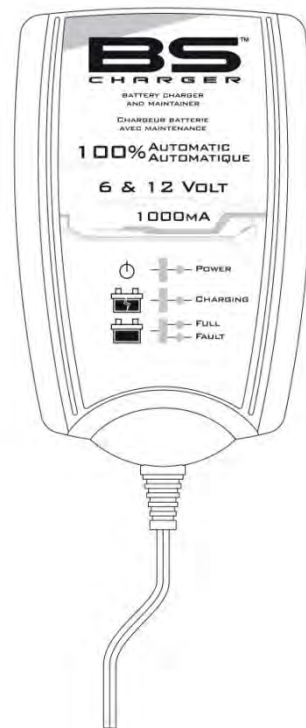


**BS**<sup>TM</sup>  
CHARGER

# BA10

## BATTERY CHARGER

For lead-acid batteries



User Manual and Guide to professional battery charging for Starter and Deep Cycle batteries.

THIS MANUAL CONTAINS IMPORTANT SAFETY AND OPERATING INSTRUCTIONS FOR  
6V / 12V BATTERY CHARGER: BA10

**[ENGLISH]**

## IMPORTANT SAFETY INSTRUCTIONS

Please read this manual and follow the instructions carefully before using the charger.

### WARNING

- The charger is designed to charge **6V & 12V** lead-acid batteries from **2Ah to 40Ah**. However, charger can maintain batteries up to **60Ah**.
- We always recommend that you check the Battery Manufacturers specifications before using this charger.
- Explosive gases may escape from the battery during charging. Provide ventilation to prevent flames and sparks.
- For indoor use. Do not expose charger to rain, snow or liquids.
- For charging lead-acid batteries **ONLY**. (of the size & voltage indicated in the specifications table)
- Battery acid is corrosive. Rinse immediately with water if acid comes into contact with skin or eyes.
- The charger should be used on a flat surface.
- Never charge a frozen battery.
- Never charge a damaged battery.
- Never place the charger on the battery while charging.
- Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.
- When working with a lead-acid battery, remove personal metal items such as rings, bracelets, necklaces, watches...
- NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- Do not charge non-rechargeable batteries.
- In order to reduce risk of electric shock, unplug charger from AC outlet before doing any maintenance or cleaning. Turn off controls will reduce risk.
- The kit is not supposed to be used by children or by people who are not able to understand the manual, unless they are supervised by a responsible person who ensures the proper use of the kit.

### MAIN FEATURES: Automatic Switching Mode Battery Charger & Maintainer

- **Easy to Use:** The Battery Charger is easy to operate and requires no technical experience.
- **Charge & Maintain - Automatic Charge:** On power up, the charger will automatically go to charging system, then could be left unattended and never overcharge your batteries.
- **Charge & Maintain - Automatic Maintenance:** When the battery is charged to "full" state, the charger automatically switches to maintain the battery. It will monitor the battery voltage and continue to peak performance to the battery.

- **Voltage Output Select Switch:** Select 6V or 12V output.
- **Short circuit protection:** The charger will automatically turn off when the output short circuit occurred and prevent any damage
- **Reverse polarity protection :** The charger can automatically shut off when the output polarity is reversed and without damage

## **SAFETY & TEMPERATURE FEATURES:**

- **Never overcharge your battery**
- **Output short circuit protection**
- **Output overload protection:** The charger employs the use of a ‘Solid State Circuit Interrupter’ that opens under severe overload. This condition may occur if attempting to charge any severely discharged or heavily sulfated battery. Once the Interrupter opens, the charger will stop charging for a short period and then resume charging automatically and the yellow. L.E.D. will be OFF, until resume charging. Overloading could be due to an external load, remove the load condition prior to attempting to recharge the battery.
- **Reserve Battery / Overload Condition:** The charger has reverse battery and short circuit protection. If a reverse battery condition exists (White L.E.D. will turn RED, only, while output leads are connected backwards), simply unplug charger from AC power and properly remake the connections as described in this manual
- **Internal over heat protection:** BS Chargers have an internal overheat protection. The power will be reduced of the ambient temperature is raised.
- **Corrosion-resistant output connectors**
- **Output clips and ring terminals provided:** It comes with a quick connect fly lead and 2 different kinds of connectors, crocodile clips and a ring terminals. The ring terminals are perfect for permanent connection to your battery. You can connect the lead to the battery and tuck the lead away while you are using your vehicle and when you get back to your garage simply plug the lead back into the charger

## **BATTERY TYPES & CAPACITY:**

- Suits all Lead Acid Type Batteries. (Conventional, AGM & Gel)
- Selectable 6 Volt & 12 Volt Output
- Battery Capacity:
  - The following maximum AH capacities are to be used as a general guide only: some batteries maybe able to handle a higher Charge Current. Check with the battery Manufacturer when charging batteries with small capacity.

