SUW012

6V/12V 1.25A DC

Suitable for 6V/12V Normal Lead Acid, Sealed, Leisure, AGM or Gel-Batteries between 5-75Ah



INTRODUCTION

The SUUWER SUW012 is a member of the family of advanced battery chargers manufactured by SUUWER International Ltd. SUUWER chargers will increase your battery's performance and prolong its life.

We have taken numerous measures in quality control to ensure that your product arrives in top condition and will perform to your satisfaction.

Please carefully read and follow the safety and operating instructions. Not following these instructions may result in a serious accident, including damaged property or serious injuries.

IMPORTANT SAFETY INSTRUCTIONS

If you are not confident working with 6V/12V DC voltage or are unsure of what you are doing, consider to seek for professional help e.g. a car garage or your vehicle´s manufacturer.

Read your vehicle's owner's manual!
Some vehicle manufacturers may have special requirements before charging the vehicle´s battery. (e.g. fuses that have to be removed or certain security demands).

You MUST NOT connect to 24V or other unsuitable batteries (e.g. NiCd-batteries). The battery charger is not designed as a power supply. Not following these instructions could cause serious personal injury or material damage.

This unit has safeguards against reverse-polarity and short-circuit. Although it is highly recommended not to touch or connect the red to the black clamps or to connect the leads in reverse polarity. This could cause dangerous sparks and electric arcing. Only connect and disconnect the battery leads when the mains supply is disconnected.

Use the charger in dry environment only. Do not use the unit close to open fire. Do not operate the unit in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Please stop using the device, if the unit is getting very hot, is smoking or is showing any abnormal behaviour. SUUWER is not liable for any direct or indirect damages or injuries caused by the use of the device, especially caused by failure to follow these instructions.

TYPE OF BATTERIES
This charger is intended to be used 6V/12V Normal Lead Acid, VRLA, Sealed (MF Maintenance-Free), Leisure, AGM or Gel-Batteries between 5-75Ah. **Do not** try to charge unsupported types of batteries like NiCd.

GASES
When the battery is being charged, you may notice bubbling in the fluid caused by the release of gas. As the gas is flammable, avoid naked flames, glowing or electrostatically charged material and sparks in the vincity of the battery. Provide adequate ventilation. Because of this risk of explosive gas, only connect and disconnect the battery leads when the mains supply is disconnected.

STORAGE
When not in use, store the battery charger in a dry environment.

MAINTENANCE
Don't try to open the body casing. There are no user-serviceable parts inside. Damage due to improper use, modifications or attempted repairs lead to the exclusion of liability and the loss of warranty. The mains supply cord of this device cannot be replaced; if the cord is damaged, the appliance should be discarded.

PRECAUTIONS WHEN WORKING WITH BATTERIES

- Avoid getting electrolyte on your skin or clothes. It is acidic and can cause burns. If battery acid contacts skin or clothing, wash immediately with soap and water. Baking soda neutralizes lead acid battery electrolyte. If electrolyte gets into your eyes, immediately flood your eyes with running cold water for at least 20 minutes and get medical attention immediately. Eye protection is therefore recommended.
- Never charge a frozen battery. If battery fluid (electrolyte) becomes frozen, bring the battery to a warm area to allow the battery to thaw before you begin charging.
- Do not touch the battery clamps together when the charger is on.
- Never use the charger when it has received a hard blow, been dropped, or otherwise been damaged. Take it to a qualified professional for inspection and repair.
- Prevent the power cord from being stepped on, tripped over, or being damaged.
- Never pull out the plug by the cord when unplugging the charger. Pulling on the cord may cause damage to the cord or the plug.
- Although it is usually possible without causing problems to charge the battery when installed, we recommend to remove the battery from the car before charging. When charging the battery while installed in the car, SUUWER cannot take any responsibility for harm to your car electronic or the car itself.
- Never smoke or allow a spark or flame in vicinity of battery or engine.
- Always keep metal objects or other materials that can short circuit battery terminals securely away from the batteries. The resulting spark or short-circuit may cause an explosion and can produce a current high enough to weld a ring or the like to metal. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with starter batteries.

