



Please dispose of packaging for the product in a responsible manner. It is suitable for recycling. Help to protect the environment, take the packaging to the local amenity tip and place into the appropriate recycling bin.



Never dispose of electrical equipment or batteries in with your domestic waste. If your supplier offers a disposal facility please use it or alternatively use a recognised re-cycling agent. This will allow the recycling of raw materials and help protect the environment.

# Chargestar T27

## 12/24v Battery Charger



FOR HELP OR ADVICE ON THIS PRODUCT PLEASE CONTACT YOUR DISTRIBUTOR,  
OR SIP DIRECTLY ON:  
TEL: 01509500400  
EMAIL: [sales@sip-group.com](mailto:sales@sip-group.com) or [technical@sip-group.com](mailto:technical@sip-group.com)  
[www.sip-group.com](http://www.sip-group.com)

03982

Please read and fully understand the instructions in this manual before operation. Keep this manual safe for future reference.

# DECLARATION OF CONFORMITY

## Declaration of Conformity

We

SIP (Industrial Products) Ltd  
Gelders Hall Road  
Shepshed  
Loughborough  
Leicestershire  
LE12 9NH  
England

As the manufacturer's authorised representative within the EC  
declare that the

Chargestar T27 Battery Charger - SIP Part. No. 03982

**Conforms to the requirements of the following directive(s), as indicated.**

2006/95/EC	Low Voltage Directive
2004/108/EC	EMC Directive
2011/65/EU	RoHS

**And the relevant standard(s), including:**

EN 60335-2-29:2004+A2:2010  
EN 60335-1:2012+A11:2014  
EN 62233:2008  
EN 55014-1:2006+A1:2009+A2:2011  
EN 55014-2:1997+A1:2001+A2:2008  
EN 61000-3-2:2006+A1:2009+A2:2009  
EN 61000-3-3:2013

Signed:  .....

Mr P. Ippaso - Managing Director - SIP (Industrial Products) Ltd  
Date: 29/07/2015.



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## SAFETY SYMBOLS USED THROUGHOUT THIS MANUAL



**Danger / Caution:** Indicates risk of personal injury and/or the possibility of damage.



**Warning:** Risk of electrical injury or damage!



**Note:** Supplementary information.

## SAFETY INSTRUCTIONS



**IMPORTANT:** Please read the following instructions carefully, *failure to do so could lead to serious personal injury and / or damage to the Battery Charger.*

This battery charger is designed for the charging of lead acid batteries. They should not be used as a DC power source, or used to recharge non-rechargeable batteries. To do so may cause fire, electric shock, etc.

It is designed to be powered from a 230v ~ 50Hz supply, which is reliably connected to the buildings ground (earth) point.

If connecting the charger to a battery whilst still connected to the vehicle, check with the vehicle's manufacturer that it is safe to do so. Always connect the battery terminal not connected to the chassis first. The other connection is to be made to the chassis as far away as practical from the battery and fuel line (a spark can be generated when connecting the second clamp which can ignite battery or fuel gases). The battery charger is then to be connected to the mains supply. Once charging is complete, disconnect the battery charger from mains supply first, and then remove the chassis connection followed by the battery connection.

During charging, batteries give off some hydrogen and oxygen creating a highly explosive mix. Ensure adequate ventilation exists and avoid sparks, smoking, etc.

During battery maintenance ensure adequate clean water is available in the event of an acid spill. The liquid inside batteries is highly corrosive therefore ensure that it is not

