SEALEY POWER PRODUCTS

INSTRUCTIONS FOR:

12V INVERTER CHARGERS - 8/12/16AMP 230V

MODEL No's:	HFC8	HFC12	HFC16

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.

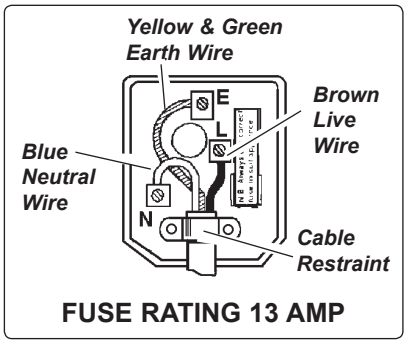
1.1.5 Regularly inspect power supply cables and plugs for wear or damage and check all connections to ensure that none is loose.

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 at 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 above - **DO NOT** connect either wire to the earth terminal.



FUSE RATING 13 AMP

1.1.10 Products which require more than 13 amps are supplied without a plug. In this case you must contact a qualified electrician to ensure that a suitably rated supply is available. We recommend that you discuss the installation of an industrial round pin plug and socket with your electrician.

1.1.11 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 1.5mm², 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 2.5mm² section cable.

1.2 GENERAL SAFETY

❒ ***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 switches and relays 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 flammable 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.
✓ Ensure the insulation on all cables and the product itself is safe before connecting to the mains power supply. See section 1.1.1 and use a Portable Appliance Tester (PAT).

- ✓ Ensure that cables are always protected against short circuit and overload.
- ✓ Regularly inspect power supply, leads, plugs and all electrical connections for wear and damage, especially power connections to ensure that none are loose.
- ✓ Check that the voltage marked on the product is the same as the electrical power supply to be used, and check that all fused plugs are fitted with the correct capacity fuse.
- ✓ Check the electrolyte fluid level in the battery is above the plates inside. If not add distilled water to cover them by 5 - 10mm. DO NOT touch the battery fluid as it is corrosive.
- ✓ 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 may be Red, **negative** is indicated by (-) and may be black. If there are no identifiable symbols, you can distinguish the **negative** battery terminal as the one which is connected from the battery directly to the vehicle body.
- ✓ Remove the battery electrolyte cover or caps to allow the gases produced by charging to escape.
- ✓ Keep children and unauthorised persons away from the working area.
- ✗ **DO NOT** pull or carry the powered appliance 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-re-chargeable battery.
- ✗ **DO NOT** use the charger for any purpose other than that for which it is designed.
- ✗ **DO NOT** allow untrained persons to operate the charger.
- ✗ **DO NOT** allow the charger terminal clamps to touch each other when the power is on or the charger fuse will blow. 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, childproof area.
- ❒ ***WARNING!*** *Be vigilant and cautious during the operation of battery charging as the electrolyte is highly corrosive and the gases emitted are explosive.*

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 the like to metal, which would cause severe burns.
- ✓ Ensure hands, 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 AND SPECIFICATIONS

High frequency switching inverter with microprocessor control gives fully automatic charging and subsequent maintenance-charging to optimise battery life and performance. Gradually increasing start-up voltage protects discharged batteries from high-current damage. Suitable for standard SLI (Starting-Lighting-Ignition), Gel, AGM (Absorbed Glass Mat) and VRLA (Valve Regulated Lead Acid) batteries. Fully protected against short circuit, reversed polarity, faulty battery, incorrect battery voltage, current overload, thermal overload and low supply voltage. Aluminium case with handle and storage for clamps and clamp cables. Suitable for 12V 8-300Ah batteries, depending on model.

