g. Ensure ventilation is adequate and venting holes are not obstructed. Inadequate ventilation may over-heat the unit and cause inefficient operation.
- h. The battery charger is intended for indoor use only. Do not expose it to extreme weather conditions e.g. rain or dampness.
- i. If skin or clothing comes into contact with acid, flush the area(s) with water immediately. Seek medical attention if necessary.
- j. The battery charger contains hazardous voltages. There are no user serviceable components inside. If the AC supply cord is damaged, in order to avoid a hazard it must be replaced by the manufacturer or its service agent or a similarly qualified person.

**Should product require service, return it to place of purchase for warranty advice.**

### **Battery Charging Times:**

The question of "how long will my battery take to re-charge?" is always asked. Firstly, the charge rate (CR) of a battery is rated in Amps and the battery capacity (C) in Amp Hours. The battery manufacturer for each battery type normally states this CR. As a rule of thumb, a lead acid battery generally should be charged under approximately 1/5 of C. For example if you have a 100Ah battery, the recommended charging current is:  $100 / 5 = 20A$ . The majority of the battery capacity would normally be charged in 5 hours using a 20 Amp battery charger. Similarly it would take approximately 10 hours to charge the battery with a 10 Amp battery charger.

**\*Please note the figures quoted above could vary depending on the battery condition.**

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## Procedures for Charging a Battery:

The charger is intended for 12V lead acid and Calcium batteries with a capacity ranging from 50AH to 250AH.

**DO NOT** attempt to recharge non-rechargeable batteries or non lead acid based chemistries.

1. Remove filler caps (for unsealed batteries) from battery and check electrolyte levels in each cell. If the level is low then top up with distilled water.
2. It is recommended to remove the battery from the vehicle or, if this is not practical, then disconnect the leads. If the battery has to remain connected then the battery lead not connected to the chassis has to be connected first. The other connection has to be made to the chassis remote from the battery and fuel line. Ensure that the clips bite firmly and are the correct polarity (+Pos to + Pos & - Neg to - Neg).
3. Connect the battery charger to the supply mains.
4. Wait a few seconds until the [CHARGE] led starts flashing indicating the battery has been tested and the charge cycle has commenced.  
For safety precautions for a new connection the charger will start at 5A.
5. If the battery is a larger capacity then press the [RATE] switch and select the desired charging rate as indicated on the display panel.
6. When the charging is completed the LED(s) will stop blinking and you may then disconnect the battery.
7. The batteries can remain connected indefinitely to the charger which will alternate between float and pulse modes for optimum long term battery maintenance.

**NOTE: Colour coded clips are as follows : Red for (+) Positive pole and Black for (--) Negative pole.**

## The Do's and Don'ts of Battery Charging & Maintenance :

### Do :

- Think Safety First.
- Do read entire instruction manual for your charger.
- Do regular inspection and maintenance especially in hot weather.
- Do recharge batteries immediately after discharge.
- Do buy the highest RC reserve capacity or AH amp hour battery that will fit your configuration.
- DO use a GSL Electronic Battery Charger for all your charging needs.

### Don't :

- Don't add new electrolyte (acid). Only Distilled Water should be added.
- Don't place your equipment and vehicles into storage without some consideration to keep the battery charged.
- Don't disconnect battery cables while the engine is running (your battery acts as a filter).
- Don't put off recharging batteries.
- Don't add tap water as it may contain minerals that will contaminate the electrolyte.
- Don't discharge a battery any deeper than you possibly have to.
- Don't let a battery get hot to the touch and boil violently when charging.
- Don't mix size and types of batteries.

**Safety Approval:** E.M.I AS2064 GR.1 A  
V071019 AS/NZS 3350.2.29

Model	BC240 – 1230S
Input Voltage	240 V <sub>AC</sub>
Input Current	5 A <sub>RMS</sub>
Bulk Charge Output [V <sub>DC</sub> ±1%] (Pb/Ca)	14.5V <sub>DC</sub> /15.5V <sub>DC</sub>
Float Charge Output [V <sub>DC</sub> ±1%] (Pb/Ca)	13.5V <sub>DC</sub> /14V <sub>DC</sub>
Max Output Current [ A <sub>DC</sub> ±5%] (Pb/Ca)	5A <sub>DC</sub> /15A <sub>DC</sub> /30A <sub>DC</sub>
Battery Voltage Required For Start-up	8V
Dimensions [mm ] (L x H x W)	250mm X 65mm X 160mm
Weight [ Kg ]	2.2Kg
Protections	Over Temperature, Over Current, Short Circuit, Over Voltage, Reverse Polarity, Bulk Charge Time-Out, Over Temperature, Over Current, Short Circuit, Over Voltage, Reverse Polarity, Bulk Charge Time-Out
Cooling	Via Fan, Load Activated
Efficiency (Typical)	Greater than 85%

**Warranty Conditions:** Our products come with guarantees that cannot be excluded under the Australian Consumer Law.

The customer is entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. The customer is also entitled to have the products repaired or replaced if the products fail to be of acceptable quality and the failure does not amount to a major failure.

GSL Electronics (GSL) warrants that its products will, under normal use and service, be free of defects in material and workmanship for a period of two (2) years from the date of the original purchase by the customer as marked on the customer's original invoice. Please refer to our website for full warranty and return information which can be found at <http://www.gsl.com.au/faq.html>