## NOTES

## PARTS LIST

Ref. No.	Description	SIP Part No.	Ref. No.	Description	SIP Part No.
1.	Cables (c/w clamps)	PW02-00175	19.	Transformer board	PW02-00193
2.	Fuse 35A	PW02-00176	20.	Pad M8	PW02-00194
3.	Voltage terminal	PW02-00177	21.	Spring washer M8	PW02-00195
4.	Cable gland	PW02-00178	22.	Nut M8	PW02-00196
5.	Screw ST 3x10	PW02-00179	23.	Screw (M5 x 15)	PW02-00197
6.	Screw M8	PW02-00180	24.	Spring washer M5	PW02-00198
7.	Bolt (M4 x 16)	PW02-00181	25.	Ammeter	PW02-00199
8.	Screw (M3 x 10)	PW02-00182	26.	Fuse holder	PW02-00200
9.	Spring washer M4	PW02-00183	27.	Fuse 10A	PW02-00201
10.	Pad	PW02-00184	28.	Selector switch	PW02-00202
11.	Ventilator	PW02-00185	29.	On / Off switch	PW02-00203
12.	Nut M4	PW02-00186	30.	Mains lead	PW02-00204
13.	Rectifier bridge	PW02-00187	31.	Screw M5	PW02-00205
14.	Screw ST 5x20	PW02-00188	32.	Handle	PW02-00206
15.	Chassis	PW02-00189	33.	Nut M5	PW02-00207
16.	Transformer pad	PW02-00190	34.	Pad	PW02-00208
17.	Transformer	PW02-00191	35.	Cover	PW02-00209
18.	Upper pad	PW02-00192			

## SAFETY INSTRUCTIONS....cont

allowed to make contact with the skin, and especially the eyes. In the event of contact, flush the area with clean water and immediately consult a doctor.

Lead acid batteries store a large amount of energy. Short-circuiting the battery or charger terminals will cause the battery to try and release this energy immediately, which can result in fire or personal injury. Prevent any metal object (or other conductive material) from touching the + and - terminals of the charger or battery at the same time.

When using your battery charger, basic safety precautions should always be followed to reduce the risk of fire, electric shock, personal injury and / or damage to the battery charger. Read all these instructions before operating the charger and save this user manual for future reference.

**SIP** recommends that this charger should *not* be modified or used for any application other than that for which it was designed. If you are unsure of its relative applications do not hesitate to contact us and we will be more than happy to advise you.

**KNOW YOUR BATTERY CHARGER:** Read and understand the owner's manual and labels affixed to the charger. Learn its applications and limitations, as well as the potential hazards specific to it.

**DO NOT USE THE BATTERY CHARGER IN DANGEROUS ENVIRONMENTS:** Do not use your Battery charger in damp or wet locations, or expose it to rain. Always provide adequate space around the battery charger.

**KEEP CHILDREN AND UNTRAINED PERSONNEL AWAY FROM THE WORK AREA:** All visitors should be kept at a safe distance from the work area.

**STAY ALERT:** Always watch what you are doing and use common sense.

**DISCONNECT THE BATTERY CHARGER FROM THE MAINS SUPPLY:** When not in use.

**DO NOT ABUSE THE MAINS LEAD:** Never pull the mains lead to remove the plug from the mains socket, or to move the battery charger. Keep the mains lead away from heat, oil and sharp edges. If the mains lead is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid unwanted hazards.

**HAVE YOUR BATTERY CHARGER REPAIRED BY A QUALIFIED PERSON:** The battery charger is in accordance with the relevant safety requirements. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user and void the warranty.

- **DANGER!** Check that the battery charger is in sound condition and good working order. Take immediate action to repair or replace damaged parts.
- **WARNING!** Only operate on a level and stable surface.
- **WARNING!** Do not allow untrained persons to operate the machine and do not operate the machine without all covers etc. correctly fitted.
- **WARNING! RISK OF ELECTRIC SHOCK.** Do not expose the battery charger to water spray, rain, dripping water or moisture of any kind.

