

## 20 Amp & 40 Amp In-Vehicle Battery Charger

**CHARGE PLUS'S** 12V 20 A & 40A In-vehicle battery charger features technology designed to fully charge your batteries, regardless of their type or size. By providing the correct charging profile to each specific battery type, the **CHARGE PLUS** In-Vehicle Battery Charger is able to achieve and maintain an optimal charge in your secondary battery whether it is fitted to your 4 x 4, Caravan or Motor Home.



**CHARGE PLUS'S** In-vehicle battery chargers are one of the most flexible chargers on the market as it will charge both Lead acid and Lithium iron Phosphate (LiFePO4) technology Batteries.

**CHARGE PLUS'S** In-vehicle battery chargers have the largest input operating voltage range in the market. Where other products in the market are limited to a maximum of 32v off your vehicle or 28v on solar our systems are fully automotive load dump rated to 80v and have a maximum input voltage of 40v off your vehicle or 60v on solar.

**CHARGE PLUS'S** wide input voltage range allows for 2 x 12v unregulated solar panels in series or a 24v unregulated solar panel to be connected to the In-Vehicle Battery Charger Maximum Power Point Tracking (MPPT) solar regulator input, allowing you to deliver the maximum amount of power from your solar panels to your auxiliary battery. You can connect up to 300 watts of solar on the 20 amp or 600 watts of solar on the 40 amp charger.



20 Amp Charger



40 Amp Charger



## Features

- Flexible installation in 12v or 24v Vehicles
- Multi Stage DC-DC Battery Charger
- Dual Input, Start battery & Dedicated Solar input (no external relay required)
- MPPT Solar Regulator
- Ignition input to start charging cycle
- Alternator charging sensing to start charging cycle, ideal when fitted to caravans
- Start Battery Isolation
- Start Battery Maintenance Charging once second battery is fully charged when charging from solar.
- Multi-Colour Status LED.
- Multi-Colour Remote mounted Status LED (Optional Kit sold separately)
- Connectors and appropriate Fuse's Supplied (Solar input Fuse kit sold separately)
- Anodised Aluminum housing with all stainless steel fixings
- Electronics are silicone encapsulated for durability in our Australian Conditions.
- Super quiet operation
- Charges AGM, Gel, Calcium content, VRLA and Standard Lead Acid batteries
- Charges **LiFePO4** batteries

### Multi colour status indicator.

To assist in quick charging diagnosis, a multi colour LED indicator is provided. Colour vs status is listed below:

- Red indicates that the battery is charging at maximum current and the battery voltage is below 13.5 volts. (Bulk charge with low battery.)
- Amber indicates that the battery is charging at maximum current and the battery voltage is greater than 13.5 volts. (Bulk charge with almost charged battery.)
- Flashing of either the Red or Amber indicates the input is not able to supply the full current so charging current is reduced so as not to overload the input wiring.
- Green indicates that adsorption voltage has been reached and absorption charging is under way.
- Blue indicates that absorption charging is completed and the battery is now being held at 13.5 volts.
- No light indicates unit is in standby mode.

## Specifications

|                              | CPIC1220 & CPIC1240                     |               |                 |         |
|------------------------------|---|---------------|-----------------|---------|
| DC Input Voltage Range       | 9V-40V and Automotive Load Dump Rated   |               |                 |         |
| DC Input Voltage Range Solar | 9V-60V                                  |               |                 |         |
|                              | Gel/AGM                                 | Std Lead Acid | Calcium Content | LiFePO4 |
| Absorption Voltage           | 14.2V                                   | 14.5V         | 14.9V           | 14.6V   |
| Float Voltage                | 13.5V                                   | 13.5V         | 13.5V           | 14.6V   |
| No Load Current              | < 50mA                                  |               |                 |         |
| Standby Current              | < 1mA                                   |               |                 |         |
| Input Fuse Rating 12V/24V    | 30A/20A (CPIC1220) - 50A/30A (CPIC1240) |               |                 |         |
| Output Fuse Rating           | 30A (CPIC1220) - 50A (CPIC1240)         |               |                 |         |
| Output Power                 | 300W (CPIC1220) - 600W (CPIC1240)       |               |                 |         |
| Ambient Temperature          | -20°C to +80°C                          |               |                 |         |
| Weight                       | 870g (CPIC1220) & 1240g (CPIC1240)      |               |                 |         |
| Warranty                     | 2 years                                 |               |                 |         |



