

**PROJECTA**

**INTELLI-CHARGE LITHIUM  
BATTERY CHARGER  
5 STAGE SWITCHMODE**



P/No.s IC2500L, IC5000L

# **IMPORTANT SAFETY INFORMATION**

Please read this manual thoroughly before use and store in a safe place for future reference.

## **WARNING**

- Explosive gases may escape from the battery during charging. Prevent flames and sparks. Provide adequate ventilation.
- Before charging, read the instructions.
- For indoor use. Do not expose to rain.
- For charging Lithium Iron Phosphate batteries ONLY (for the size and voltage specified in the specifications table).
- Disconnect the 240V mains supply before making or breaking the connections to the battery.
- The battery charger must be plugged into an earthed socket-outlet.
- Connection to supply mains is to be in accordance with National wiring rules.
- Do not attempt to charge non-rechargeable batteries.
- Never charge a frozen battery.
- If the AC cord is damaged do not attempt to use. It must be replaced or repaired by a qualified person.
- Corrosive substances may escape from the battery during charging and damage delicate surfaces. Store and charge in a suitable area.
- Ensure all vehicle accessories including lights, heaters, appliances etc are turned off prior to charging.
- This charger is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Young children should be supervised to ensure that they do not play with the appliance.

# 5 STAGE AUTOMATIC CHARGING

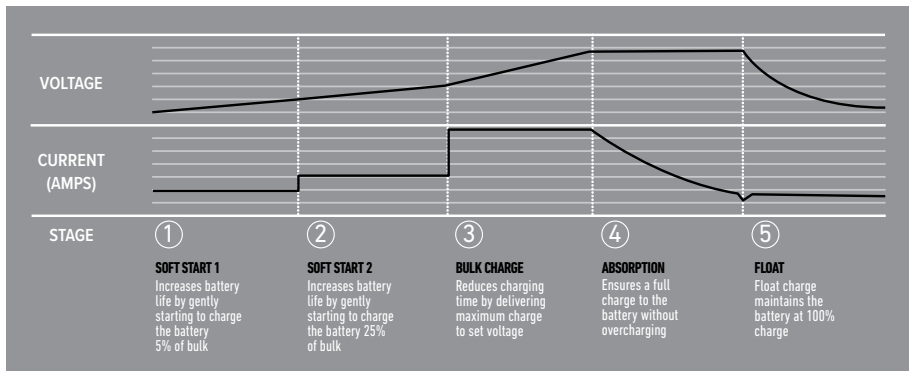
This is a fully automatic battery charger with 5 charge stages.

Automatic charging protects your battery from being overcharged so you can leave the charger connected to the battery indefinitely.

5 stage charging is a very comprehensive and accurate charging technique that gives your battery longer life and better performance compared to using traditional chargers.

The 5 charge stages are:

Soft Start 1, Soft Start 2, Bulk, Absorption and Float.



## SOFT START 1

This is a preliminary charge that is for heavily discharged batteries where the voltage is between 1-8 Volts. Charge is limited to 5% of set current.

## SOFT START 2

This is a preliminary charge that is for discharged batteries where the voltage is between 8-10 Volts. Charge is limited to 25% of set current.

## BULK (CONSTANT CURRENT)

The Bulk stage reduces charging time by charging the battery at the maximum rate (constant current) to a set voltage, at which point the battery is approximately 80% charged.

## ABSORPTION (CONSTANT VOLTAGE)

The absorption stage charges the battery to 100% by adjusting the charge rate allowing the battery to absorb more power.

## **FLOAT**

The Float stage maintains the battery at 100% charge without overcharging or damaging the battery. This means the charger can be left connected to the battery indefinitely.

## **POWER SUPPLY (CONSTANT VOLTAGE OF 13.8 VOLTS)**

This sets the charger in power supply mode giving a constant voltage of 13.8VDC. This mode is best used where appliances are drawing power from the battery, for example a Fridge.