Charge Current:	1A
Battery Capacity: Charging:	2-40AH
Battery Capacity: Maintaining:	2-60 AH

## ELECTRICAL PARTS:

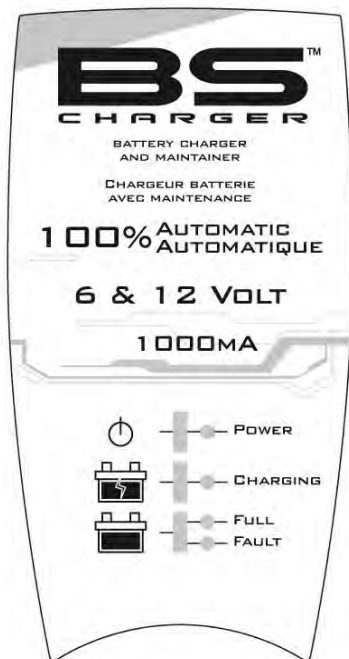
Delivered with:

- Input Connector:
  - 6 feet with 2PIN plug
- Output Cord:
  - 4 feet with Quick Connector
- Extend Cord:
  - 2 feet with Crocodile Clips / Ring Terminals

## ENVIRONMENTAL CHARACTERISTICS:

- Operating Temperature: 0 to 45° C
- Storage Temperature: -25 to 85°C
- Operating Humidity Range: 0 to 90% RH
- Cooling: Passive / Natural

## TECHNICAL SPECIFICATIONS:



Part Number	BA10
Type	Automatic
Input Voltage Range	100-240V
Input Frequency	50/60Hz
Output	1A @ 6/12V
Size (L*W*H) in mm	100*65*36
Weight	0.4Kg
Approvals	CE, UL/cUL, Mzs, As

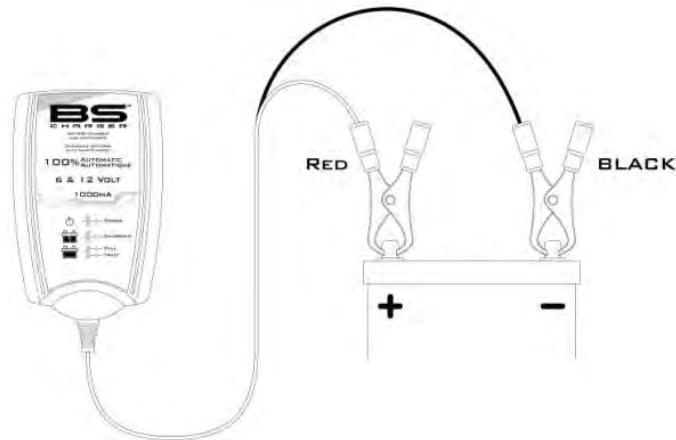
## CHARGING INSTRUCTIONS:

### STEP 1 - Pre Charge Check & Electrolyte Level Check

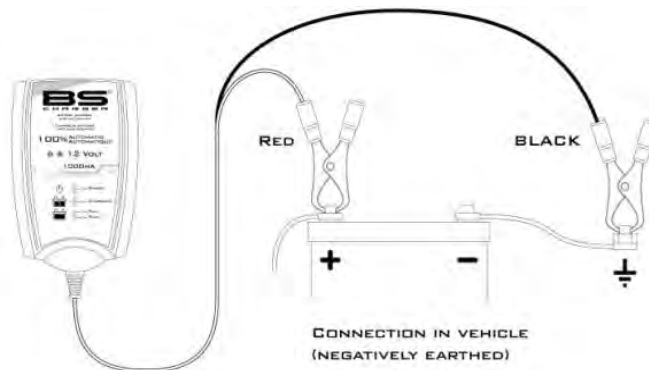
- Check the Battery Electrolyte level (Not required on sealed & Maintenance Free Batteries). If necessary, remove the vent caps and add distilled water so the levels are halfway between the upper and lower fill lines.
- Check the Voltage Output Switch on the charger and make sure it's on the correct voltage.

## STEP 2 - Connecting the Battery charger to your Battery

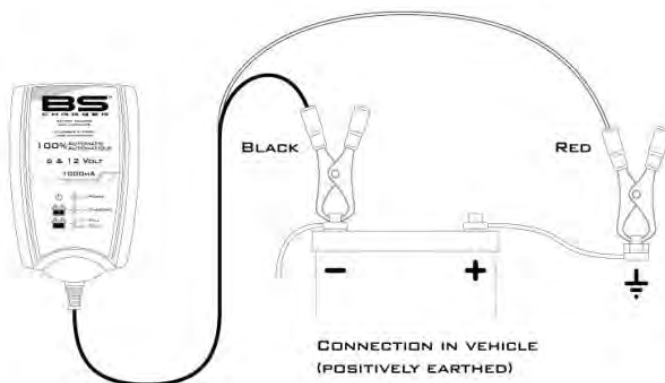
- If the Battery is **out of the vehicle**:
  - Connect the Red lead from the charger to the positive (+) battery terminal.
  - Connect the Black lead from the charger to the negative (-) battery terminal.



