



USER MANUAL

SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER

ITEM NO: 03597



PLEASE READ AND FULLY UNDERSTAND THE INSTRUCTIONS IN THIS MANUAL BEFORE OPERATION.
KEEP THIS MANUAL SAFE FOR FUTURE REFERENCE.

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1 Introduction

Thank You for Choosing SIP

SIP Industrial Products Ltd is a flagship supplier of high-quality machinery and equipment to the ever-growing engineering, construction, automotive and agricultural marketplaces.

As an ISO9001 approved machinery specialist, we are passionate about innovation and offering quality, value and choice, making sure that our users have the most appropriate and reliable product for the task at hand.

Welcome to Your User Manual

This manual is designed to introduce the support in place for you as an SIP customer as well as guide you through the product that you have purchased and how to use and maintain it safely and effectively.

Technical and Aftersales Support

With a dedicated service centre at head office and service engineers across the UK and Ireland, SIP are committed to providing you with the optimum support to minimise any working downtime.

Our extensive Technical, Service Engineer and Customer Service teams are on hand to support with:

- Product selection
- Servicing and maintenance advice
- Troubleshooting

Feel free to contact us for more information.

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1.1 Product Overview

The STARTMASTER® DSC 850A 6V/12V/24V Jump Starter Charger is designed to offer versatile 6V, 12V and 24V vehicle-starting performance, ensuring excellent compatibility with batteries on motorcycles, cars, vans, trucks, tractors, plant and HGVs.

Controlled by an intelligent microprocessor, the DSC 850A uses a powerful 10-step charging cycle plus automatic voltage selection and low activation voltage for faster, simpler performance.

With an intuitive digital screen and user-friendly touchpad, it allows easy selection of charging and boosting settings while a durable and wheel-mounted casing ensure flexible mobility around garages and workshops.

1.2 Manual Version History

Manual Version Number	Date Published
V1.2	28/07/2026

2 Warranty

Warranty Registration

SIP proudly offer a 2 year warranty across all SIP branded machines.*

To benefit from the second warranty year, you must register within 30 days of purchase via the link or QR code below.

www.sip-group.com/warranty/register-warranty



***Excludes accessories and consumables**

3 Safety Instructions

3.1 Safety Symbols Used Throughout This Manual



Important: Please read the following instructions carefully, failure to do so could lead to serious injury, damage to the product or an invalidated warranty.



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



Warning: Indicates risk of fire.



Warning: Indicates risk of electrocution.



Note: Supplementary Information.

3.2 Safety Instructions

When using this starter charger, basic safety precautions should always be followed to reduce the risk of fire, electric shock, personal injury (or to others) and/or damage to the product. Read all of these instructions before operating the item and save this user manual for future reference. SIP recommends that this product should not be modified or used for any application other than that for which it was designed; it was designed to charge 6 V, 12 V or 24 V vehicle batteries and/or supply an external power source to boost start a vehicle with a flat or damaged internal battery. It is not designed to act as an external, stable, DC power supply and should **never** be used in such a way. If you are unsure of its relative applications do not hesitate to contact us and we will be more than happy to advise you.

3.2.1 General Safety Principles

Prior to first use read and understand this owner's manual and the labels affixed to the starter charger. Learn its applications and limitations, as well as the potential hazards specific to it. Only trained and competent individuals may operate this starter charger, and **must** follow the instructions provided in this manual. **Never** operate the starter charger under the influence of alcohol, drugs, or medication. Children under the age of 16 years or people unfamiliar with the starter charger **must not** be allowed to use it.

Section 3: Safety Instructions

Keep all safety guards and covers in place and functional, and **do not** bypass, disable, or modify any safety guards, safety devices or warning system. When operating the starter charger ensure that it is on a flat, level surface so that the display is easily readable during use. Ensure that jump leads from the starter charger are securely attached to the vehicles battery terminals during use. When the vehicle engine starts there will be vibrations and moving parts (such as auxiliary belts and radiator fans) that were stationary prior to the engine starting. Ensure that the leads cannot fall into these moving parts or onto a hard surface once the engine starts.

Visually examine the jump leads for signs of damage to the clamps and insulation before each use. If damage to either is found, take the unit out of service immediately and contact SIP Customer Service. **Always** check the vehicle handbook or servicing information to see whether it is safe to use this starter charger with the vehicles electrical circuit, paying particular attention to what voltage the vehicle's electrical system operates at. Using a starter charger that supplies the incorrect voltage to a vehicle's electrical systems during a boost can cause catastrophic damage to the vehicle's electrical circuit and onboard computers (ECU).

