USER MANUAL

SP61080

SMART CHARGER
8 STAGE 6 AMP

RETAIN THESE INSTRUCTIONS AND ATTACH RECEIPT TO MANUAL FOR FUTURE REFERENCE

NOTE: Proof of purchase must be retained by the customer as it will be required in the event of a claim under warranty.

AFTER SALES SUPPORT:

WWW.SPTOOLS.COM

AUSTRALIA: Visit the website's **contact page** to get in touch with your local service department.

INTERNATIONAL: Use the **county selector** to get in touch with your service department in your country or region.

IMPORTANT

ALL PERSONS WHO ARE TO USE THIS EQUIPMENT MUST THOROUGHLY READ AND UNDERSTAND THIS INSTRUCTION MANUAL PRIOR TO OPERATION.

CONTENTS

INTRODUCTUCTION

These chargers are manufactured using the highest quality components, latest manufacturing processes & systems, along with very strict quality control, to achieve the highest quality levels in the industry.

Incorporating a unique micro-processor controlled **eight stage** charging system, this system intelligently assesses battery condition, state of charge and size, and produces a charge rate to suit the battery, making battery charging safer, faster and much more effective in charging and maintaining a 12 Volt battery or small battery banks.

The microchip controlled automatic eight stage charging system provides accurate detection, monitoring and control of the charging output voltage and current in turn preventing serious over charge or short charging of the battery. This prevents battery plate oxidization, evens the consistency of the battery electrolyte, minimizes battery temperature rising while charging recovers the battery capacity faster and extends battery life.

The “Lead-acid (AGM) / Calcium” or “Gel” selector switch alters the charging stage voltage parameters allowing all types of batteries to be effectively charged and ready for optimal use.

The Zero volt start allows the charger to be connected to very flat batteries, and along with the Desulphation stage, give these batteries the best possible chance in recovery.

Temperature compensated voltage adjustment automatically adjusts the charging voltage according to the environmental ambient temperature. In summer, this function helps decrease battery heat generated while charging, thus minimizing the loss of battery electrolyte and preventing battery deformation caused by excessive heat during charging cycles.

Whilst charging the battery, it is common to see the voltage and percentage of charge LED display to fluctuate up and down. When a battery is first connected, voltages will climb well over 12V and later drop back down. This will have an effect on the percentage of remaining charge display as the on-board software will calculate this figure based on the battery voltage reading.

After the battery charger finishes its bulk and absorption stages, the charge voltages will slowly settle back down, thus giving an accurate reading of remaining charge, so please allow appropriate time to gather an accurate reading of percentage of remaining charge.

Intended Use

The SP61080 (12 Volt, 6 Amp) Battery Chargers are great for the home handyman or small workshop wanting to efficiently charge 12 Volt lead acid automotive, motor cycle, marine and industrial type batteries, Including Calcium-Calcium (Cal-Cal), Calcium-Silver (Cal-Ag), Lead Antimony, Absorbed Glass Matt (AGM) and Gel battery types.

These chargers are intended only for use in non-explosive and dry environments.
Never use or put the charger down in any liquid, oil or water.

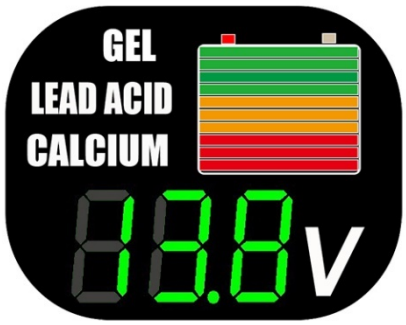
Operation

How to use:

1) Check the battery is suitable for this charger.
2) Connect the charger Positive (Red) Lead to the Positive of the battery.
3) Connect the charger Negative (Black) Lead to the Negative of the battery.
4) Plug the charger into the power socket & turn on the charger.
5) Select the battery type by repeatedly pressing the battery type selector until the correct type is illuminated on the display.
   Gel = Gel Batteries, Lead Acid = Lead Antimony & AGM Batteries, Calcium = Calcium (Ca-Ca or Ca-Ag)
6) Charging is now taking place.
7) When the battery capacity bar graph is fully lit up, the battery is fully charged & the charger has gone into its maintenance stage. You can disconnect the charger, or leave the charger connected, if left connected the charger will maintain the battery in a fully charged state without causing any damage to the battery or charger.