PARTS

- **SUW012 main unit**
- **1 set of crocodile clamps**
- **1 set of ring terminals (for a permanent installation)**

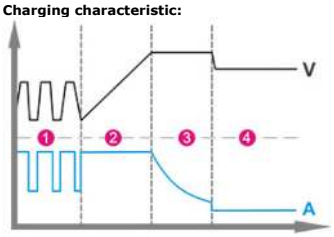




FEATURES

INTELLIGENT CHARGING
The SUW012 has a built in microprocessor using high frequency technology, that digitally controls the 4-stages of battery charging: Initialization, constant current, constant voltage and floating charge. The charger automatically checks the status of the connected battery and adjusts the charging current. When the battery is fully charged the charger switches automatically to float charge: the charger can stay connected to the battery permanently (ideal for seasonally used vehicles).

Charging characteristic:



1. **Initialization:** Initialize diagnostic battery performance and desulfating the battery through 17V pulse.
2. **Bulk:** Major charging stage where the battery receives the majority of its charge. During this stage the battery brought to 75 - 80% of its charger. The SUW012 charger delivers maximum current until the terminal voltage has risen to the full charge level for Normal battery.
3. **Absorption:** Completes the charge up to virtually 100% at a constant voltage. The current tapers off after the current reached the minimum level.
4. **Float:** Maintenance charging at constant voltage, keeping the batteries at 100% charge. Float mode chargers indefinitely without damaging the battery.

Operating characteristics :

Modes	6V Battery	12V Battery	Temperature
Automatic Detection	whether voltage exceeds charging voltage (3.5V)	whether voltage exceeds charging voltage (3.5V)	0~40℃
Constant Current	1.25A, until the voltage reaches 7.1V	1.25A, until the voltage reaches 14.2V	0~40℃
Constant Voltage	Current reduces until voltage reaches 7.2V	Current reduces until voltage reaches 14.4V	0~40℃
Floating Charge	6.6V, output current avoids battery voltage dropping	13.2V, output current avoids battery voltage dropping	0~40℃

CABLE CONNECTOR
The SUW012 offers two options for connecting the battery. Via the cable connector you can select which connection you want to use:

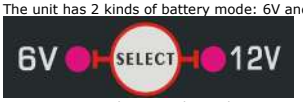
- Crocodile clamps for easy and flexible use.
- Ring Terminals for permanent installation on your battery.

LED INDICATOR LAMP
The built-in double color LED lamps indicate the status of the charger:

RED LED
- FLASHING RED: not charging battery, Reverse battery, Mode selection error.
- SOLID RED: battery charging.

GREEN LED
- FLASHING GREEN: battery greater than 80% charged.
- SOLID GREEN: full charged.

CHARGING MODE
The unit has 2 kinds of battery mode: 6V and 12V Lead-Acid .



IMPORTANT: When you choose battery mode, you must first disconnect the battery.

REVERSE-POLARITY PROTECTION
This unit offers reverse-polarity protection: the LED WILL FLASH RED ONCE after connecting the unit to the battery. The charging process will not start. When verify if all cables are correctly connected. Connect the red crocodile clip to positive (+) battery post, and black crocodile clip to negative (-) post, then the charging process will restart.

SHORT-CIRCUIT PROTECTION
If the crocodile clamps accidentally touch together whilst the mains power is connected, the unit will stop charging. When verify if all cables are correctly connected. being careful not to touch the clips together. Connect the red crocodile clip to positive (+) battery post, and black crocodile clip to negative (-) post, then the charging process will restart.

OPERATION

PLEASE READ CAREFULLY BEFORE USING THE DEVICE
This system is intended to be used 6V/12V Normal Lead Acid, VRLA, Sealed (MF), Leisure, AGM or Gel Batteries between 5-75Ah.

1. PREPARING THE BATTERY
It is recommended to disconnect the battery from the car if possible. This will avoid possible damage to the alternator and your car´s electronic system. To avoid damage to the bodywork from possible spillage, it is also recommended to remove the battery completely from the vehicle. It is advisable to use personal protective clothing (safety goggles and gloves are highly recommended) when handling the battery, as there is a high possibility of corrosive acid being on the outside of the battery.

For permanently sealed battery, it is not necessary to carry out the following checks. Don´t try to open a sealed or maintenance-free battery.

Firstly remove the caps from each cell and check that the level of the liquid is sufficient in each cell. If it is below the recommended level, top up with de-ionized or distilled water.