This starter charger is not designed for use in wet environments and must be kept dry at all times.

3.2.2 Personal Protective Equipment

Personal Protective Equipment (PPE) **must** be worn during operation of the starter charger and personal metal items such as rings, bracelets, necklaces, and watches **must** be removed when working with a vehicle's lead acid battery that is going to be charged and/or boosted. A lead acid battery can produce a short circuit current high enough to weld a ring or other metallic jewellery to metal on the battery terminals or car chassis, causing a severe burn.

Eye protection and insulating gloves must **always** be used when using the starter charger to charge a battery and/or boost start a vehicle.

3.2.3 Hazards During Use

Fire and Explosion Hazards: This starter charger is designed to charge vehicle batteries and/or boost start vehicles that typically have or contain a lead acid battery. Lead acid batteries generate explosive gases when charging, are overcharged or damaged. When connecting or disconnecting jump leads from the starter charger to the vehicle's battery, sparks may be generated from arcing between the jump lead and the battery terminal; due to the risk of these sparks igniting possible explosive gases only use the starter charger in a well ventilated area. **Do not** attempt to use the starter charger to start a vehicle around fuel vapours as the sparks/heat may cause a fire.

Burn Hazards: The sparks potentially generated during the connection of the jump leads to the battery terminals may burn the user on contact. Ensure that the correctly rated

Section 3: Safety Instructions

PPE is worn to protect the user's eyes and skin from these sparks.

Electrical Hazards: This starter charger is not designed to replace the vehicle battery, **do not** attempt to boost start a vehicle that does not have a lead acid battery fitted. **Never** attempt to boost a vehicle with a frozen lead acid battery. **Always** consult the vehicle handbook on whether the vehicle is positively or negatively earthed before connecting the jump leads.

Never allow the red and black jump lead clamps of the starter charger to come into contact with each other or allow them to contact a common conductor. Lead acid batteries store a large amount of energy, short circuiting the vehicle battery or starter charger terminals will cause the battery to attempt to release the energy immediately. This may damage the unit, damage the vehicle electronics, cause a fire or personal injury/death by electrocution.

Do not use an extension cable when boost starting the vehicle, or change the plug top to one not rated for this unit. The starter charger draws a significant amount of power when boosting a vehicle. Use of an extension cable or incorrect plug top presents a fire hazard. Use of an extension cable may also lower the rated voltage to the unit, causing catastrophic damage to the vehicles electrical systems during a boost start.

Do not use the product if the jump leads are damaged. **Always** visually inspect the leads before each use and keep leads away from heat, oil and sharp edges/surfaces. Repeated use of the product will cause the leads to get hot despite the boost lockout (see Section 3.2.6). If they become hot to touch, allow to cool before further use.

Always disconnect the starter charger from the mains electrical supply when it is not in use.

Chemical Hazards: Lead acid batteries contain sulphuric acid and this can escape if the battery is overcharged or becomes hot. Sulphuric acid is hazardous and if it is suspected that it is leaking, the battery should immediately be taken out of service and the starter charger must not be used to charge the battery/boost start a vehicle it is installed in. **Always** ensure that a chemical spills kit and appropriate first aid measures are in place when working with lead acid batteries.

3.2.4 Residual Risks

The starter charger has a fuse on the front of the unit, covered by a plastic cap. This cap must never be removed except for when replacing a blown fuse. The fuse protects the vehicle from excess current draw during a boost start operation.

When in use ensure that the front castors are locked to prevent the unit from moving during operation. Only use the unit on a flat and level surface.

Section 3: Safety Instructions

3.2.5 Warning signs and symbols

This jump starter/charger features warning labels and safety symbols, familiarise yourself with the meaning of each symbol before first use. Replace damaged or unreadable labels immediately.



Figure 1: The warning label in between the Positive Quick Connectors (6/12 V and 24 V).

The warning label in Figure 1 reminds users to select the correct output voltage by connecting the Red (Positive) Jump Lead to the correct Positive Quick Connector on the front of the unit.

3.2.6 Safety Devices

Reverse Polarity Protection: The unit will detect when the jump leads have been connected to the incorrect polarity and prevent charging or boosting of the vehicle.

Short Circuit Protection: If a short circuit is detected the unit will not provide power on any function.

Overheat Protection: When the unit is used to provide external power to start a vehicle the unit will only deliver power for 5 seconds; followed by a 4 minute cooldown to prevent overheating of the unit.

Overcharge Protection: The units microprocessor prevents overcharging of the battery to reduce the risk of the battery venting explosive gases.