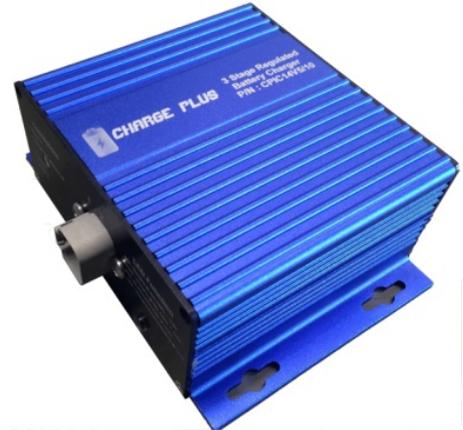
For more information please visit our web site [www.chargeplus.com.au](http://www.chargeplus.com.au)

## Transport Industry Battery Charger

We have developed a special purpose Battery charger to charge batteries fitted to Truck trailers.

Modern Rigid Trucks and Semi Trailers now have features such as Roll back roofs, Tail Gate Loaders etc. these new features all require hydraulics and this hydraulic pack requires a battery to run.

The Charge Plus **Universal Input Computer Controlled Three Stage Regulated Battery Charger** that will charge this battery from your lighting circuit and or the auxiliary circuit in the trailer plug.



### **Key Features.**

#### **Universal input voltage.**

The charger will operate with 12 volts DC, 24 volts DC and chopped 24 volts with a duty cycle between 25% to 100%.

The charger will charge the target battery with an input voltage of 9.6 volts or more. The inputs have spike suppression to limit the maximum applied input voltage to 63volts, this complete circuit protection.

#### **Two inputs.**

Two inputs are provided so that multiple power sources can be used. If multiple inputs are connected the charger will still function even if one circuit is off.

#### **Intelligent three stage charging.**

The first stage of charging occurs when a battery has been run down. For battery terminal voltages of less than 14.5volts the charger will output maximum current of up to 10 amps continuously until the battery voltage reaches 14.5volts. This phase is normally referred to as bulk charge.

Once the terminal voltage has reached 14.5 volts the absorption charge phase starts. During this phase the charger maintains a voltage of 14.5 volts for two hours. The higher voltage is necessary to insure that the battery gets to 100% charge however continuous operation at this voltage would cause excessive gassing and potentially damage the battery. That is why there is a time limit.

When the two hours have passed the charger switches to maintenance or float mode and drops the charging voltage to 13.7 volts to reduce battery gassing. The battery can be held at this voltage indefinitely to hold 100% charge.

If at any point during the charging cycle a heavy load is turned on that causes the battery voltage to fall below 12.5 volts the charging cycle is reset and the whole cycle begins again.

The charger is in an Anodised Aluminium housing with all stainless steel hardware and the electronics are silicone encapsulated for durability in our harsh Australian Conditions.



## Multi colour status indicator.

To assist in quick charging diagnosis, a multi colour LED indicator is provided.

Colour vs status is listed below:

- Red indicates that the battery is charging at maximum current and the battery voltage is below 13.7 volts. (Bulk charge with low battery.)
- Amber indicates that the battery is charging at maximum current and the battery voltage is greater than 13.7 volts. (Bulk charge with almost charged battery.)
- Flashing of either the Red or Amber indicates the input is not able to supply the full current so charging current is reduced so as not to overload the input wiring.
- Blue indicates that 14.5 volts has been reached and absorption charging is under way.
- Green indicates that absorption charging is completed and the battery is now being held at 13.7 volts.
- No light indicates either no input voltage or input voltage is less than 9.6 volts.