# **FEATURES**

## **ADJUSTABLE CHARGE RATE**

The charger's output can be adjusted to suit the size of the battery for optimum charging.

## **REMOTE CONTROL DISPLAY**

Control and monitor the charger's performance from a remote control display, allowing the charger to be flush or surface mounted out of the way and out of sight. The battery charger and remote are synchronised for operation either locally or by remote.

## **TEMPERATURE COMPENSATION**

Decreases the charge voltage whilst charging during warmer weather and decreases the charger current when the battery temperature is below 0 deg C, to protect the battery and extend it's life.

## **SWITCHMODE TECHNOLOGY**

## **LCD SCREEN & LED INDICATORS**

## **POLARITY PROTECTION**

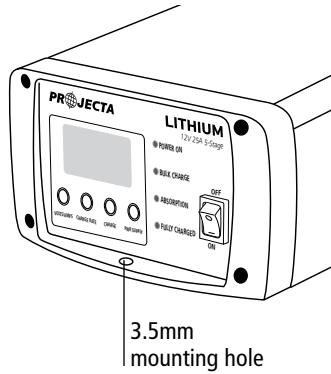
## **OVER TEMPERATURE PROTECTION**

# MOUNTING INSTRUCTIONS

## MOUNTING BATTERY CHARGER

Intelli-Charge chargers are designed for indoor, out of weather use only. Ensure that both charger and battery are in a well-ventilated space during charging.

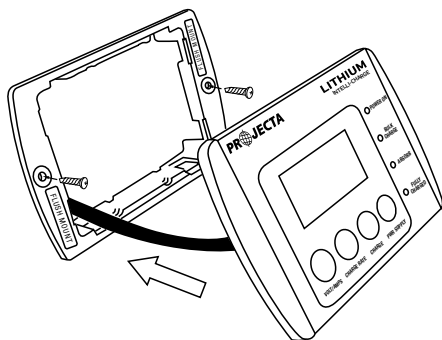
The battery charger end plates include a mounting flange for easy mounting. If permanently fixed the charger should be mounted to a suitable horizontal or vertical panel, with at least 10cm clearance from the end plates to provide adequate ventilation for the cooling fan.



# MOUNTING REMOTE CONTROL

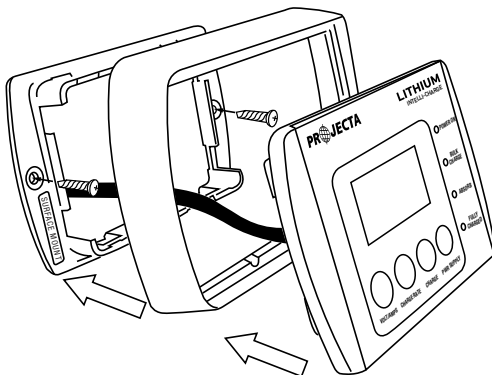
## FLUSH MOUNT

- Cut a 93mm x 70mm hole into the desired mounting surface to suit the supplied mounting plate.
- Position the mounting plate into the hole with the side labelled 'FLUSH MOUNT' facing outwards and screw the supplied screws into the mounting surface as per the below illustration.
- Clip the remote control into the mounting bracket.



## SURFACE MOUNT

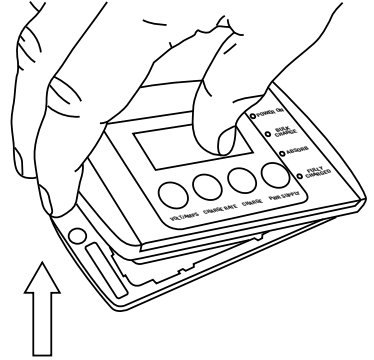
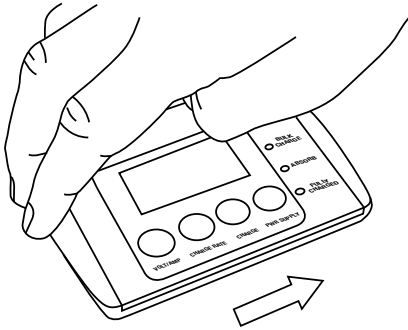
- Position the supplied mounting plate onto the desired mounting surface so the side labelled 'SURFACE MOUNT' is facing outwards and screw the supplied screws into the mounting surface as per the below illustration.
- Drill a 15mm cable exit hole into the mounting surface, ensure cable exit hole is positioned directly in the middle of the mounting plate.
- Position the remote control into the remote control surround as per the below illustration and clip into the mounting bracket.