## SAFETY INSTRUCTIONS....cont

- **Use recommended parts only** - Unapproved parts may be dangerous and will invalidate the warranty.
- **Do not** move or handle the machine when it is running.
- **Do not** leave the machine unattended when in use. Switch the machine off and unplug from the mains supply before leaving the work area.
- **Do not** allow children or animals near the battery charger, particularly when in use.
- Ensure that the battery charger is correctly turned off when not in use and store in a safe, dry area, out of reach of children.
- **Do not** unplug the battery charger to switch it off - always use the on/off switch.
- **Always** locate the battery charger on a stable and level surface.
- **Always** keep children and animals away from charger.
- **Never** stand on the charger.
- **Do not** dismantle or tamper with the battery charger, as this may be dangerous and will invalidate the warranty.
- Boost charge should be used for a maximum of 1 hour, after which if required the battery charger should be switched to normal charge, or turned off so it can cool down for a few hours.
- Boost charge is not designed to jump start a vehicle.
- Understand the operating environment; Before each use the operator should assess, understand and where possible reduce the specific risks and dangers associated with the operating environment. Bystanders should also be made aware of any risks associated with the operating environment.
- Keep all combustible materials away from this battery charger.

If a problem with the battery charger is experienced, or if the mains lead or plug become damaged, contact your distributor for repair.

If the battery charger is to be used on business premises - ensure that all local and national regulations are followed concerning the use of portable electrical appliances at work.

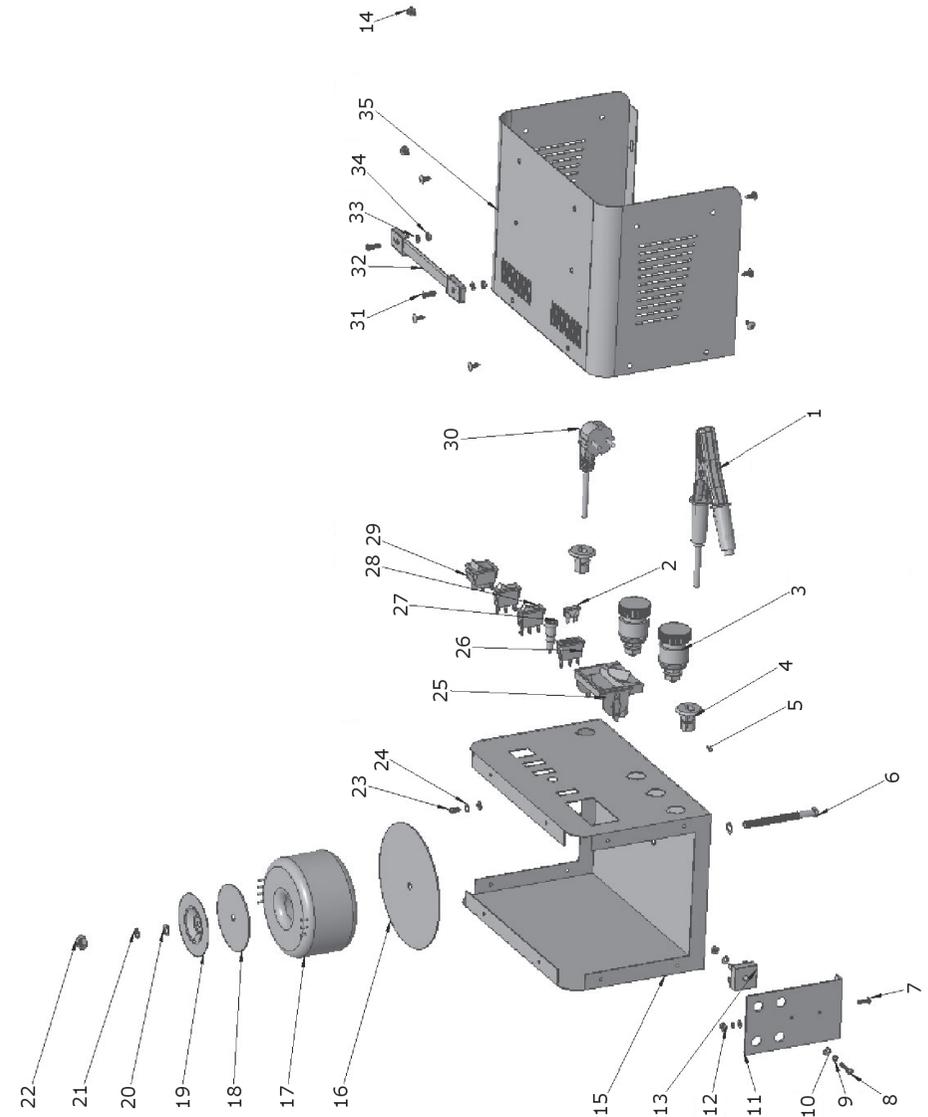
### **WARNING:** Risk of Electric Shock!