Note: The charger will remember the last battery type selected, even after disconnection from the power, and will only change when changed manually by the user. This is very useful if you are charging a lot of batteries, or the unit is permanently connected to a battery bank and the 240V power may be frequently disconnected and reconnected.

LED Display:



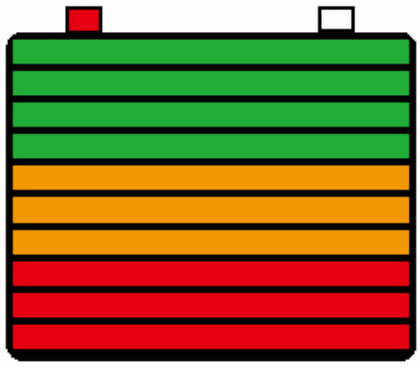
- Battery Type Selected – “GEL”, “LEAD ACID”, “CALCIUM”
- Charging Voltage – Shows the Voltage of the battery while charging.
- All bars on battery will flash if the charger has determined that the battery may be faulty.
- The battery bar graph will display the percentage of charge in the battery, when all bars are illuminated the battery is fully charged.

Charge

100%

50%

10%



As well the red & white terminals on battery bar graph display will flash, if the charger is connected to the battery with reverse polarity.

Charging Stages:

Stage 1 – "Desulphation"

In this initial start-up stage, a high frequency voltage pulse (0.5 sec) is to assist in "waking up" a deeply discharged battery. This method of pulse charging can also help to reduce build-up of sulphate crystals that may have formed on the battery plates during the time it was discharged. This stage will last as long as it takes the battery to reach approximately 10 volts. If the connected battery is only slightly discharged, this stage may only be activated for a short time before automatically switching to the next "soft start" stage.

Stage2 – "Soft Start"

After the battery is connected, most conventional "Smart" Battery Chargers will immediately apply a high charging voltage and current output. This creates a large amount of gas and heat from the battery and when the consistency of the battery electrolyte / state of cell charge is uneven - (from time to time the consistency of the battery electrolyte can be uneven from daily use) - a full load charging characteristic can result in a period of potentially damaging overcharging.

The Soft Start function eliminates this situation by starting the charging process slowly and softly, battery electrolyte and cell charge is able to even out, before receiving the main bulk charge. This significantly improves the battery charging capability and reception.

Stage 3 – "Bulk"

This is the main hard charging stage, where the charger will operate at the maximum rated current output, until the battery reaches a pre-set voltage determined by the battery type selection. Charging time period is determined by the capacity and charge state of the battery.

Stage 4 – "Absorption"

After the Bulk stage, the charger will automatically begin to reduce its current output depending on the charge acceptance of the battery, while maintaining a constant voltage (determined by the battery type selection). When the current reduces to a predetermined threshold level charging will automatically halt, allowing the analysis stage to be performed

Stage 5 - "Analysis" (Testing the battery while charging)

After the Absorption charging state, the battery charger will start the "Analysis" stage and will stop charging the battery for approximately 2 minutes. At this point, if the battery voltage is sensed at below 12.6V, the battery alarm and faulty battery indicators and alarm will sound. If the battery voltage is equal to or above 12.6V, the next Boost stage will start.

Stage 6 – "Boost"

After successfully analysing the battery condition, the charger will enter the Boost charge stage, which will charge at a slightly higher voltage ensuring the battery attains a 100% full charge. The current output is limited at 25% of the maximum rated charger output. When the current drops to the pre-set level or a maximum of 15 minutes is reached the charger will enter the last float charge stage.