# REMOVING REMOTE CONTROL

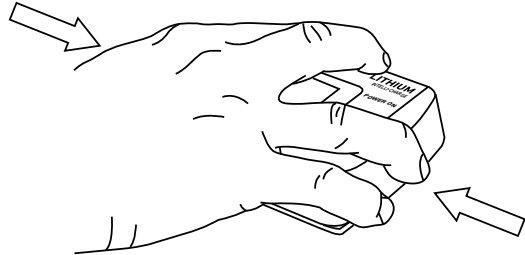
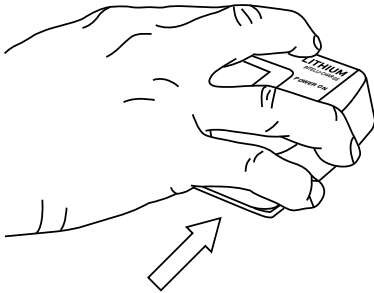
## FLUSH MOUNT

1. Pull the remote control sideways and firmly lift
2. The remote will click out of place



## SURFACE MOUNT

1. Holding the remote on either side, push upwards.
2. Squeeze the sides together to lift away.



# CONTROLS

The battery charger and remote control interfaces are synchronised and identical in operation allowing you to monitor the battery charger's performance and customise the charge settings to best suit your battery. The function of each button is explained below:

1. **VOLT/AMP:** Change LCD screen display from battery voltage to input current
2. **CHARGE RATE:** Set the charge rate to suit the size of the battery
3. **CHARGE:** Sets the charger to charge in Lithium mode
4. **PWR SUPPLY:** Sets the charge voltage to a constant 13.8V





# LED CHARGE INDICATORS

## BATTERY CHARGER & REMOTE CONTROL

These battery chargers include coloured LEDs that illuminate various signals to indicate different stages of charging.

LED	LED SIGNAL & STAGES OF CHARGING				
	Soft Start 1	Soft Start 2	Bulk	Absorption	Float
Bulk Charge (Blue)	Fast Flash -----	Slow Flash ---	Solid On _____	-	-
Absorption (Blue)	-	-	-	Solid On _____	-
Fully Charged (Green)	-	-	-	-	Solid On _____
Power On (Red)	Solid On: Normal Flashing: Fault (See Faults & Errors, page 14)				

## CHARGING INSTRUCTIONS

### STEP 1 – CONNECT TO BATTERY

There are three options for connecting to battery.

Step 1A – Connecting to a battery that is out of the vehicle

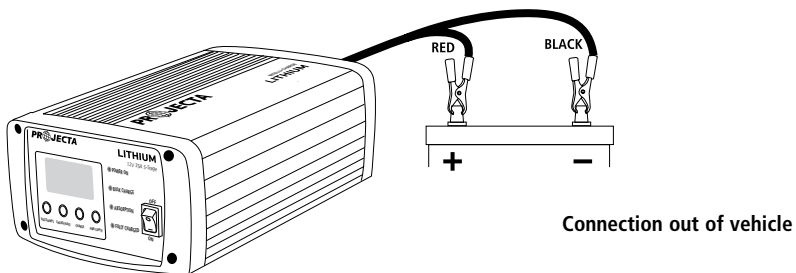
Step 1B – Connecting to a battery fitted to a vehicle

Step 1C – Permanent hard wiring connection to a battery

### STEP 1A – BATTERY OUT OF VEHICLE

Connect the RED lead (battery clip) from the charger to the Positive (+) battery post.