- Use only the electrical power (voltage and frequency) specified on the model plate of the battery charger. If in doubt contact the manufacturer.
- Use only a three-prong, grounded outlet and where required.
- **Always** unplug the battery charger when not in use.

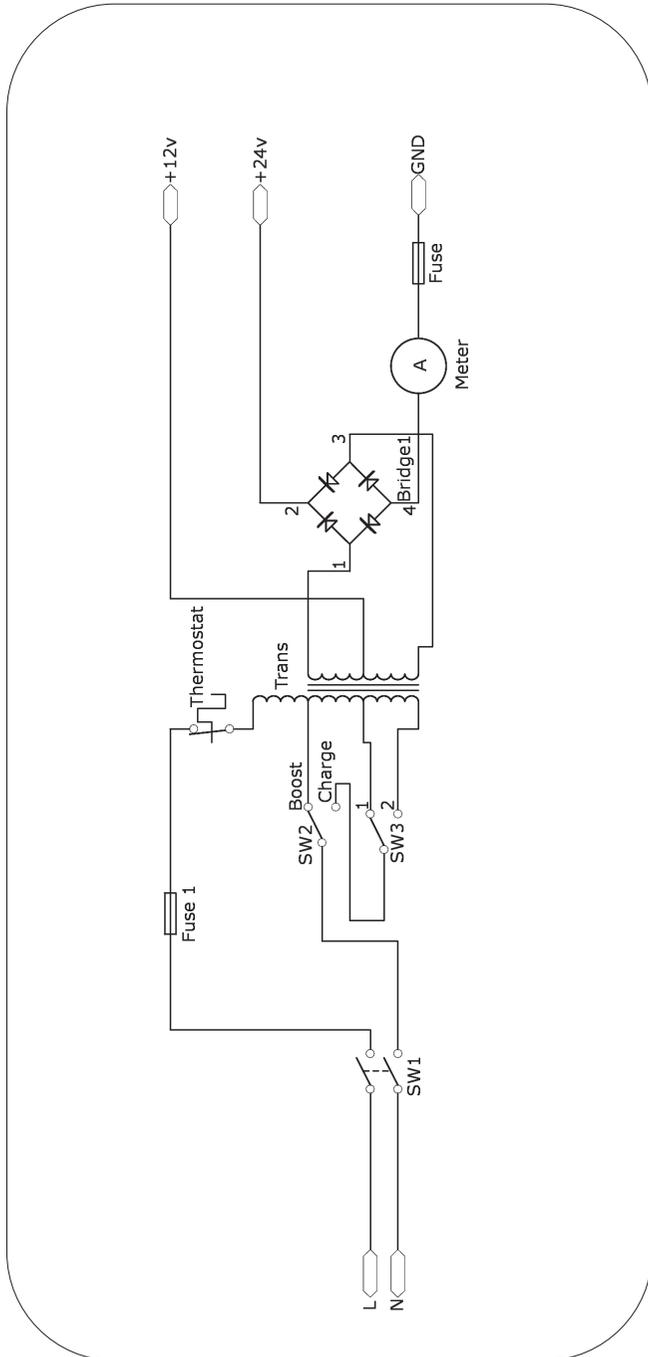


**CAUTION:** The warnings and cautions mentioned in this user manual can not cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be applied.

