

Thank you for purchasing a Sealey product. Manufactured to a high standard this product will, if used according to these instructions and properly maintained, give you years of trouble free performance.




**IMPORTANT: PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS, AND CAUTIONS. USE THIS PRODUCT CORRECTLY, AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY.**

## 1. SAFETY INSTRUCTIONS

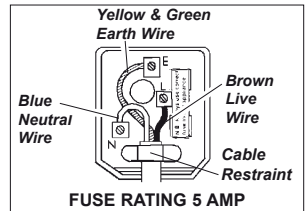
### 1.1 ELECTRICAL SAFETY

- 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. You may obtain a Residual Current Device by contacting your Sealey dealer. You must also read and understand the following instructions concerning electrical safety.
  - 1.1.1 The **Electricity at Work Act 1989** requires that all portable electrical appliances, if used on business premises, are tested by a qualified electrician, using a Portable Appliance Tester (PAT), at least once a year.
  - 1.1.2 The **Health & Safety at Work Act 1974** makes owners of electrical appliances responsible for the safe condition of those appliances and the safety of the appliance operators. If in any doubt about electrical safety, contact a qualified electrician.
  - 1.1.3 Ensure that the insulation on all cables and on the appliance is safe before connecting it to the power supply. See 1.1.1 and 1.1.2 and use a Portable Appliance Tester.
  - 1.1.4 Ensure that cables are always protected against short circuit and overload.
  - 1.1.5 Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none are loose.
  - 1.1.6 **Important:** Ensure that the voltage marked on the appliance matches the power supply to be used and that the plug is fitted with the correct fuse - see fuse rating to right.
  - 1.1.7 **DO NOT** pull or carry the appliance by the power cable.
  - 1.1.8 **DO NOT** pull the plug from the socket by the cable.
  - 1.1.9 **DO NOT** use worn or damaged cables, plugs or connectors. Immediately have any faulty item repaired or replaced by a qualified electrician. When a BS 1363/A UK 3 pin plug is damaged, cut the cable just above the plug and dispose of the plug safely. Fit a new plug according to the following instructions (UK only).
    - a) **Connect the GREEN/YELLOW earth wire to the earth terminal 'E'.**
    - b) **Connect the BROWN live wire to the live terminal 'L'.**
    - c) **Connect the BLUE neutral wire to the neutral terminal 'N'.**
    - d) **After wiring, check that there are no bare wires,**

that all wires have been correctly connected, that the cable outer insulation extends beyond the cable restraint and that the restraint is tight.

Double insulated products, which are always marked with this symbol , are fitted with live (brown) and neutral (blue) wires only. To rewire, connect the wires as indicated below. **DO NOT** connect either wire to the earth terminal.

- 1.1.10 If an extension reel is used it should be fully unwound before connection. A reel with an RCD fitted is preferred since any appliance plugged



into it will be protected. The cable core section is important and should be at least 1.5mm<sup>2</sup>, but to be absolutely sure that the capacity of the reel is suitable for this product and for others which may be used in the other output sockets, we recommend the use of 2.5mm<sup>2</sup> section cable.

### 1.2 GENERAL SAFETY

- WARNING!** DO NOT USE ON ANY OTHER BATTERIES APART FROM SEALED LEAD ACID BATTERIES.
- WARNING!** Disconnect the charger from the mains power before servicing or performing any maintenance.
- ✓ Disconnect the charger from the mains power before connecting to, or disconnecting from, the battery.
- ✓ Maintain the charger in good condition (use an authorised service agent only).
- WARNING!** Charger has components such as a switch which may cause sparks or arcs. When using the charger in a garage or workshop, make sure it is in a safe location.
- ✓ Keep the charger clean for best and safest performance.
- WARNING!** Ensure there are no sources of ignition near the work area i.e. naked flames, cigarettes, flame heaters etc as the charging process produces explosive gases.
- WARNING!** Ensure the working area is well ventilated as the gases produced are explosive.
- ✓ Locate the charger in a suitable work area. Keep area clean and tidy and free from unrelated materials, and ensure there is adequate lighting.
- ✓ Wear approved safety eye protection (standard spectacles are not adequate).
- ✓ Remove ill fitting clothing. Remove ties, watches, rings, and other loose jewellery, and contain long hair.
- ✓ Read vehicle manufacturer's instructions manual to check for any specific battery charging information.
- ✓ Disconnect the battery from the vehicle and move it to a safe, dry level area for charging. If the battery cannot be removed from the vehicle refer to manufacturer's hand book.