Overcurrent Protection: A high current fuse protects the vehicle from excess current draw during a boost start operation.

Section 3: Safety Instructions

3.2.7 Maintenance and Servicing Safety

This starter charger is not designed to be serviced by the end user and must only be serviced by an authorised SIP Service Agent. **Do not** attempt to open the unit to access the components inside and **do not** attempt to replace any of the starter charger components.

3.2.8 Disposal Safety

This product should not be disposed of in normal household waste or recycling. Please contact your local household recycling authority for advice.

3.2.9 Storage

When the starter charger is not in use, store it with the jump lead clamps wound up and contained within the storage unit on the body of the unit. Store in a confined, clean, dry, and ventilated area, and out of reach of children and unauthorized persons.

4 Electrical Connections

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 a Residual Current Breaker with Over-Current (RCBO). If in any doubt consult a qualified electrician.

Never carry this product by the mains lead or pull it to remove the plug from the mains socket. Keep the mains lead away from heat, oil and sharp edges. If the mains lead is damaged, it must be replaced by the manufacturer, its service agent or a similarly qualified person in order to avoid unwanted hazards. **Always** disconnect from the power supply when not in use.



Danger/Caution: The wires in the power cable of this product are coloured in accordance with the following code: Blue = Neutral, Brown = Live, Yellow and Green = Earth.

This appliance is supplied with a plug (not connected) for use with 230 V 32A, please note:

1. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard
2. If the plug is damaged and needs to be replaced this must be with a suitable BS EN 60309 plug that is correctly rated and fitted by an electrician.
3. The plug does not contain a fuse.



Warning: Never connect live or neutral wires to the earth terminal of the plug. 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 amperage 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 to reduce the chances of voltage drops.

5 Technical Specifications

Parameter	Value
Input Supply	230 V / 50 Hz
	Charge $P_{\max}$ 2500 W
	Start $P_{\max}$ 18 kW
Charging Output	6 V DC 5 A / 10 A / 45 A
	12 V DC 10 A / 45 A / 70 A 60 s <> 35 A 120 s
	24 V DC 10 A / 45 A / 70 A 60 s <> 35 A 120 s
Starting Output	Engine start (12 V DC / 24 V DC)
	750 A 5 s ON; 240 s OFF
Operating Ambient Temperature Range	0 - 40 °C
Boost Time	5 seconds
Cooldown Time (Lockout)	240 seconds
Battery Detection Voltage	1 V
Compatible Battery Types	All types of 6 V Lead-Acid (WET / EFB / GEL / AGM)
	All types of 12 V Lead-Acid (WET / EFB / GEL / AGM)
	All types of 24 V Lead-Acid (WET / EFB / GEL / AGM)
	12 V only for Deep Cycle Battery and Lithium-Ion batteries (4-cell LiFePO ₄)
Ingress Protection (IP) Rating	IP20
Net Weight	38.0 kg
Gross Weight	40.7 kg

5.1 Safety Features

Reverse Polarity Protection: The unit will detect when the jump leads have been connected to the incorrect polarity and prevent charging or boosting of the vehicle.

Short Circuit Protection: If a short circuit is detected the unit will not provide power on any function.

Overheat Protection: When the unit is used to provide external power to start a vehicle the unit will only deliver power for 5 seconds; followed by a 4 minute cooldown to prevent overheating of the unit.

Overcharge Protection: The units microprocessor prevents overcharging of the battery to reduce the risk of the battery venting explosive gases.

Overcurrent Protection: A high current fuse protects the vehicle from excess current draw during a boost start operation.

**6 Getting to know your SIP STARTMASTER® DSC850A
6V/12V/24V DIGITAL JUMP STARTER/CHARGER**



Figure 2: Points of interest on the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER.

Section 6: Getting to know your SIP STARTMASTER® DSC850A 6V/12V/24V
DIGITAL JUMP STARTER/CHARGER

Item	Description
1	LCD Display
2	24 V Positive Quick Connector
3	6 V/12 V Positive Quick Connector
4	Castor wheel
5	Metal Handle
6	6 x Function Buttons
7	Negative Quick Connector
8	Fuse Cover (Fuses inside)
9	Rear Wheel
10	Power Switch
11	Power Cable

Section 6: Getting to know your SIP STARTMASTER® DSC850A 6V/12V/24V
DIGITAL JUMP STARTER/CHARGER

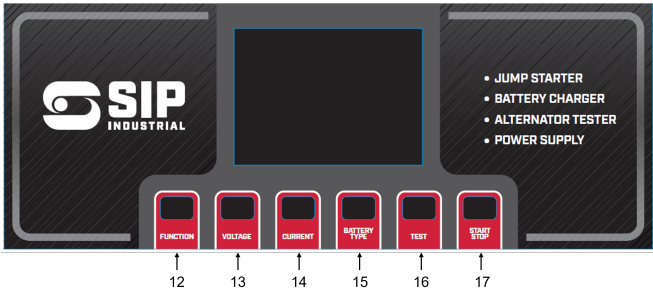


Figure 3: Layout of the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER front panel display.