## EXPLODED DRAWING



## WIRING DIAGRAM



## ELECTRICAL CONNECTION

**WARNING!** It is the responsibility of the owner and the operator to read, understand and comply with the following:

You must check all electrical products, before use, to ensure that they are safe.

You must inspect power cables, plugs, sockets and any other connectors for wear or damage.

You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices; A residual current circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a residual current device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any doubt consult a qualified electrician.

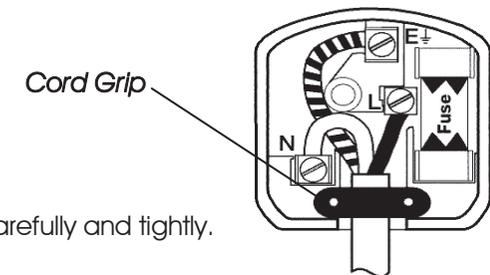
### Connecting to the power supply:

This SIP battery charger is fitted with a standard UK 230v ~ 13 amp type plug. Before using the battery charger, inspect the mains lead and plug to ensure that neither are damaged. If any damage is visible have the battery charger inspected / repaired by a suitably qualified person. If it is necessary to replace the plug a heavy duty impact resistant plug would be preferable.

### The wires for the plug are coloured in the following way:

Yellow / green	Earth
Blue	Neutral
Brown	Live

As the colours of the wires may not correspond with the markings in your plug, proceed as follows: The wire which is coloured blue, must be connected to the terminal marked with N or coloured black. The wire which is coloured brown, must be connected to the terminal, which is marked L or coloured red. The wire which is coloured yellow / green should be connected to the terminal which is coloured the same or marked



Always secure the wires in the plug terminal carefully and tightly. Secure the cable in the cord grip carefully.

## ELECTRICAL CONNECTION...cont



**Warning:** Never connect any phase wires to the earth terminal of the plug or board. Only fit an approved plug with the correct rated fuse. If in doubt consult a qualified electrician.



**Note:** Always make sure the mains supply is of the correct voltage and the correct fuse protection is used. In the event of replacing the fuse always replace the fuse with the same value as the original.



**Note:** If an extension lead is required in order to reach the mains supply; ensure that this too is rated for the correct voltage and fuse rating.



**Note:** The cross section of the extension lead should be checked so that it is of sufficient size so as to reduce the chances of voltage drops.

## TROUBLESHOOTING

The following form lists the common operating issues with problems and solutions. Please read the form carefully and follow it.



If any of the following symptoms occurs during your operation, stop using the battery charger immediately, or serious personal injury could result. Only a qualified person or an authorised service centre should perform repairs on the battery charger. Disconnect from the mains supply before attempting repairs or adjustments and when replacing parts etc.

<i>Fault</i>	<i>Possible Cause</i>	<i>Solution</i>
No charging current.	<ul style="list-style-type: none"> <li>• Bad contact or power socket.</li> <li>• Initial voltage is too low.</li> <li>• + or - polarity battery terminals are oxidised or dirty.</li> <li>• Battery is damaged.</li> <li>• Fuse blown.</li> </ul>	<ul style="list-style-type: none"> <li>• Repair or replace socket.</li> <li>• Replace damaged battery.</li> <li>• Clean terminals.</li> <li>• Replace battery.</li> <li>• Replace fuse.</li> </ul>
Low charging current.	<ul style="list-style-type: none"> <li>• Battery not accepting charge.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace battery.</li> </ul>
Excessive transformer noise.	<ul style="list-style-type: none"> <li>• Battery is fully charged.</li> <li>• Unstable position.</li> </ul>	<ul style="list-style-type: none"> <li>• Measure specific gravity.</li> <li>• Place in stable position.</li> </ul>



**Note:** Repairs should be carried out by a qualified person.

## OPERATING INSTRUCTIONS...cont

### CHARGING A BATTERY ON A VEHICLE



**Important:** Check with the manufacturer of the vehicle that the battery can be charged whilst still connected to avoid any unwanted damage to the vehicle.



