



Operating Manual

A 4506 6A Battery Charger

A 4512 12A Battery Charger



The A 4506 and A 4512 battery chargers are ideally suited for PA systems requiring battery back up in the event of mains power failure.

The design incorporates a highly efficient, intelligent, multi stage switchmode battery charger ensuring optimum battery charging and performance.

This charger has been specifically designed for use on sealed lead acid batteries (SLA).

1.0 Features

- Short circuit protection
- Electronic reverse polarity protection
- 2 stage charging
- 2 switched 50 amp outputs
- Automatic boost and float voltages
- Precision control of boost and float voltage settings
- Battery Isolator/circuit breaker
- 24V DC Auxiliary outputs (maximum load 1 amp)
- Digital battery voltage display
- Digital battery current display
- Charging mode status indicators
- Mains/battery/low battery status indicators
- 24V out status indicator
- Low voltage cut off to protect battery
- 2U 19" rack mount chassis
- 2 year warranty
- Ideal for sealed lead acid batteries
- Australian designed and manufactured
- Made in Australia

2.0 Front Panel Connections

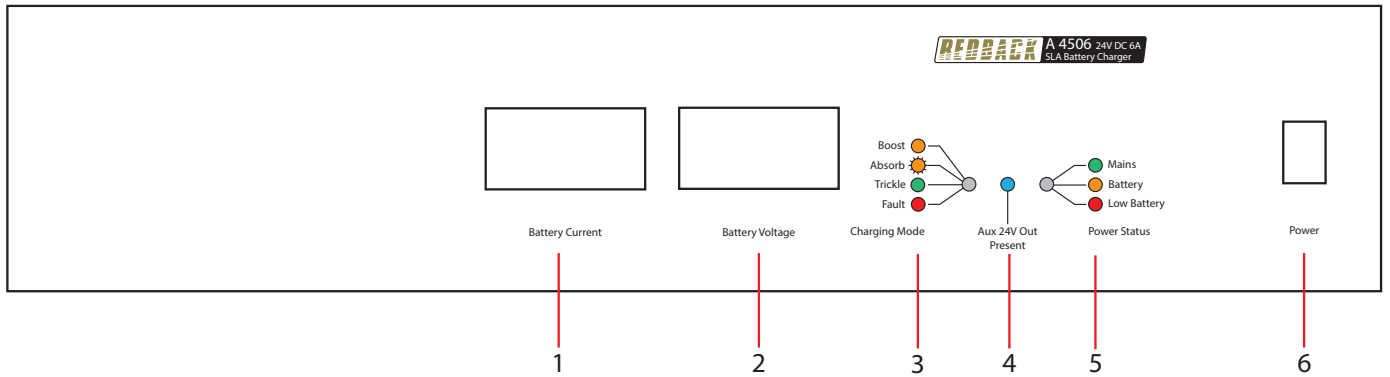


Fig 1

- 1 Battery Current Indicator**
This LCD displays the battery current. A positive figure indicates the battery charging current. A negative figure shows the current drain from the batteries when the load(s) is being powered by the batteries.
- 2 Battery Voltage Indicator**
This LCD displays the battery voltage.
- 3 Charging Mode Indicators**
The charger has 3 stages of charge and a fault condition.
Boost charge mode - Solid orange LED
Absorb charge mode - Flashing orange LED
Trickle charge mode - Solid green LED
Fault Mode - Solid red LED
- 4 Auxiliary 24V Out Indicator**
This LED indicates when 24V is present at the auxiliary outputs.
- 5 Power Status Indicators**
These indicate what power source the battery charger is powering from.
Mains power - Green LED
Battery power - Orange LED
Low Battery - Red LED
- 6 Power Switch**
Used to turn the unit On or OFF.