Stage 7 – "Float"

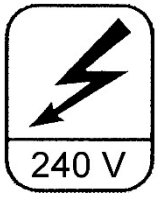
This stage will "even out" the voltage between all cells maintaining a constant voltage with a reduced current, thus prolonging the battery service time. If a load is applied to the battery and the battery voltage drops below 12.4 volts, the charger will restart from the absorption stage.

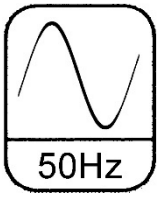
Stage 8 – "Maintain"

This final stage regulates the fully charged battery. A small pulse charge is applied at 0.5Hz to maintain the battery at its fully charged state and ready to be used at any time. If a load is applied to the battery and the battery voltage drops below 12.4 volts, the charger will restart from the absorption stage.

Safety Instructions for Charger & Battery

⚠ WARNING





1. Do not use a damaged appliance. If the electrical cord is damaged have it repaired or replaced by a qualified electrician immediately.
2. Explosive gases may escape from the battery during charging.
3. Do not charge inside a box or container of any kind. The battery must be placed in a well-ventilated area during charging.
4. Prevent flames and sparks - ensure the area is well ventilated.
5. Do not short the battery or touch the terminals with any conductive materials.
6. Do not expose battery charger to water or rain, make sure you have dry hands when operating the charger.
7. Before charging ensure you have read the instruction manual in full.
8. This charger is for use indoors, do not expose to rain or excessive dust.
9. Be careful not to drop, shake or strike the charger or battery.
10. Disconnect from 240Volt supply before making or disconnecting connections to the battery.
11. This charger is for charging 12volt batteries only
12. This appliance is not for use with non-rechargeable batteries.
13. Never charge a frozen battery.

14. This charger is intended for use by responsible persons and should not be operated by children or untrained persons without supervision.
15. Always check battery manufacturer's specifications on charge rates and voltage prior to charging.

Technical Features:

- Built-in microchip charging control and monitoring system.
- Zero-volt minimum start – can charge a completely flat battery.
- Optimally designed charging cycle designed for Lead Acid / AGM, Gel, and Calcium, Starting and Deep cycle batteries.
- Comprehensive eight stage charging cycle including: Desulphation, soft start, bulk, absorption, analysis, boost, float and maintenance stages.
- Automatic adjustment of charging voltages according to environmental temperature.
- Overcharge protection, protecting the battery from damage due to overcharging.
- Reverse polarity, short circuit, overload and high temperature protection.
- LED display simultaneously showing charging voltage, percentage of battery charge
- Battery Testing function while charging (faulty batteries cause the Full Battery Bar display to flash).

Technical Specifications:

Model No:	**SP61080**	**SP61082**
Output Current	6A	10A
Output Voltage (Nom)	12V	
Input Voltage	175-255VAC / 50-60Hz	
Battery Type Selectable	Gel / Calcium / Lead Acid - AGM	
Charge stages	8 Stages	
Desulphation	High Frequency Pulse	
Soft Start	Slowly start the charging process	
Bulk Charge	Maximum Current until pre-set voltage reached	
Absorption	Constant voltage with automatic amperage control	
Analysis	Analyse the battery condition	
Boost	Higher voltage charge at limited current	
Float	Constant Voltage at required Current	
Maintain	Pulse to maintain maximum charge	
Output Voltage (Bulk)	14.2V Gel / 15.6V Cal / 14.7V LA & AGM	
Output Voltage (Absorption)	14.2V Gel / 15.6V Cal / 14.7V LA & AGM	
Output Voltage (Float)	13.3V Gel / 13.7V Cal / 13.7V LA & AGM	
Output Voltage (Maintain)	13.3V Gel / 13.7V Cal / 13.7V LA & AGM	
Working Temperature	-15 °C to +40°C	
Safety Protection	Short Circuit, Reverse Polarity, Zero-volt start & High Temperature	
Dimensions (L x W x H)	150x140x54	160x160x54
Dimensions Incl. Rubber feet	150x140x60	160x160x60

LIMITED WARRANTY

This Limited Warranty applies only to new products* distributed by SP Tools Pty Ltd ("SP Tools"). It is a condition of this Limited Warranty Policy that the purchaser read the owner's manual for the product and only use the product to the extent or for the purposes stated therein. The purchaser must also ensure that all servicing requirements are completed as listed in the owner's manual (said servicing is at the owner's expense). We recommend that all servicing is completed by an authorised service agent and that records of said servicing are retained by the purchaser as proof in the event of a warranty claim.