**Note:** The battery terminal not connected to the chassis has to be connected first. The other connection is to be made to the chassis, remote from the battery and fuel line.



**Danger:** The engine must not be running whilst the battery charger is charging the battery.

- ⇒ Ensure the mains supply to the battery charger is off.
- ⇒ Check battery liquid and top up if required.
- ⇒ Connect the + (red) lead to the correct voltage terminal on the charger depending on the voltage of the vehicle to be started.
- ⇒ Connect the lead to the battery first (normally +). The other connection is to be made to the chassis as far away as practical from the battery and fuel line (a spark can be generated when connecting the second clamp which can ignite battery or fuel gases).
- ⇒ Once the clamp is attached to the battery, slightly rotate it so as to remove any dirt or oxidization, this will ensure a good contact.
- ⇒ Select charge (setting 1 slow or 2 medium) or boost charge (maximum) on the switch, (boost charge is for a maximum of 1 hour, after 1 hour you must manually turn off boost charge or you will damage the charger/battery/car).



**Note:** Never exceed the boost charge setting; *maximum 1 hour charge*, after which if required the battery charger should be switched to normal charge or turned off so it can cool down for a few hours. Failure to adhere to this will void your warranty.

- ⇒ The battery charger should then be connected to the mains supply and switched on.
- ⇒ Once the battery on the vehicle has charged, remove the clamps from the battery / vehicle - chassis connection first followed by the battery connection.



**Note:** The battery clamp connected to the chassis should be removed first. The other clamp connection can then be removed from the battery terminal.

## GUARANTEE

This SIP Battery Charger is covered by a 12 month parts and labour warranty covering failure due to manufacturers defects. This does not cover failure due to misuse or operating the battery charger outside the scope of this manual - any claims deemed to be outside the scope of the warranty may be subject to charges including, but not limited to parts, labour and carriage costs.

This guarantee does not cover consumables such as fuses, clamps etc.

In the unlikely event of warranty claims, contact your distributor as soon as possible.