- ✓ Clean the charger clamps and battery terminals to remove any oxidation.
- ✓ Ensure the correct clamp polarity is observed when connecting to the battery. **Positive** is indicated by (+) and is Red, **negative** is indicated by (-) and is black.
- ✓ Keep children and unauthorised persons away from the working area.
- ✗ **DO NOT** pull or carry the charger by its power supply lead. Products must not be pulled or carried by their output cables.
- ✗ **DO NOT** pull power plugs from sockets by the power cable.
- ✗ **DO NOT** use worn or damage leads, plugs or connections. Immediately replace or repair by qualified persons. A U.K. 3 pin plug with ASTA/BS approval is fitted. In case of damage, cut off and fit a new plug according to 1.1.9.
- ✗ **DO NOT** attempt to charge a non-rechargeable battery.
- ✗ **DO NOT** use the charger for any purpose other than that for which it is designed.
- ✗ **DO NOT** allow the charger terminal clamps to touch each other when the power is on. Remember that gases are produced which may ignite if sparks occur.
- ✗ **DO NOT** place the charger inside the vehicle. Remove the battery to a safe distance for charging.
- ✗ **DO NOT** get the charger wet or use in damp or wet locations or areas where there is condensation.
- ✗ **DO NOT** operate the charger if damaged.
- ✗ **DO NOT** attempt to modify or open the charger.
- ✓ When not in use unplug from the mains power supply and store in a safe, dry, secure area.
- **WARNING!** Be vigilant and cautious during the operation of battery charging as the electrolyte is highly corrosive and any gases emitted are explosive.
- ✗ **DO NOT** allow untrained persons to operate the charger. This appliance is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given instruction concerning the use of the appliance and are supervised by a person responsible for their safety.
- ✓ Keep children and unauthorised persons away from the working area. Children must not use the charger and should be constantly supervised to ensure they do not play with the charger.

**DANGER! BE AWARE, LEAD ACID BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS VERY IMPORTANT TO READ AND FOLLOW THESE INSTRUCTIONS CAREFULLY, EACH TIME YOU USE THE CHARGER.**



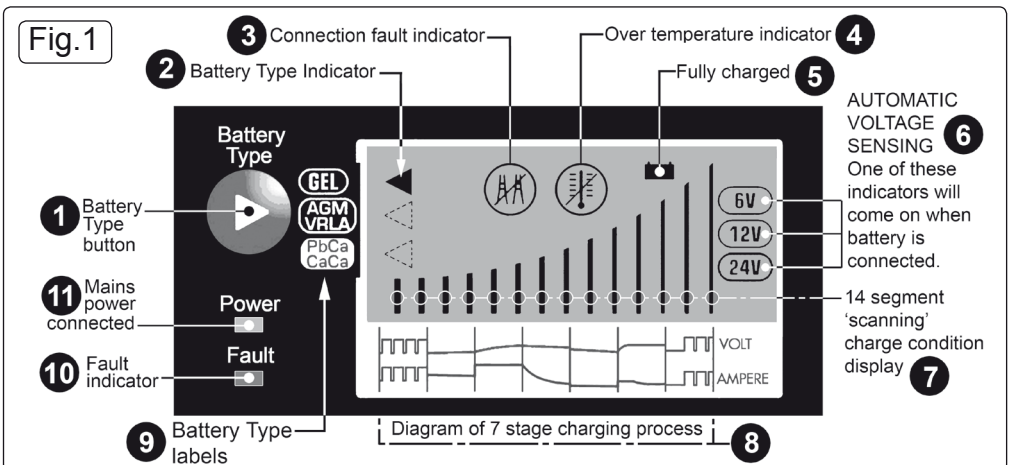
Follow these instructions and those published by the battery and vehicle manufacturers and the manufacturer of any equipment you intend to use in the vicinity of the battery. Remember to review warning marks on all products and on engines.

### 1.3 PERSONAL PRECAUTIONS

- ✓ Ensure there is another person within hearing range of your voice, or close enough to come to your aid, should a problem arise when working near a lead acid battery.
- ✓ Wear safety eye protection and protective clothing. Avoid touching eyes while working near battery.
- ✓ Have fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.
- ✓ Wash immediately with soap and water if battery acid contacts skin or clothing. If acid enters eye, flush eye immediately with cool, clean running water for at least 15 minutes and seek immediate medical attention.
- ✓ Remove personal metallic items such as rings, bracelets, necklaces and watches. A lead acid battery can produce a short-circuit current high enough to weld a ring or similar to metal, which would cause severe burns.
- ✓ Ensure hands and clothing (especially belts) are clear of fan blades and other moving or hot parts of engine. Remove ties and contain long hair.
- ✗ **DO NOT** smoke or allow a spark or flame in the vicinity of battery or engine.