ATTENTION: Under no circumstances should tap water be used. The cell caps should not be replaced until charging is complete. This allows any gases formed during charging to escape. It is inevitable that some minor escape of acid will occur during charging.

2. CONNECTING THE CHARGING CABLES
Connect the clamps or ring terminals to the battery in the following order:

- Connect the positive charging lead (RED) to the positive terminal post of the battery (marked +).
- Connect the negative charging lead (BLACK) to the negative post of the battery (marked -).

It is important to ensure that all connections are making good contact with their respective terminal posts. Now you can connect the charger to the mains supply to start charging.

3. CHARGING
During the charging process, consider the LED indicator lamps on the main unit.

4. AFTER CHARGING
Please note: For reasons of safety, always connect and disconnect crocodile clamps from the battery with the mains plug disconnected.

Unplug charger from the mains supply and disconnect the clamps from the battery posts. If the charged battery is maintainable, inspect the liquid in each cell again and top up carefully if necessary. Now replace the caps. Any surplus fluid around the cell tops should be wiped off with extreme care as it may be acidic.

BATTERY MAINTENANCE AND CARE

It is essential to keep your battery regularly charged throughout the year, especially during the winter months. Low temperature reduces the effectiveness of your car battery and your motor oil is thicker. Engines are more difficult to start and the heater, windscreen wipers and lights are all draining power. It is at this time that batteries have to be at peak power. If your battery is not regularly maintained and kept fully charged, it can cause problems and a possible breakdown.

Listed are some helpful hints on how to keep your battery healthy in conjunction with your SUUWER battery charger:

Detecting faulty Cells with a hygrometer
(not possible with sealed or maintenance-free batteries)
Starter-Batteries are usually made of several cells, with a nominal voltage of 2V per cell. If one of the cells is defective, the whole battery deteriorates. If, after several hours of charging, your battery is still flat, you should test the battery cells.
Using a hydrometer, which can be purchased from most motor accessory stores, you can check the specific gravity of the electrolyte in each cell. Take hydrometer readings from each cell in the battery. Put the fluid back into the cell after testing, taking care not to spill the fluid. If one reading is lower than the others, this could indicate a faulty cell. If necessary, get an auto-electrician to check your battery. In some cases a battery can be revived, but one faulty cell is enough to ruin your battery.

Care
Sometimes the battery may appear flat, but the reason could simply be dirty or loose connections on your battery terminals. It is important to maintain the leads on a regular basis. Clean all contacts and grease them using terminal grease. Make sure that all connections are tight.

It is essential to keep the electrolyte level above the plates, note that you should not overfill it, as the electrolyte is strongly acidic. When topping up, do not use tap water. Always use distilled or de-ionized water. It is important to keep the acid level up. If necessary have it checked by your garage.

TECHNICAL SPECIFICATIONS

SUW012 main unit	
Suitable Batteries	Normal Lead Acid, VRLA, Sealed (MF), Leisure, AGM or Gel Batteries between 5-75Ah capacity
Suitable Battery Voltages	6V, 12V
Charging Current	1.25A DC
Electrical Safeguards	Protection against: overheat, short-circuit, reverse polarity, sparks
Maximum conversion efficiency	≥80%
AC Input	AC 100V – 120V ~ 50/60Hz; Max. 26W
DC Output	12V Battery: Max. 14.2V, 1.25A DC
	6V Battery: Max. 7.1V, 1.25A DC

This model may be operated in USA countries.



ENVIRONMENTAL PROTECTION

The product is classed as Electrical or Electronic Equipment and should not be disposed of with other household or commercial waste at the end of its working life. Please recycle where facilities exist. Ask your local authority or retailer for recycling advice.

WARRANTY

SUUWER warrants this product for a period of 2 years from the date of purchase to the original purchaser. Warranty is not transferable. Warranty covers defect against workmanship and materials only. To obtain warranty service, please return the unit to the place of purchase or your authorized SUUWER dealer together with your proof of purchase. The warranty is void, if the product has been damaged or not used as described in this manual. Warranty is void, if a non-authorized repair has been performed. SUUWER makes no other warranty expressed or implied. SUUWER is only responsible for repair or replacement (at Pro-Users' Discretion) of the defective product and is not responsible for any consequential damage or inconvenience caused by the defect.