3.0 Rear Panel Connections

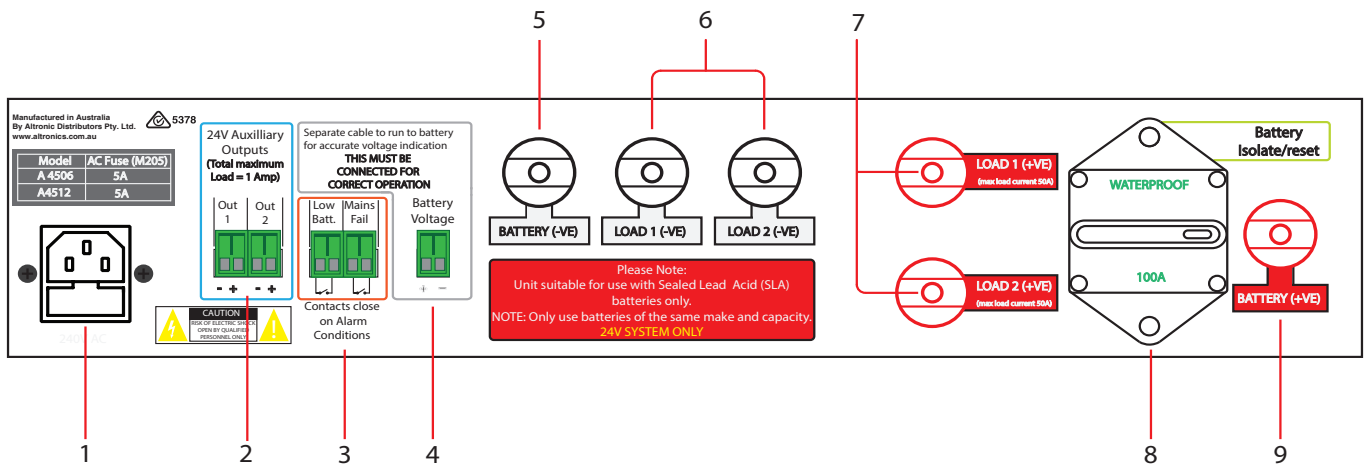


Fig 2

- 1 240V AC Input**
Power is supplied via a 230V mains lead.
- 2 24V Auxiliary Outputs**
These provide 24V DC at a maximum of 1 amp combined output current.
- 3 Low Battery and Mains Fail Contacts**
Normally open contacts which close when a low battery condition occurs or when mains is no longer powering the charger.
- 4 Battery Voltage Connection**
This lead must be connected to the batteries via a separate cable to that which is connected to the battery +ve and battery -ve binding posts. This separate lead accurately measures the voltage present at the batteries.
- 5 Battery -ve Connection**
This is connected to the negative terminal of the battery.
- 6 Load -ve Connections**
These binding posts are for the negative connection of the load(s). A maximum load of 50 amps per set of load terminals.
- 7 Load +ve Connections**
These binding posts are for the positive connection of the load(s). A maximum load of 50 amps per set of load terminals.
- 8 Battery Isolate/Reset**
This breaker can be used as an isolator to quickly disengage the batteries without having to disconnect leads. It also acts as a safe guard against short circuits in the battery leads or reverse polarity connection.
- 9 Battery +ve Connection**
This is connected to the positive terminal of the battery.

4.0 Calculating Battery Size

Before wiring any batteries to the charger it is important to calculate the battery size required for the PA system you are installing. Figure 3 demonstrates the formula to calculate the required battery size.

Calculating battery size for PA systems

$$\text{Battery Size} = \frac{\text{Total amplifier power in watts}}{\text{Volts}} \times 1.5 = \text{Required amps for 1 hour}$$

$$\text{500W amplifier Battery Size} = \frac{500}{24} \times 1.5 = 31.25\text{AH}$$

Therefore a 40AH battery would be suitable Please note: This calculation assumes 100% duty cycle at full power output into full rated load.

Fig 3

5.0 Battery Characteristics

Before connecting batteries to the charger it is recommended that the batteries be equalised as shown in Fig 4. Batteries should also be connected in series to create a 24V battery source as shown in Fig 5.