Connect the BLACK lead (battery clip) from the charger to the Negative (-) battery post.



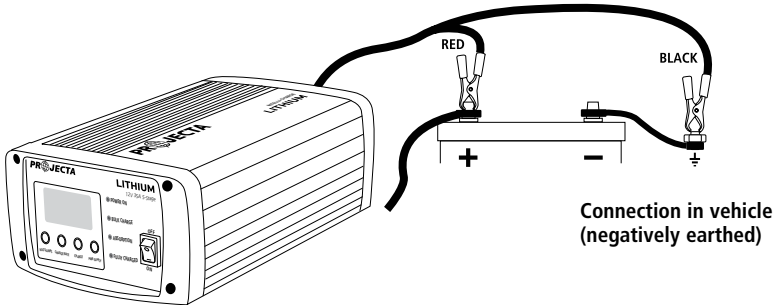
### STEP 1B – BATTERY IN VEHICLE

Determine if the vehicle is Positively (+) or Negatively (-) earthed. Negatively earthed vehicles have a cable (usually black) from the Negative battery terminal to the vehicle's chassis.

#### Negatively earthed (most vehicles)

Connect the RED lead (battery clip) from the charger to the Positive (+) battery terminal.

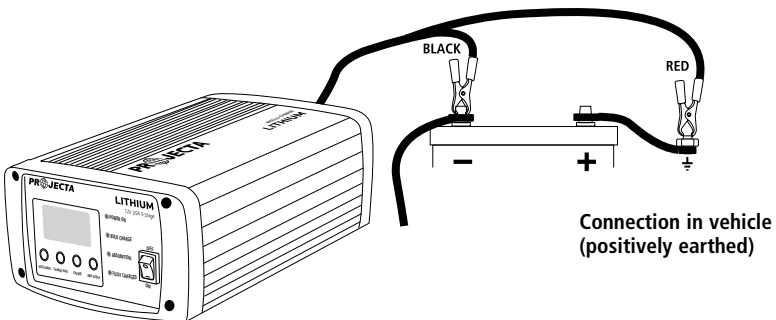
Connect the BLACK lead (battery clip) from the charger to the vehicle's chassis away from the fuel line or moving parts.



#### Positively earthed

Connect the BLACK lead (battery clip) from the charger to the Negative (-) battery terminal.

Connect the RED lead (battery clip) from the charger to the vehicle's chassis away from the fuel line or moving parts.



## STEP 1C – PERMANENT HARD WIRING

It is possible to hardwire the DC charging leads to the battery for permanent installations.

The DC leads are pre-wired with cable lugs to make this process easier.

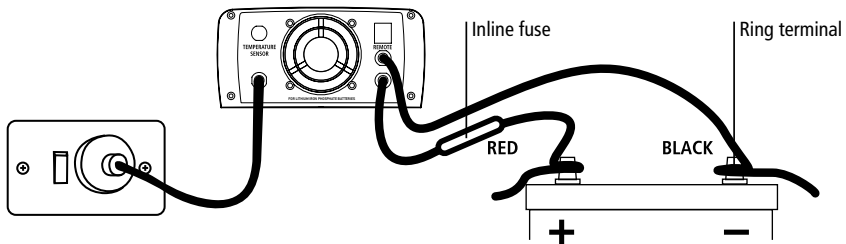
It is recommended to fit a circuit breaker or inline fuse with the following ratings. (See below)

IC2500L = 30 Amp

IC5000L = 100 Amp

Connection:

1. Unscrew and remove the battery clips from the DC leads using a 4mm allen key.  
**Note:** These battery chargers include sensor wires that run parallel to both the positive and the negative DC leads. This allows for accurate voltage measurements to be taken directly from the battery. It is strongly recommended not to cut the DC leads during installation. However if the DC leads are cut, ensure that the sensor wires are included in both positive and negative connections.
2. Connect a circuit breaker or inline fuse to the RED Positive (+) lead (include sensor wire if DC lead has been cut).
3. Connect a short cable to the other end of the circuit breaker or inline fuse & connect to the Positive (+) battery post.
4. Connect the cable lug fitted to the BLACK lead to the Negative (-) battery post (include sensor wire if DC lead has been cut).
5. Fit the correctly rated fuse (inline fuse applications only).