Whilst the owner's manual, packaging, and/or other documentation supplied with SP Tools' products may provide details in respect of a Limited Warranty, the terms set out herein supersede these matters, and this Limited Warranty applies in their place. This warranty is no less advantageous than otherwise described in such other documentation.

SP Tools agrees, subject to the terms and conditions specified below, to repair or replace at SP Tools' cost, the product purchased by you when the product does not perform in accordance with its specifications during the limited warranty period, due to any fault in manufacturing, materials and/or workmanship. SP Tools is not liable to repair or replace products that the purchaser uses in a manner that is inconsistent with the owner's manual or in the circumstances set out in paragraphs 1.1 – 1.7 below.
The benefits to the purchaser under this warranty are in addition to other rights and remedies under the *Competition and Consumer Act 2010* (Cth). The limited warranty period, within which a defect in the product must appear, commences from the date of purchase and ceases on expiration of the specified term below.

THE LIMITED WARRANTY PERIOD

• SP Speciality Tools – 12 Months

THE PURCHASERS ATTENTION IS DRAWN TO THE FOLLOWING

To the extent permitted by law and subject to this Limited Warranty, and as part of the terms of the sale of the equipment or part thereof: SP Tools shall not be liable for any form of loss, damage, cost, injury or harm of any kind (whether direct, indirect, special or consequential) howsoever arising from the use or supply of the equipment to the purchaser.

EXCLUSIONS TO LIMITED WARRANTY POILICY

This Limited Warranty will not apply where the equipment or any part thereof:

1.1 Fails due to an accident (including liquid spillage), abuse, misuse, neglect or normal wear and tear;
1.2 Has been used in a manner other than for which it was originally designed;
1.3 Has been tampered with or is otherwise than as supplied by SP Tools;
1.4 Where any damage, malfunction or other failure of the equipment or any part thereof resulted directly or indirectly from unauthorized persons, adjusting or failing to adjust any part requiring normal maintenance and service (examples include adjustment of tappets, air filter maintenance, lubrication and tightening of screws nuts and bolts);
1.5 Malfunctions due to the use of defective or incompatible accessories;
1.6 Is damaged by lightning or thunderstorm activity; or
1.7 Has been transported to a country where no authorised Service Agents exist.

CLAIMING WARRANTY

This Limited Warranty may be claimed on in the following manner:

2.1 In order to make a claim under this Limited Warranty, the purchaser must deliver the equipment or any part thereof to an SP Tools authorised repair agent and pay all costs of transportation and all costs incidental to making a claim under this Limited Warranty. The purchaser must first contact SP Tools (contact details described above) and request the delivery address of an SP Tools authorised repair agent.
2.2 The purchaser must deliver to the repair agent written reasons why the purchaser considers that the purchaser has a claim under this Limited Warranty and must provide all necessary details, including:
  • The place, date and from whom the unit or part was purchased.
  • The unit or part involved, Model and Serial Number.
  • The defect, malfunction or failure in respect of which the claim is being made.
  • Proof of service of the unit or part (if applicable)
  • Proof of purchase in respect of the unit or part.
2.3 If the Limited Warranty claim is valid, the repair agent will carry out repairs and return the product at no charge to the purchaser. These repairs are limited to the Limited Warranty fault identified and as such will not include any other faults due to misuse, abuse, failure to maintain, fair wear and tear or the replacement of serviceable items such as oil, spark plugs, air filters, fuel etc.

Our goods come with guarantees that cannot be excluded under Consumer Law. You are entitled to a replacement or refund for a major failure and for 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.

Note: Units which are failing to perform in accordance with specifications due to non-warrantable causes will be subject to freight, repair and or quote charge