Item	Description
12	FUNCTION: Cycles through the operating modes of the unit - Charge; Supply; Repair; Start.
13	VOLTAGE: Selects between 6 V and 12 V modes when the Jump Lead is connected to the 6 V / 12 V Positive Quick Connector (3)
14	CURRENT: Selects between MIN; MID and MAX current outputs when charging the battery.
15	BATTERY TYPE: When using the Charge and Supply functions this will confirm the battery type being charged (STD; GEL; AGM; LFP).
16	TEST: Enables the alternator test function when no other function has been selected.
17	START / STOP: Starts and stops the current function that is selected.

6.1 Accessories



Figure 4: Jump leads supplied with the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER.

Quantity	Description
1	Red (Positive) Jump Lead
1	Black (Negative) Jump Lead
2	Rear wheel fixtures (2 x screws; 2 x washers)
1	Rear Wheel Axle
2	Rear Wheel Cover Caps
8	Front castor screws

6.2 Assembly Instructions

The 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER requires basic assembly. Follow the instructions below to install the front castors, rear wheels and handle.

Front castors: Taking care to lie the unit on its side, screw the 8 x screws, spring washer and washer (4 for each castor) through the castors to secure it to the underneath of the unit.

Section 6: Getting to know your SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER

Rear Wheels: When attaching the rear wheels care should be taken to brace the unit during the process, so that it does not tip over.

1. Slide the axle through the receiving holes at the bottom of the unit.
2. Place a wheel on one end of the axle, the inside of the axle is threaded.
3. Take a screw and washer, and screw this into the axle to secure the wheel.
4. Take a cover cap and clip this onto the centre of the wheel.
5. Repeat this process for the other wheel.

Handle:

1. Remove the 3 x screws at the top of the rear of the unit on both sides (6 x screws in total), that matches where the handle is secured, which may be seen in Figure 2.
2. Take 2 x matching screws from the fixings kit and screw the handle into the brackets. Do not fully tighten until the last step, this allows for easier fitting to the unit.
3. One side at a time fix the brackets to the unit using the screws that were removed in Step 1.
4. Tighten the handle screws.

6.3 Safety Features

Reverse Polarity Protection: The unit will detect when the jump leads have been connected to the incorrect polarity and prevent charging or boosting of the vehicle.

Short Circuit Protection: If a short circuit is detected the unit will not provide power on any function.

Overheat Protection: When the unit is used to provide external power to start a vehicle the unit will only deliver power for 5 seconds; followed by a 4 minute cooldown to prevent overheating of the unit.

Overcharge Protection: The units microprocessor prevents overcharging of the battery to reduce the risk of the battery venting explosive gases.

Overcurrent Protection: A high current fuse protects the vehicle from excess current draw during a boost start operation.

7 Operating Instructions

7.1 Connecting / Disconnecting the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER to a Vehicle



Warning: When connecting the jump leads to the vehicle/battery always Check the voltage of the battery and the connection of the leads - you can charge a 12V battery with 24 V.



Caution: Always ensure the Red (Positive) Jump Lead and Black (Negative) Jump Lead are connected securely and in the correct position before switching on the SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER.



Danger: Never allow the Red (Positive) Jump Lead and Black (Negative) Jump Lead contacts to touch. This may cause a short circuit which could result in damage, fire, explosion and severe personal injury.

THIS PRODUCT IS RATED TO BE USED ON A VEHICLE WHICH HAS A 6 V, 12 V OR 24 V BATTERY AND ELECTRICAL SYSTEM, PLEASE CHECK THIS BEFORE USE. ALWAYS ENSURE THAT THE JUMP LEADS ARE IN THE CORRECT SOCKETS FOR THE CORRESPONDING VOLTAGE BEFORE OPERATION, WITH THE CORRECT VOLTAGE SELECTED ON THE UNIT (FOR 6 V / 12 V ONLY). DO NOT ATTEMPT TO CHARGE A 6 V OR 12 V BATTERY FROM THE UNITS 24 V OUTPUT.