If the charger is used in a Permanent/Hard Wired application and the vehicle will not be used for some time, it is best to leave the charger connected to mains power (turned 'On') so that it can maintain the battery fully charged.

Ensure any modification to the 240V mains lead is carried out by a qualified person and that connection to supply mains is in accordance with National wiring rules.

## STEP 2 – REMOTE CONTROL OPTIONAL & TEMPERATURE SENSOR

Connect the temperature sensor prior to turning on the charger this is required for lithium charging to maximize life and performance of the battery. If you require the remote control this is optional and must be fitted prior to turning on the power.

To install the remote control, insert the data plug into the data socket at the rear of the battery charger.

Cable length: 4.5 metres.

**Warning:** Ensure the cable is secured safely away from moving parts.

### Installing Temperature Sensor

To install the temperature sensor, insert the plug into the temperature sensor socket at the rear of the battery charger. Install the ring terminal to the negative battery terminal.

Cable length: 1.8 metres

**Warning:** Ensure the cable is secured safely away from moving parts.

## STEP 3 – CONNECT TO 240V MAINS POWER

Connect the battery charger to the 240V mains powered socket and turn on the mains power. Turn battery charger On/Off switch to on.

## STEP 4 – SET CHARGE RATE

The charge rate should be set according to the size of the battery. See the recommended charge rates for various battery sizes in the table below.

(Not all outputs are available on all models)

- a. Press the CHARGE RATE button. The LCD screen will flash the present setting.
- b. Press the CHARGE RATE button repeatedly until desired setting is displayed.
- c. Wait for the LCD screen to stop flashing.

**Note:** Failure to wait for the screen to stop flashing will cause the charge rate to default to previous setting.

### ADJUSTABLE CHARGE RATES: 12 VOLT BATTERIES

Current setting	AH		Time
	C-2	C-10	
2A	4	20	2 – 10h
6A	12	60	2 – 10h
12A	24	120	2 – 10h
25A	50	250	2 – 10h
50A	50	500	2 – 10h

## **STEP 5 – CHARGE MODE**

Press the CHARGE button.

## **STEP 6 – CHARGING**

During normal charging the LCD screen will default to the VOLTS display; to view input current press the VOLTS/AMPS button.

The LED indicators will also illuminate and flash various signals, indicating the different stages of charging. Refer to page 9 for a description of LED signals.

When the battery is fully charged, the green FULLY CHARGED LED will illuminate. This is known as the float stage and the charger can be left connected to the battery without over charging.

If the red POWER LED is flashing, or the LCD screen displays an error signal, there is a fault; refer to the "Fault & Errors" explanation on page 14 of this manual.

## **STEP 7 – DISCONNECTION**

Ensure the 240V mains switch is turned off and the charger is disconnected from the 240V mains power.

### **Battery out of vehicle**

Remove the BLACK lead (battery clip) from the battery.

Remove the RED lead (battery clip) from battery.

### **Battery in vehicle**

Remove the chassis connection.

Remove the battery terminal connection.

## **LOCKING THE SCREEN AND REMOTE CONTROL**

To Lock the buttons on the front of the charger or remote control so the charge rate, CHARGE and PWR SUPPLY can not be adjusted, press and hold the CHARGE RATE and CHARGE button for 3 seconds. Doing this will lock the buttons. Repeating this process will unlock the buttons.