**** PLEASE NOTE: The A 4506 and A 4512 are 24V battery charging systems. ****

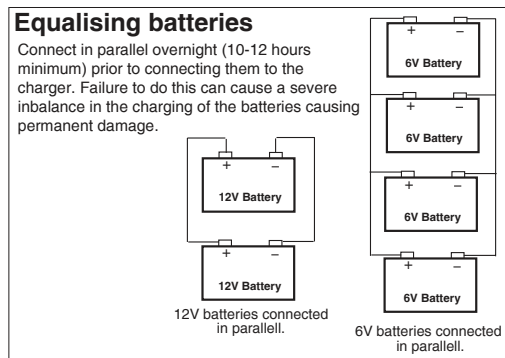


Fig 4

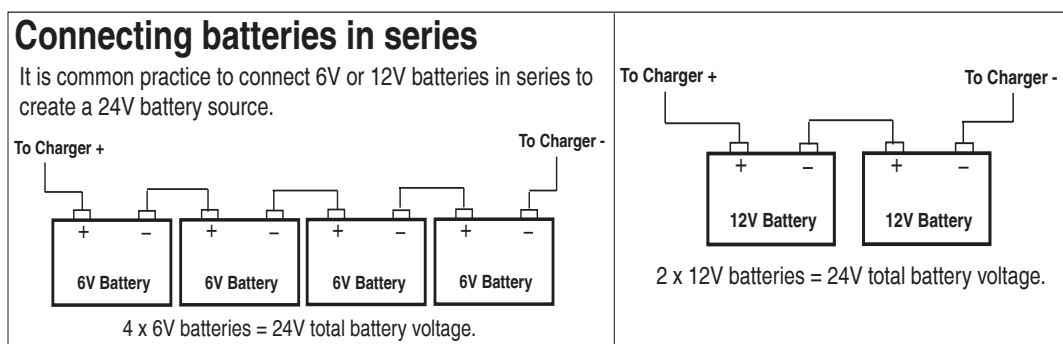


Fig 5

6.0 Battery and Load Configuration

Ensure that the power to the unit is off both at the mains and the switch at the front. Proceed to wire up the unit according to the instructions below in figure 6.

Connect your battery to the binding posts on the back of the unit labelled (Battery +ve and Battery -ve) using heavy gauge cable.

Another lead needs to be connected to the battery from the terminal labelled "Battery Voltage". This lead needs only be made of medium duty wire. This lead **MUST BE CONNECTED** for the charger to operate and is used to measure the voltage at the batteries.

Connect your load(s) to the binding posts labelled (Load 1 +ve and load 1 -ve and if required to load 2 +ve and load 2 -ve). Note: the load current is limited to 50 amps maximum per load.