The 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER may be used to charge / repair a battery whether it is fitted to a vehicle or not. However, for the supply and boost modes, the battery **MUST** be fitted and connected to the vehicle prior to use. The 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER must be connected to a battery, otherwise the unit will display the E03 error. This error will display when the unit is powered on if a battery is not connected.

The 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER behaves as a battery tester only when first powered on and connected to a battery. In order to use its functionality (jump starter, battery charger, alternator tester and power supply) these functions must be selected on the main display. These functions and how to use them are detailed in the rest of this section of the manual.



Note: Some classic vehicles or vehicles manufactured in certain parts of the world may use a positive earthing system, rather than the negative earthing system used in most vehicles. If you suspect that the vehicle is positively earthed please contact SIP Customer Support for advice on how to proceed.

- Turn off the vehicle ignition switch and all other functions (lights, radio, etc.) before making any cable connections.
- Place the vehicle in neutral and apply the handbrake.
- Ensure that the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER is not connected to a mains electrical supply before connecting the jump leads.
- Connect the Black (Negative) Jump Lead to the Negative Quick Connector (7) on the unit.
- Connect the Red (Positive) Jump Lead to either the 6 V/12 V Positive Quick Connector (3) or the 24 V Positive Quick Connector (2) on the unit. **ENSURE THAT THE CORRECT VOLTAGE QUICK CONNECTOR IS SELECTED.**
- Connect the Red (Positive) Jump Lead to the positive battery terminal on the vehicle.
- Connect the Black (Negative) Jump Lead to the chassis or a solid, stationary, metal vehicle component or vehicle body part. Be aware that vehicle batteries, especially lead-acid batteries, can release hydrogen gas. Connecting the negative clamp may create a small spark which is unsafe if the battery has released any hydrogen gas. Only connect the Black (Negative) Jump Lead directly to the negative battery terminal if you feel it is safe to do so. **Never** connect the clamp to a moving part.
- When you are finished using the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER disconnect the Black (Negative) Jump Lead first, then the Red (Positive) Jump Lead.

If the battery needs to be charged outside of the vehicle (e.g. if the battery is from a boat to be charged on shore, or to charge the battery in an area with better ventilation.) then disconnect and remove the battery from the vehicle. Once in a suitable location follow the steps above, but connecting the Black (Negative) Jump Lead to the negative battery terminal.

7.2 Charging a Battery



Warning: The 24 V functionality of the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER will allow the unit to attempt to charge a 6 V or 12 V battery. Always check that the Red (Positive) Jump Lead is connected to the correct Positive Quick Connector (2) or (3) before use. Using the wrong voltage can cause catastrophic damage to the vehicle's electrical systems and/or overcharge the battery leading to a fire/explosion and/or personal injury.



Warning: Batteries release flammable gases during charging, only charge batteries in a well ventilated area and away from combustible materials.

The 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER is designed to charge all types of 6 V, 12 V and 24 V lead acid batteries including WET (flooded), EFB (Enhanced Flooded Battery), GEL, AGM (Absorbent Glass Mat). It may also charge 12 V lithium ion batteries (4-cell LiFePO₄). The charging voltages of these types of batteries are shown in the table below.

Battery Type	6 V Charging Voltage	12 V Charging Voltage	24 V Charging Voltage
STD (Standard lead acid)	7.2 V	14.4 V	28.8 V
GEL (Gel)	7.5 V	14.6 V	29.2 V
AGM (Absorbant Glass Mat)	7.8 V	14.8 V	29.6 V
LFP (12 V ONLY) (Lithium Iron Phosphate)	N/A	14.4 V	N/A

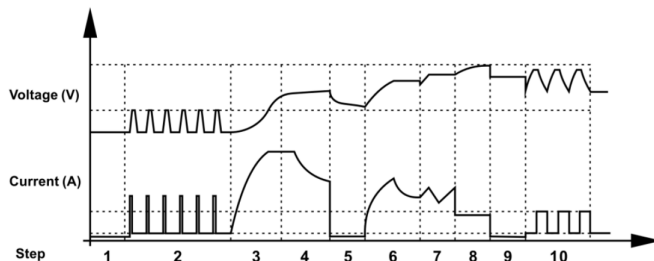
To charge a battery, either installed within the vehicle or having been removed, follow the below steps:

- Connect the jump leads of the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER to the battery/vehicle, as described above in Section 7.1 ensuring that the correct voltages are selected.

