

# Dual Chemistry 4 Stage Automatic Battery Chargers

Operating Instructions  
Please read these instructions before use



The new GSL Battery Chargers are revolutionary 4 Stage charger conditioners, utilizing Switchmode and microprocessor technology and designed to charge 48 Volt Lead Acid and Calcium Batteries. As a Lead Acid and Calcium Battery Charger, 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 80% and virtually no power consumption during standby without a battery connected. The chargers are fully protected against overload, short circuit, over temperature, reverse polarity connection, over voltage and with a bulk charge time out for additional safety.

The Chargers are built in 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 190VAC or as high as 260VAC.

Before the charger starts its cycle, it analyzes the batteries voltage to determine if the batteries are faulty.

**BULK MODE** – This mode of the battery charger delivers bulk charging current regulated to 10 Amps into the battery being charged. When the battery voltage rises to approximately 58V/62V 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 58V/62V until the current drops below a controlled threshold. The battery is brought up to a 90% recharge.

**FLOAT MODE** - The voltage is reduced to 54V/56V 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 or infirm persons without supervision.
- 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.

#### k. HAZARDOUS OUTPUT VOLTAGE: FOR USE ONLY BY A QUALIFIED PERSONNEL FAMILIAR WITH 48V BATTERY SYSTEMS

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

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## Procedures for Charging a Battery:

The charger is intended for 48V Lead Acid and Calcium batteries with a capacity ranging from 50AH to 250AH.

**DO NOT attempt to recharge non-rechargeable batteries.**

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.
5. If the battery is a Calcium one then press the [MODE] switch and the [CALCIUM] LED will turn on indicating Calcium charge mode.
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.

Specifications	
Model	BC240 – 4810
Input Voltage [V <sub>AC</sub> ]	190V - 260V <sub>AC</sub>
Input Current [A <sub>RMS</sub> ]	5A <sub>RMS</sub>
Bulk Charge Output [V <sub>DC</sub> ±1%] (Pb/Ca)	58V/62VDC
Float Charge Output [V <sub>DC</sub> ±1%] (Pb/Ca)	54V / 56V
Max Output Current [A <sub>DC</sub> ±5%] (Pb/Ca)	10A <sub>RMS</sub>
Battery Voltage Required For Start-up	42V
Dimensions [mm ] (L x H x W)	250mm X 65mm X 160mm
Weight [ Kg ]	2.2Kg
E.M.I	AS2064 GR.1A
Safety	Designed To Comply With AS/AZS 60950
Protections	Over Temperature, Over Current, Short Circuit, Over Voltage, Reverse Polarity, Bulk Charge Time-Out
Cooling	Via Fan, Load Activated
Efficiency (Typical)	Greater than 85%
Stand By Power	Less than 1W



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

*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>