Model No.	HFC8
Output:	12V
Ranges:	2
Output Current Peak (EN):	2A/8A
Battery Ranges:	8-30Ah/30-60Ah
Input:	230V 0.9A

Model No.	HFC12
Output:	12V
Ranges:	2
Output Current Peak (EN):	4A/12A
Battery Ranges:	14-60Ah/60-175Ah
Input:	230V 1.3A

Model No.	HFC16
Output:	12V
Ranges:	2
Output Current Peak (EN):	6A/16A
Battery Ranges:	25-100Ah/100-300Ah
Input:	230V 1.8A

3. OPERATING INSTRUCTIONS

3.1 PREPARATION

IMPORTANT! It is important to correctly prepare for charging ensuring you follow Section 1 safety regulations carefully. Check that the capacity of the battery is compatible with charger output.

3.1.1 Follow any vehicle manufacturer's instructions for charging the battery. Note special instructions for charging of non-removable vehicle batteries.

3.1.2 Check the battery to ensure that the **negative** & **positive** terminals are clearly identifiable before removing the battery from the vehicle.

3.1.3 Subject to 3.1.1 above, disconnect and remove the battery from the vehicle and place in an appropriate safe area according to chapter 1 ready for charging.

3.1.4 Remove the battery electrolyte cover or caps to allow the gases produced by charging to escape.

3.1.5 Check that the electrolyte is covering the plates inside. If not, add distilled water so that the plates are covered by 5-10mm.

3.1.6 The correct charging status of the battery may be determined by use of a hydrometer which will measure the specific density of the electrolyte.

The following information indicates kgs/L at 20°C as a reference point: **1.28 = Fully charged, 1.21 = Half charged, 1.14 = Fully discharged.**

❒ ***WARNING! Be cautious and vigilant as the electrolyte is a highly corrosive acid.***

3.2 CONNECTING THE CHARGER TO THE BATTERY

3.2.1 Ensure the battery charger is plugged into the mains power supply **before** connecting power leads to the battery.

3.2.2 Set the charger output to match the battery capacity by using the selection switch, HFC8 - 2A (automatic for 8-30Ah) or 8A (automatic for 30-60Ah), HFC12 - 4A (automatic for 14-60Ah) or 12A (automatic for 60-175Ah), HFC16 6A (automatic for 25-100Ah) or 16A (automatic for 100-300Ah)

3.2.3 Check the charger clamps and battery terminals to ensure they are clean and free from oxidation.

3.2.4 Connect the chargers **positive** (Red or +) lead to the **positive** (+) terminal on the battery, and the **negative** (Black or -) lead to the **negative** (-) terminal on the battery.

3.3 CHARGING THE BATTERY

3.3.1 The "Refresh" LED (red LED) will slowly flash to indicate the initiation of charging.
"Refresh" charging - this stage protects against high-current surging through the battery and calculates the optimal charging rate for the following stages.

3.3.2 The battery will then move into "Fast Charging", this is shown by a fast flashing yellow LED.
"Fast Charge" - This cycle will constantly pulse the current, whilst avoiding overheating.

3.3.3 "Absorption Charging" is the next stage, in which the battery is charged to full capacity.

3.3.4 The charger then begins the "Maintenance" cycle, a solid green light indicates that the battery is now fully charged.
"Maintenance Charging" - Maintains the battery in a fully charged state, without overcharging.

3.4 FAULT DIAGNOSIS

3.4.1 "Check Battery Connection" LED indicates that there is a break in the circuit and the leads and terminals should be checked.

3.4.2 "Clamps Shorted/Battery Damaged" LED detects that there is a fault with either the clamps or the battery, both should be tested for faults and replaced if necessary.

3.4.3 "Reverse Polarity" LED indicates that the clamps are connected to the wrong terminals. Reverse the connections to continue with charging.

3.4.4 If the unit overheats all LEDs will shut off, leaving the AC power indicator illuminated. To correct this refer to Section 4.

4. SAFETY CUT-OUT

4.1 SAFETY CUT-OUT PROCEDURE

Your charger is equipped with thermal cut-out protection which will operate in the following circumstances:
a) Overload: too high a current to the battery.
b) Short circuit: clamps touch, or the polarity on battery is reversed.
Should the cut-out operate take the following action:

4.1.1 Turn the unit off and disconnect from the mains power supply.

4.1.2 Allow the unit to cool down, then restart.

SEALEY POWER PRODUCTS
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