Section 7: Operating Instructions

- Connect the mains power cable to the electrical mains supply and switch ON.
- Press the Power Switch (10) on the rear of the unit to ON.
- The voltage of the battery will be displayed on the LCD Display (1).
- Press the Function Button (12) until CHARGE is displayed on the LCD Display (1).
- for 6 V and 12 V batteries **only** press the Voltage Button (13) to select either 6 V or 12 V function.
- Select the battery type connected to the unit (STD, GEL, AGM or LFP) using the Battery Type button (15).
- Select the charging current using the Current Button (14) (to select from MIN, MID or MAX).
- Press the Start/Stop Button (17) to begin the charging regime.

Pressing the Test button (16) during this time will cycle through the battery voltage, the output current during charging, and the percentage of the battery's charge. During the charging process the charger performs the charging steps shown in Figure 5. These values will fluctuate during these charging steps and should only be used for indication only.



Step	Step Description	Charging State
1	Analysing 1	Checks if the battery is connected to the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER.
2	Desulphation	Pulses charging to remove sulphate build up within the battery.
3	Slow current startup	Charges with gradually increasing charging current.
4	Controlled current charge	Adjusts the charging current intelligently.
5	Analysing 2	Tests if the battery can absorb charge.
6	Constant output charge	Charges with constant voltage and compensates fake full charge caused by high current charging.
7	Recovery cycle charge	Absorbs more charge and compensates side effect of reduced charging current.
8	Absorption	Charges with constant trickle current for maximum battery voltage.
9	Analysing 3	Tests if the battery can hold charge.
10	Maintenance	Continuously monitors the battery, and charges with trickle current once the voltage is lower than a predetermined threshold.

Figure 5: An indicative voltage / current graph detailing the charging steps.

7.3 Repairing a Battery



Warning: The 24 V functionality of the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER will allow the unit to attempt to charge a 6 V or 12 V battery. Always check that the Red (Positive) Jump Lead is connected to the correct Positive Quick Connector (2) or (3) before use. Using the wrong voltage can cause catastrophic damage to the vehicle's electrical systems and/or overcharge the battery leading to a fire/explosion and/or personal injury.



Warning: Batteries release flammable gases during charging, only charge batteries in a well ventilated area and away from combustible materials.

When REPAIR mode is selected, the device does not perform a standard charging cycle. Instead, it executes:

- A high-frequency pulse to break down lead sulphate crystals (desulphation).
- A low-current safe activation.
- Multi-stage equalization charging.

This process is designed to gradually restore the capacity and starting ability of aged or sulphated batteries.

To use the REPAIR function:

- Turn off the vehicle ignition switch and all other functions (lights, radio, etc.) before making any cable connections.
- Place the vehicle in neutral and apply the handbrake.
- Connect the jump leads to the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER, as described above in Section 7.1 ensuring that the correct voltages are selected.
- Connect the mains power cable to the electrical mains supply and switch ON.
- Press the Power Switch (10) on the rear of the unit to ON.
- The voltage of the battery will be displayed on the LCD Display (1).
- Press the Function Button (12) until REPAIR is displayed on the LCD Display (1).

- for 6 V and 12 V batteries **only** press the Voltage Button (13) to select either 6 V or 12 V function.
- Press the Start/Stop Button (17). The unit will begin the battery repair procedure and display CHARGING on the LCD Display (1).
- Once the battery repair cycle has finished the unit will display CHARGED on the LCD Display (1).
- Press the Power Switch (10) on the rear of the unit to OFF.
- Disconnect the jump leads from the vehicle as described above in Section 7.1 .

7.4 Boosting a Vehicle



Warning: Never attempt to boost start a vehicle without a battery fitted to the vehicle. The battery must not be damaged and able to hold a charge before attempting to boost.



Warning: The 24 V functionality of the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER can allow the unit to attempt to boost a vehicle with a 6 V or 12 V battery, if incorrectly set up/selected. Always check that the Red (Positive) Jump Lead is connected to the correct Positive Quick Connector (2) or (3) before use. Using the wrong voltage can cause catastrophic damage to the vehicle's electrical systems and/or overcharge the battery leading to a fire/explosion and/or personal injury.



Warning: Do not use the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER with an extension cord when attempting to boost a vehicle. Doing so may cause unstable electrical loads that can cause catastrophic damage to the vehicle's electrical components.



Note: Not all vehicles are suitable for boost starting, always check with the vehicle manufacturer before use.