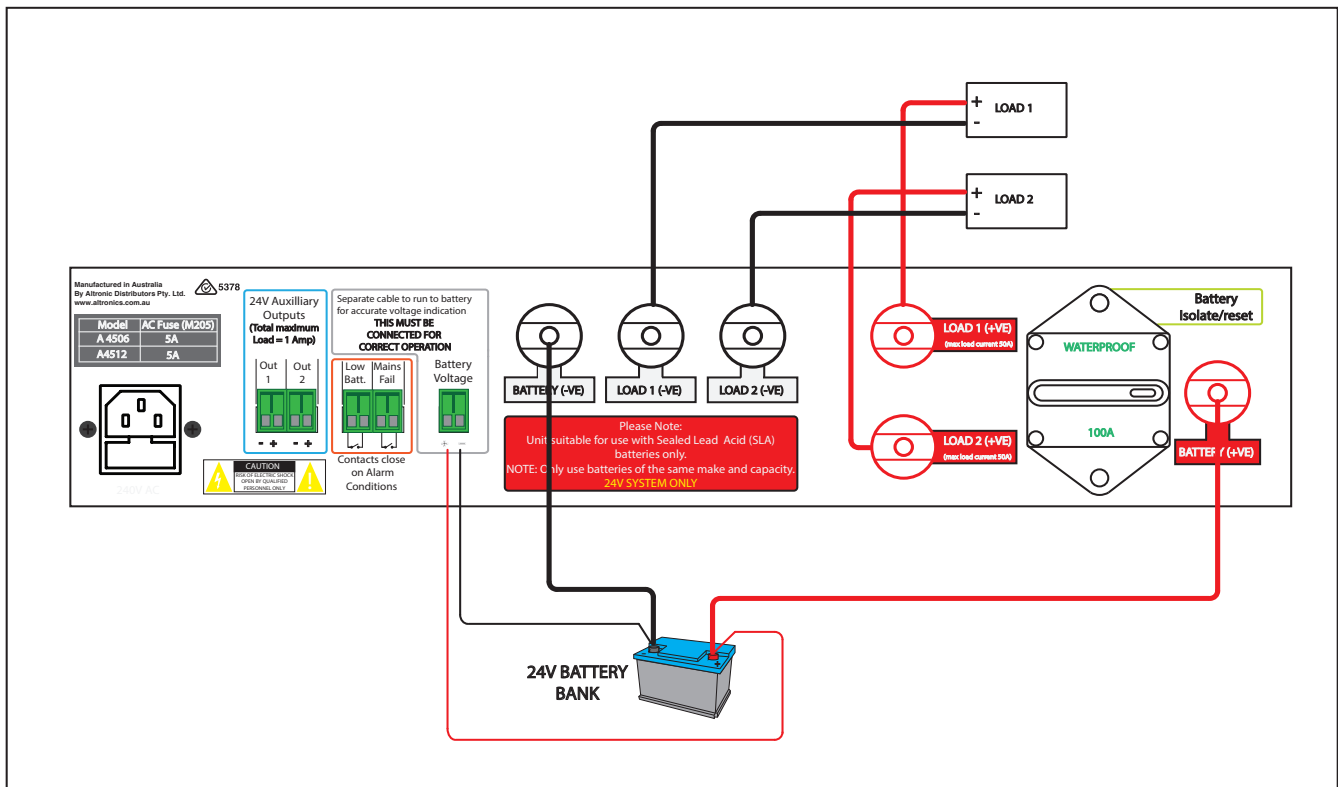


Fig 6

7.0 Charger Operation

Once wiring is finished switch on the unit.

You should see the battery voltage and current draw indicated on the displays on the front panel. This refers to the voltage available at the battery terminals and the current flowing through the batteries. (A positive current figure indicates the batteries are being charged while a negative current figure indicates that the batteries are supplying power to the load(s)). It is common for the battery voltage to read nominally higher than the voltage rating of 24VDC.

Whilst the battery is connected to the unit and mains power is applied, the charger will continue to charge the battery. The charger will charge the battery at "Boost" current (6A for A 4506 or 12A for A 4512) until 29.4V is reached, at which time the battery charger will continue to "Absorb" charge and then "Trickle" charge the battery in order to keep it topped up at 27.6V.

LED's on the front panel indicate when these changes in the cycle occur.

Should mains power fail, the unit will automatically switch the connected load(s) to the battery. When mains power is restored the load(s) will be disconnected from the battery. LED's on the front panel indicate when the unit is running of the mains or the battery.

If power is not restored before the battery voltage drops below 22V, the unit will automatically disengage the battery from the load. This will prevent long term blackouts from damaging the battery.

Should the unit fail to operate in the above manner refer to troubleshooting.

8.0 Battery Isolate/Reset

The A 4506 and A 4512 battery charger models are fitted with an 100Amp breaker which is in line with the battery +ve terminal. This breaker can be used as an isolator to quickly disengage the batteries without having to disconnect leads. It also acts as a safe guard against short circuits in the battery leads or reverse polarity connection.

9.0 Auxiliary Outputs and Alarm Contacts

24V auxiliary outputs have been provided so that external devices requiring 24V DC can be powered. Two sets of output terminals have been provided. The total combined load current available from these outputs is 1A maximum and is protected by an internal 1amp resettable fuse.

Alarm contacts have been provided for external monitoring of the battery charger. These contacts are normally open and close when there is a mains power fail or a low battery status is achieved.

10.0 Battery Charging Time

The table below indicates typical charging times for the shown ampere hour ratings.

Charging time is dependent on the ampere hour rating of the battery and its condition of charge.			
Typical charge times for fully discharged batteries using 6A model No. A 4506		Typical charge times for fully discharged batteries using 12A model No. A 4512	
24AH	6Hrs	60AH	8Hrs
40AH	10Hrs	80AH	10Hrs
		100AH	12Hrs
		120AH	14Hrs

11.0 Troubleshooting

Mains led does not come on.

Check that the mains lead is connected.
Check that the AC fuse is installed.

Unit does not display battery voltage.

Check that you have connected a lead from the battery to the terminals labelled Battery Voltage.

Unit will not charge battery.

Check connections to (To battery) terminals and to the battery.
Make sure the Isolate breaker hasn't been reset.

Load does not power up when mains fails.

Check connections to (To load) terminals and to the load.
Make sure the Isolate breaker hasn't been reset.

12.0 Specifications

Input Voltage:	240V AC 50Hz
Boost Voltage:	29.4V DC
Trickle Voltage:	27.6V DC
Boost Current:	(A 4506) 6A Max. (A 4512) 12A Max.
AC Fuse Protection:	(A 4506) 5A (A 4512) 5A
Display:	
Battery Voltage:	3.5 Digit LCD
Battery Current:	3.5 Digit LCD
Trickle charge:	Green LED
Float charge:	Flashing Yellow LED
Boost Charge:	Yellow LED
Mains Power:	Green LED
Battery Power:	Yellow LED
Low Battery:	Red LED
24V DC Auxiliary Out Present:	Blue LED
Controls:	Power On/Off
Rocker Switch	
Dimensions:	~483W x 330D x 88H mm
Colour:	Black
Weight:	(A 4506) 7.5kg (A 4512) 9kg

* Specifications subject to change without notice.