## FAULTS & ERRORS

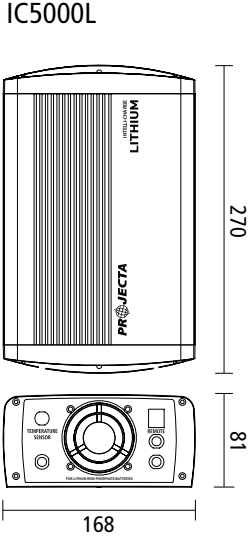
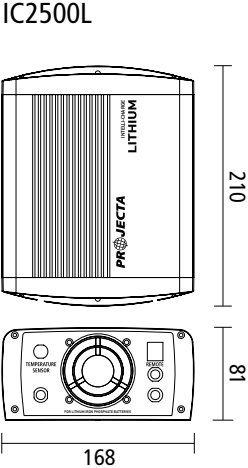
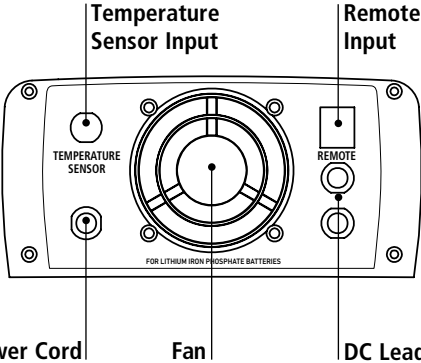
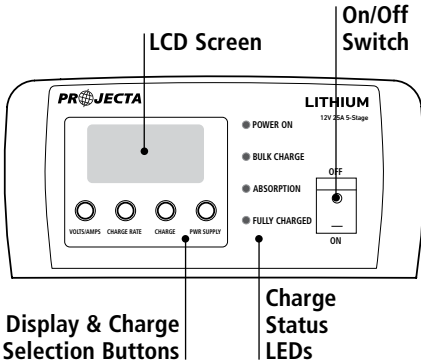
Error Codes may appear and these are:

LCD	Power On LED	Fault	Remedy
Err	Slow Flashing	Short circuit or reverse connection of the clips.	Check clips are not touching each other OR Check the clips are correctly connected to the battery.
F01	Fast Flashing	Bulk charging has timed out and stopped after 10 hours.	Battery may be faulty.
F02	Fast Flashing	Soft Start has timed out as the battery has not reached 10.0V after 2 hours.	Battery may be faulty, check the battery or try and charge again.
F03	Fast Flashing	Absorption has been charging for more than 20 hours and is now in float mode.	Battery may be faulty or there could be a load on the battery.
CLd		Battery Temp is less then 0°C. Charging at reduced current. To protect the battery.	Warm the battery up.
HtC		Battery Temp is greater than 45°C the charger voltage is reducing, to protect the battery.	Cool the battery down.
OTP	Fast Flashing	The charger has overheated (>70°C) and has switched off.	Ensure adequate ventilation around the charger.
HT		The charger has overheated (>55°C). Derating the output of the charger.	Ensure adequate ventilation around the charger.
OLC	Fast Flashing	Sensor wires are not connected to the positive/negative connections.	If DC leads have been cut for hardwiring, check sensor wires are included in both positive & negative connections (Refer to page 11, point 1C).
OCP	Fast Flashing	The charger has encountered an error.	Contact Brown & Watson International.

# SPECIFICATIONS

P/No.	IC2500L	IC5000L
Type	5 stage	5 stage
Input (nominal)	240VAC, 50Hz	240VAC, 50Hz
Input Power	450W	820W
Output Voltage	12V	12V
Output Current	2, 6, 12, 25A	2, 6, 12, 25, 50A
Minimum Start Voltage	1.0V	1.0V
Back Drain	1mA	1mA
<b>CHARGE CONTROL</b>		
Soft Start 1	Charge at 5% of set current, until the battery reaches 8.0V	
Soft Start 2	Charge at 25% of set current, until the battery reaches 10.0V	
Bulk	Set Current up to 14.5V	
Absorption	Constant voltage until current drops to the following set points: 2 Amp setting: 0.2A 6 Amp setting: 0.6A 12 Amp setting: 1.2A 25 Amp setting: 2.5A	
Float	13.5V	13.5V
<b>POWER SUPPLY</b>		
Set Voltage	13.8V	13.8V
Maximum Current	25A	50A
<b>BATTERY RANGE</b>		
Deep Cycle	4–250Ah	4–500Ah
Types of Batteries	Lithium Iron Phosphate	Lithium Iron Phosphate
Size (mm)	210 x 81 x 168	270 x 81 x 168
Weight	2.0 kg	3.0 kg