The 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER may be used to provide electrical power from a mains electrical supply to start a vehicle that has a flat battery (boost starting). Before attempting to boost start the vehicle it is strongly recommended that the battery be charged for at least 5 minutes. Do not attempt to boost start a vehicle that does not have a battery

or a battery that is dead, this can lead to significant damage to the vehicle's electrical systems.

- Turn off the vehicle ignition switch and all other functions (lights, radio, etc.) before making any cable connections.
- Place the vehicle in neutral and apply the handbrake.
- Connect the jump leads to the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER, as described above in Section 7.1 ensuring that the correct voltages are selected.
- Connect the mains power cable to the electrical mains supply and switch ON.
- Press the Power Switch (10) on the rear of the unit to ON.
- The voltage of the battery will be displayed on the LCD Display (1).
- Press the Function Button (12) until START is displayed on the LCD Display (1).
- for 6 V and 12 V batteries **only** press the Voltage Button (13) to select either 6 V or 12 V function.
- Press the Start/Stop Button (17). The unit will not deliver any current until the vehicle attempts to start and a load is detected.
- Start the vehicle as normal.
- Press the Power Switch (10) on the rear of the unit to OFF.
- Disconnect the jump leads from the vehicle as described above in Section 7.1 .

7.5 Supplying a Constant Power Supply



Warning: The SUPPLY function is only designed to provide an external power supply to a vehicle for diagnostic work and whilst changing a battery. It is not designed for vehicle reprogramming (ECU remapping), DO NOT use this product to carry out such tasks otherwise catastrophic damage will occur to the vehicle's electrical systems.



Note: The SUPPLY function is only suitable for vehicles with 12 V electrical systems.

The SUPPLY mode provides a regulated DC output at 12.0 – 13.8 V with a voltage ripple of $\leq \pm 0.5$ V. This function is intended for low-power static loads only. Users should ensure their connected load does not exceed the device's general rating. The supply function is not to be used to start a vehicle, to do this use the START function.

THE SUPPLY FUNCTION IS NOT SUITABLE FOR VEHICLE ECU/PROGRAMMING.

To use the SUPPLY mode:

- Turn off the vehicle ignition switch and all other functions (lights, radio, etc.) before making any cable connections.
- Place the vehicle in neutral and apply the handbrake.
- Connect the jump leads to the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER, as described above in Section 7.1 ensuring that the correct voltages are selected.
- Connect the mains power cable to the electrical mains supply and switch ON.
- Press the Power Switch (10) on the rear of the unit to ON.
- The voltage of the battery will be displayed on the LCD Display (1).
- Press the Function Button (12) until SUPPLY is displayed on the LCD Display (1).
- The SUPPLY function only supports 12 V systems **only** press the Voltage Button (13) to select the 12 V function.
- Press the Start/Stop Button (17). The unit will provide an electrical power supply CHARGING on the LCD Display (1).
- Once the battery repair cycle has finished the unit will display CHARGED on the LCD Display (1).
- Press the Power Switch (10) on the rear of the unit to OFF.
- Disconnect the jump leads from the vehicle as described above in Section 7.1 .

7.6 Checking the Alternator Health

The 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER can provide limited diagnostics on the health of a vehicle's alternator whilst it is running. Readings below 0% (13.2 V / 26.4 V) will trigger a "LO" warning, and readings above 100% (14.6 V / 29.2 V) will trigger a "HIGH" warning.

- Turn off the vehicle ignition switch and all other functions (lights, radio, etc.) before making any cable connections.

Section 7: Operating Instructions

- Place the vehicle in neutral and apply the handbrake.
- Connect the jump leads to the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER, as described above in Section 7.1 ensuring that the correct voltages are selected.
- Connect the mains power cable to the electrical mains supply and switch ON.
- Press the Power Switch (10) on the rear of the unit to ON.
- The voltage of the battery will be displayed on the LCD Display (1).
- Press the Test Button (16).
- Start the vehicle as normal and switch on the headlights.
- The display will read the following: "0-100 %" - The alternator is working correctly, "LO" or "HIGH" - The alternator is not working correctly and will require further diagnostics by a qualified technician.
- Switch off the vehicle.
- Press the Power Switch (10) on the rear of the unit to OFF.
- Disconnect the jump leads from the vehicle as described above in Section 7.1 .

8 Maintenance

Regular maintenance is not required for the 03597 SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER, however it is recommended that the following areas of the unit are visually inspected before each use:

- Inspect the jump leads for sign of wear or damage to the insulation. Replace these as necessary.
- Wipe clean the jaws of the jump leads with a clean, dry cloth, to remove any grease or corrosion that may cause contact issues.