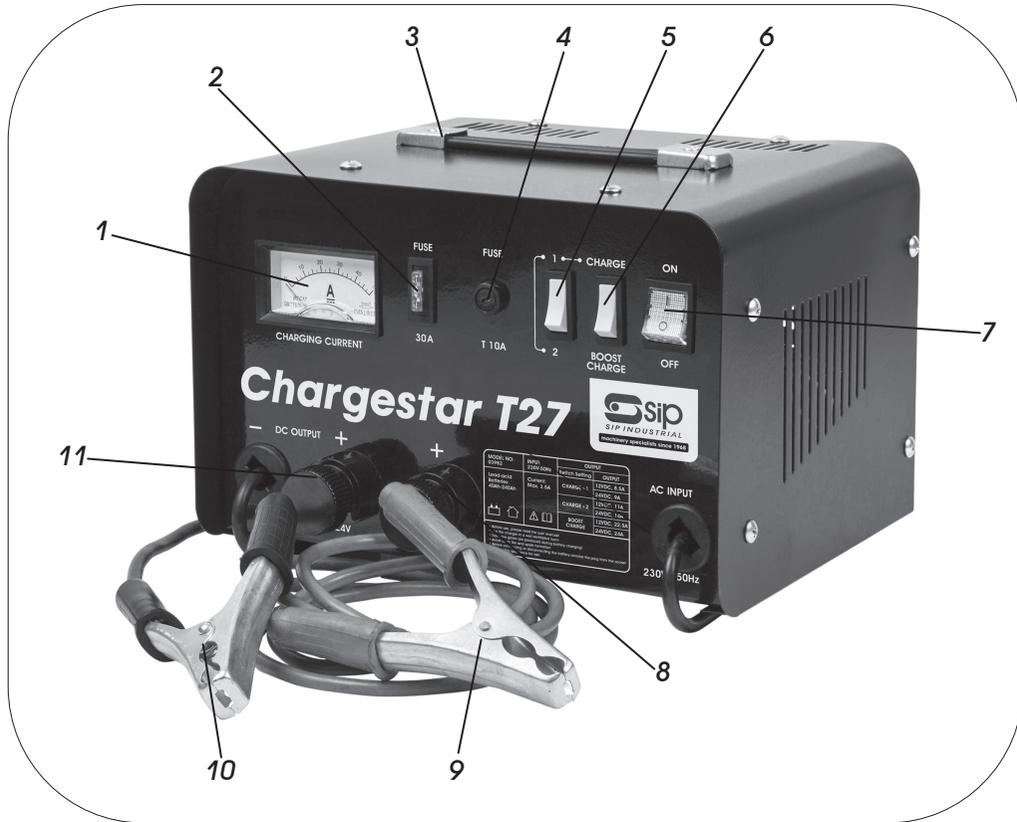


**Note:** Proof of purchase will be required before any warranty can be honoured.

## TECHNICAL SPECIFICATION

Battery Capacity	40 - 240AH
Input Voltage	230v ~ 50 Hz
Charge 12v (Setting 1)	8.5 amp
Charge 12v (Setting 2)	11 amp
Boost Charge 12v	22.5 amp
Charge 24v (Setting 1)	9 amp
Charge 24v (Setting 2)	14 amp
Boost Charge 24v	24 amp
Protection	IP20

## GETTING TO KNOW YOUR BATTERY CHARGER



Ref. No.	Description	Ref. No.	Description
1.	Ammeter	7.	On / Off Switch
2.	Output (fuse 30amp)	8.	12v Output
3.	Carry Handle	9.	Positive Clamp
4.	Input (fuse 10amp)	10.	Negative Clamp
5.	Setting Switch	11.	24v Output
6.	Charge / Boost Charge Switch		

## OPERATING INSTRUCTIONS

### CHARGING A BATTERY



**Note:** Never exceed the boost charge setting; *maximum 1 hour charge*, after which if required the battery charger should be switched to normal charge or turned off so it can cool down for a few hours. Failure to adhere to this will void your warranty.



**Important:** The boost charge is not designed to jump start a car, doing so will damage the charger/battery and void any warranty you may have.



**CAUTION:** Do not leave the battery connected to the charger once the charge has finished, this may cause excessive heating of the cells and the electrolyte to "boil". If this happens during charging select a lower setting or stop the charge.



**Danger / Caution:** Do not touch the positive clamp (red) with the negative clamp (black) to check the battery charger output – this may cause the internal fuse to blow or the mains fuse to blow.

- ⇒ Remove the battery from the vehicle.
- ⇒ Remove the battery caps to allow any excess gas to escape and to prevent the case bursting.
- ⇒ Check the battery liquid and top up if required.
- ⇒ Connect the + (red) lead to the correct voltage terminal on the charger depending on the voltage of the battery to be charged.
- ⇒ Put the red clamp of the charger to the + terminal on the battery and the black clamp to the - terminal on the battery and confirm that connection is correct.
- ⇒ After both clamps are attached to the battery, slightly rotate it so as to remove any dirt or oxidization, this will ensure a good contact.
- ⇒ Select charge (setting 1 slow or 2 medium) or boost charge (maximum) on the switch, (boost charge is for a maximum of 1 hour, after 1 hour you must manually turn off boost charge or you will damage the charger/battery).
- ⇒ The battery charger should then be connected to the mains supply and switched on.

<b>Charge</b>	Setting 1: Slow charge rate. Setting 2: Medium charge rate.
<b>Boost Charge</b>	Maximum charge rate, boost charge should only be used for a maximum of 1 hour, after which if required the battery charger should be switched to normal charge or turned off so it can cool down for a few hours (when boost charge is selected it will override the charge settings).