# PRODUCT OVERVIEW





## **FREQUENTLY ASKED QUESTIONS**

### **Q. How do I know if the battery is charged?**

A. The charger's FULLY CHARGED LED will illuminate (solid) and the remote's bi-colour LED will illuminate green (solid).

### **Q. I have connected the charger properly but the LCD display reads 0.0 (zero) Volts and does not appear to be charging.**

A. In some cases batteries can be flattened to the point where they have very little or no voltage. This can occur if a small amount of power is used for a long time, for example a map reading light is left on for a week or more. Projecta 5 Stage chargers are designed to charge from as little as as little as 1.0 Volts (12V).

If the voltage is less than 1.0V this is very low and the battery may not be rechargeable. You could try a very an electronic powersupply to gradually bring the battery voltage above 1.0V so the charger can then take over or take the battery back to the place of purchase so they can try and repair it.

### **Q. Can I use the charger as a power supply**

A. Power Supply mode is designed to operate as a float charge to maintain a battery when running a load or appliance from the battery.

### **Q. How can I tell what stage the battery charger is in?**

A. The LCD screen and coloured LEDs indicate the various stages of charging. Refer to pages 9 ("LED Charge Indicators") and 13 ("Charging Instructions – Step 6") of this booklet.

### **Q. What if I have an appliance connected to the battery whilst charging?**

A. Powering an appliance while charging your battery will impact on the battery chargers ability to accurately measure the battery's response to the charge being applied. The battery charger has been designed to accommodate this situation although not recommended.

For optimum charging it is recommended to charge without any appliance load on the battery. Power Supply mode is recommended when an appliance is connected to a battery and is drawing power.

**NOTES:**

**NOTES:**

# **WARRANTY STATEMENT**

## **Applicable only to product sold in Australia**

Brown & Watson International Pty Ltd of 1500 Ferntree Gully Road, Knoxfield, Vic., telephone (03) 9730 6000, fax (03) 9730 6050, warrants that all products described in its current catalogue (save and except for all bulbs and lenses whether made of glass or some other substance) will under normal use and service be free of failures in material and workmanship for a period of one (1) year (unless this period has been extended as indicated elsewhere) from the date of the original purchase by the consumer as marked on the invoice. This warranty does not cover ordinary wear and tear, abuse, alteration of products or damage caused by the consumer.

To make a warranty claim the consumer must deliver the product at their cost to the original place of purchase or to any other place which may be nominated by either BWI or the retailer from where the product was bought in order that a warranty assessment may be performed. The consumer must also deliver the original invoice evidencing the date and place of purchase together with an explanation in writing as to the nature of the claim.

In the event that the claim is determined to be for a minor failure of the product then BWI reserves the right to repair or replace it at its discretion. In the event that a major failure is determined the consumer will be entitled to a replacement or a refund as well as compensation for any other reasonably foreseeable loss or damage.

This warranty is in addition to any other rights or remedies that the consumer may have under State or Federal legislation.

## **IMPORTANT NOTE**

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

## **Distributed by**

### **AUSTRALIA**

**Brown & Watson International Pty Ltd**

Knoxfield, Victoria 3180

Telephone (03) 9730 6000

Facsimile (03) 9730 6050

National Toll Free 1800 113 443

### **NEW ZEALAND**

**Narva New Zealand Ltd**

22–24 Olive Road

PO Box 12556 Penrose

Auckland, New Zealand

Telephone (09) 525 4575

Facsimile (09) 579 1192