- If the Battery is still **in the vehicle**, determine if the vehicle is positively (+) or negatively (-) earthed.
  - If Negatively Earthed (Most Common) – FIRST Connect the Red (+) battery charger lead to the positive (+) Battery post and then connect the Black (-) battery charger lead to the vehicle's chassis and away from the fuel line.



- If Positively Earthed – FIRST Connect the Black (-) battery charger lead to the Negative (-) battery post and then connect the Red (+) battery charger lead to the Vehicle's chassis and far away from the fuel line.



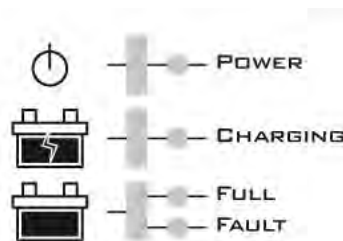
### **STEP 3 - Connect the battery charger to Mains Power (240Vac)**

- Connect the battery charger to a 240VAC Mains Powered socket.
- Turn on the 240VAC Mains Power.
- The Charger will automatically start when AC power is connected and switched on.

(Note: If the Fault Indicator LED illuminates Red, please check your connections as it's likely that the Positive and Negative Leads are reversed. Refer to Trouble Shooting Page for further information)

### **THE CHARGING PROCESS:**

The charging stages are as follows:



- **Bulk Charge:**

Charges using a constant maximum current (1A) until the battery reaches 7.2V (6 Volt Batteries) or 14.4V (12 Volt Batteries) - (LED Color - Yellow)

- **Fully / Float:**

Battery is fully charged and is being maintained. (LED Color - GREEN)

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

- If the Battery is out of the vehicle.
  - Switch OFF and Remove the AC Power Socket from the outlet.
  - Remove the Black lead and then the Red lead.
  - Check electrolyte levels if possible.

(As they may need topping up with distilled water after charging)

- If the Battery is in the vehicle.
  - Switch OFF and Remove the AC Power Socket from the outlet.
  - Remove the lead from the vehicle chassis.
  - Remove the lead from the battery.
  - Check electrolyte levels if possible.

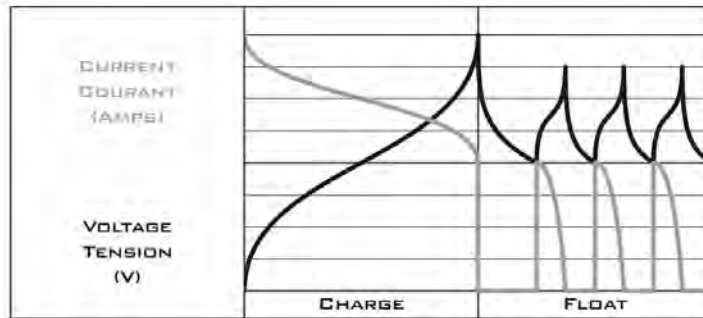
(As they may need topping up with distilled water after charging)

### **LED STATUS INDICATOR TABLE:**

	<b>Power (Red)</b>	<b>Charging (Yellow)</b>	<b>Full (Green)</b>	<b>Fault (Red)</b>
A.C. Power connected, battery disconnected	<b>ON</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>
Bulk Charging	<b>ON</b>	<b>ON</b>	<b>OFF</b>	<b>OFF</b>

Level 1 Charging	<b>ON</b>	<b>ON</b>	<b>OFF</b>	<b>OFF</b>
Level 2,3 Charging	<b>ON</b>	<b>OFF</b>	<b>ON</b>	<b>OFF</b>
Battery Reverse polarity connection	<b>ON</b>	<b>OFF</b>	<b>OFF</b>	<b>ON</b>
A.C. Power OFF	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>	<b>OFF</b>

### CHARGING CURVE (VOLTAGE):



### TROUBLE SHOOTING

<i>Types of Problems</i>	<i>Indication</i>	<i>Possible Causes</i>	<i>Suggested Solution</i>
<b><u>Charger does not work?</u></b>	No Indicator lights on	- No AC power	- Check AC connections and make sure Power Point is switched ON
<b><u>Charger has no DC output?</u></b>	Fault LED is On.	- Output is short circuited - Reverse polarity connection to Battery	- Check DC connection between charger and battery and make sure they are not short circuiting. - Check that the crocodile clips haven't fallen off the battery. - Check that the crocodile clips / ring terminals are connected to the correct polarity.
<b><u>No Charging Current?</u></b>	Fault LED is ON	- Battery is severely sulphated - Battery has a damaged cell - Overheat protection mode	- Check the Battery condition, age etc. - Battery may need replacement. - Move battery & Charger to cooler environment
<b><u>Long charging time, Full light does not come on?</u></b>	Fault LED is ON	- Battery capacity too large - Battery is defective	- Check the charger specification matches the battery capacity. - Battery cannot be charged and must be replaced.

### MAINTENANCE

- The charger is maintenance free. If the power cord is damaged, the charger must be left to the reseller for maintenance. The case should be cleaned occasionally. The charger should be disconnected from the power while cleaning