**At no time does this unit draw power from the target battery so it will not flatten your battery if you leave your trailer at the depot.**



For more information please visit our web site [www.chargeplus.com.au](http://www.chargeplus.com.au)



# NEW Product Bulletin

## Battery Protection Module

**CHARGE PLUS'S** Battery Protector is designed as a Low battery cut-out switch with build in over-current protection circuit, both crucial features to protect your expensive batteries from over discharging and or a short circuit. Compared to the other Low battery cut-outs the Charge Plus unit has the additional function of a 15 amp circuit breaker. The Charge Plus unit is small in size (58mm L x 40mm W x 26mm H) so they can be stacked together to make a fuse box.

**CHARGE PLUS'S** Battery Protector has the following general functions:

1. The unit is designed to be configured as either automatic resetting or manual resetting.
2. The unit will trip out to protect the battery if the battery voltage falls below 10V for a period of time.
3. The unit will trip out if the load current exceeds 15 amps.
4. There is a push button which is used to reset the unit when it trips out or it can be used to switch off the circuit.
5. The unit is fitted with a LED to indicate the current load on the output and status.

The **CHARGE PLUS** Battery Protector is designed using Nanowatt technology and clever software that flashes the LED, has a no load standby power consumption of less than 2mA in auto mode or less than 1mA in manual mode.

Even at higher power outputs of more than 1 amp the consumption is a maximum of 15mA. Other units in the market which are only low voltage cut-outs are around 50mA even at no load.

The charge Plus unit is truly Automotive Load Dump and Voltage rated to O.E. standards and have an operating voltage range to suit 12 volt vehicles ( 9 volts to 20 volts )

### Features

The **CHARGE PLUS** Battery Protection Module can be configured as Manual Reset or Automatic Reset, these modes of operation are explained below.

#### 1. Manual Reset Mode:

- a. Once power is applied to activate the output press and hold the Reset Button for about 1 second. The LED will light and indicate the load on the unit as per Table below.
- b. Pressing the Reset Button when the Output is active will turn off the Unit, so the Unit can be used as an On/Off switch for your circuit.
- c. The unit monitors the load current as well as the battery Voltage if the load current exceeds 15Amps the unit will disconnect the load and require you to press the Reset button to reactivate.
- d. If the Battery Voltage drops below 10V for a period of time the unit will disconnect the load and require you to press the Reset button to reactivate. Averaging is used to filter momentary drops in voltage caused by large loads being turned on.

| <u>Flashing Green</u>  | <u>Constant Green</u>                 | <u>Constant Amber</u>                  | <u>Flashing Red</u>                              |
|--|---------------------------------------|--|--|
| Load Current under 1 Amp   | Load Current between 1 amp to 10 amps | Load Current between 10 amp to 15 amps | Tripped Out due to Over current or Under Voltage |
| The Flash rate is faster as more current is consumed until at 1 amp it is a constant green |                                       |  |  |



## 2. Automatic Reset Mode:

- a. Once power is applied to activate the output press and hold the Reset Button for about 1 second. The LED will light and indicate the load on the unit as per Table above.
- b. Pressing the Reset Button when the Output is active will turn off the Unit, so the Unit can be used as an On/Off switch for your circuit.
- c. The unit monitors the load current as well as the battery Voltage if the load current exceeds 15Amps the unit will disconnect the load. It will Check every 2.5 seconds to see if the overload has been removed and if the Load is less than 15 Amps it will Reactivate the output.
- d. If the Battery Voltage drops below 10V for a period of time the unit will disconnect the load and once the battery voltage returns to 13.2 Volts (battery is charging) the unit will reactivate the output. Averaging is used to filter momentary drops in voltage caused by large loads being turned on.

## Specifications

|  |  |
|--|--|
| DC Input Voltage Range                       | 9V-20V and Automotive Load Dump Rated to 60V |
| Standby Current with No load on the output   | Less than 2 mA                               |
| Standby Current in Off mode                  | Less than 1 mA                               |
| Standby Current Tripped (Auto Mode)          | Less than 2 mA                               |
| Standby Current Tripped (Manual Mode)        | 0 mA   |
| Power Consumption with Load at Less than 1 A | 2 mA to 15 mA dependant on Load              |
| Power Consumption with Load at 1 A and above | 15 mA  |
| Ambient Temperature                          | -40°C to +85°C                               |
| Warranty                                     | 2 years                                      |

For more information please visit our web site [www.chargeplus.com.au](http://www.chargeplus.com.au)