## 2. INTRODUCTION

Fully automatic 7-step switch mode charger and maintainer designed for charging a variety of SLA (Sealed Lead Acid) batteries including Lead/Calcium and Silver Calcium types. Charger senses battery voltage from 6V thru 12V to 24V and the operator just selects the battery type (SLA, AGM/VRLA, Pb/Ca).





As charging progresses through the seven stages the bars will gradually come on permanently starting from left to right to indicate the level of charge achieved. See below how the 7 stages relate to the display.

4.4.2 Stage	Bars staying on	Scanning Bars
One	None	1 to 4
Two	1 & 2	3 to 14
Three	1 to 4	5 to 14
Four	1 to 6	7 to 14
Five	1 to 8	9 to 14
Six	1 to 10	11 to 14
Seven	1 to 14	None

#### 4.5 FAULT INDICATORS

4.5.1 When a fault occurs the red fault LED will ill (See fig.1-10) together with one of the circuit fault indicators.



4.5.2 **Connection fault** (see fig.1-3 ). When this symbol appears one of the following conditions has occurred.

A) The output clamps are not connected to the battery.

B) The output clamps have touched each of have shorted out.

C) The output clamps are connected to the wrong terminals and the polarity is reversed.



4.5.3 **Over temperature** (see fig.1-4 ). When this symbol appears the following condition has occurred:

The internal temperature has exceeded 80°C and the charging process is stopped. When the temperature has fallen to 45° charging will restart from the beginning.

4.5.4 If the red fault LED appears without the other symbols it indicates that the battery cannot be charged because the battery voltage is below 4.5V or above 33V.

NOTE: The charger is designed to work on batteries in good condition and under 3 years old. It might not be possible to charge a very old or worn out battery.

4.5.5 When the battery is fully charged a battery symbol will appear at the top of the LCD display. See Fig.1-5. If the charger is left connected to the battery it will automatically maintain the battery in peak condition. Otherwise, switch off the mains power supply and unplug the charger. Disconnect the charger from the battery and store the charger in a safe, secure place till next required.

**5.3 STAGE 2. FLOATING VOLTAGE/CURRENT:** During the second stage the charging current is limited to 50% and together with a floating voltage this prepares the battery for bulk charging in stage 3.

**5.3 STAGE 3. BULK CHARGING:** This is the stage when the bulk of the charge is delivered.

**5.4 STAGE 4. ABSORPTION:** Charging continues at a constant rate.

**5.5 STAGE 5. TOP UP & REVIEW:** This top up and review stage ensures maximum charging.

**5.6 STAGE 6. EQUALIZING STAGE:** Small drains on the battery such as alarms etc. are detected and result in a trickle charge to bring the battery back up to full charge.

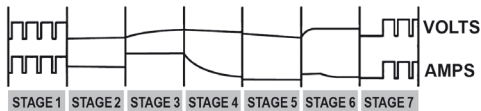
**5.7 STAGE 7. MAINTENANCE AND OPTIMIZATION:** If the drains on the battery are more significant the maintenance stage will bring the battery up to full charge again. The charger continues to monitor the state of the battery and will apply a trickle charge to the battery when necessary to keep it in optimum condition.

## 6. MAINTENANCE

**6.1** This charger requires no specific maintenance other than cleaning which should be done with a dry cloth or a tissue. Do not use any solvents or cleaning agents on the casing.

**6.2** Ensure that the charger is unplugged from the mains before installing or performing any maintenance.

## 5. DESCRIPTION OF CHARGING PHASES



5.1 The SMC03 charger has a seven step fully automatic charging cycle as shown in the chart above.

**5.2 STAGE 1. DIAGNOSIS & RECOVERY:** The first stage of charging attempts to recover or 'exercise' the damaged spots of a battery by subjecting it to 20% higher voltage peaks to recondition the battery plates.

NOTE: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice. IMPORTANT: No liability is accepted for incorrect use of this product.

WARRANTY: Guarantee is 12 months from purchase date, proof of which will be required for any claim.

INFORMATION: For a copy of our latest catalogue and promotions call us on 01284 757525 and leave your full name and address, including postcode.



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