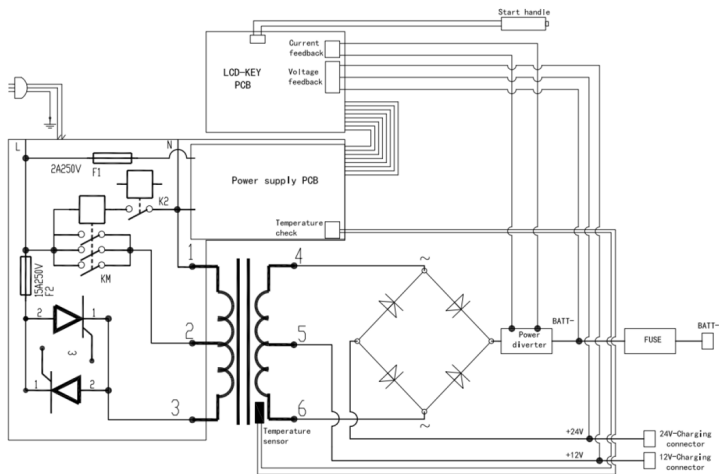
9 Troubleshooting

Error Code	Cause	Corrective Action
E00	Abnormal AC power input for the charger.	Repair or replace the current power supply being used.
E01	The positive and negative terminals of the battery are reversed.	Place the red clip on the positive terminal of the battery and the black clip on the negative terminal of the battery.
E02	Output current reduces to 0 when temperature in charger is too high.	Do not remove the AC plug immediately. After cooling down the battery charger will work again.
E03	- No battery connected or the battery voltage is lower than 1 volt (dead battery). - The red and black clamps are connected together.	- Connect the red and black clamps to the battery terminals and check there is no short between them. - Clean the battery terminals of grease, dirt or corrosion. - Replace the battery.
E04	Attempting to charge a 24 V battery in 12 V mode, or attempting to charge a 12 V or 24 V battery in 6 V mode.	Plug the Red (Positive) Jump Lead into the correct Positive Quick Connector and select the correct voltage (6 V/12 V) if necessary.

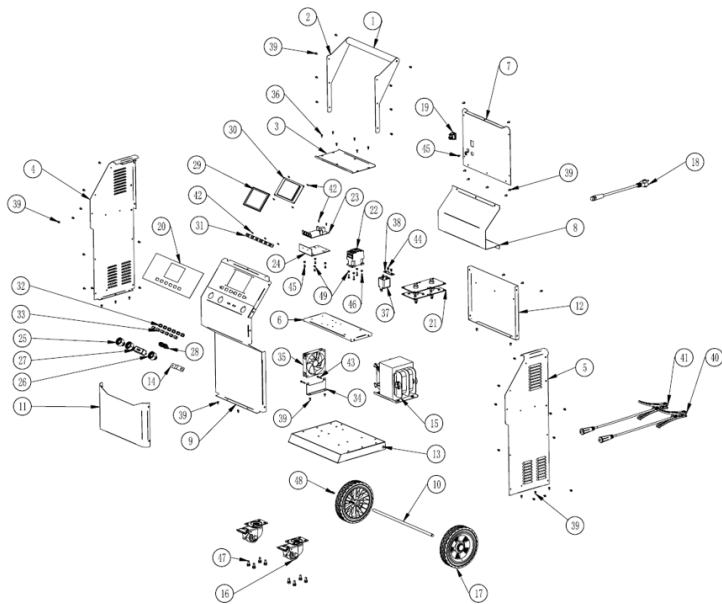
Error Code	Cause	Corrective Action
E05	1. The battery cannot store electric charge. 2. The battery cannot be recovered through the repair function.	1. Attempt to recover the battery with the repair function. 2. Replace the battery with a new one.
E06	Overload detected in supply mode.	Disconnect the clamps from the battery terminals. The unit will shut down automatically for 30 secocnds to cool down and protect the vehicle.

9.1 Exploded Drawing and Parts List

Wiring Diagram



Exploded Diagram



Ref No	Description	SIP Product Code
1	Handle	BA02-00001
2	Handle bracket	BA02-00002
3	Top panel	BA02-00003
4	Left side panel	BA02-00004
5	Right side panel	BA02-00005
6	Middle partition panel	BA02-00006
7	Rear panel 1	BA02-00007
8	Rear panel 2	BA02-00008
9	Front cover	BA02-00009
10	Wheel axle	BA02-00010
11	Front decorative panel	BA02-00011

Ref No	Description	SIP Product Code
12	Tool box baffle	BA02-00012
13	Bottom panel	BA02-00013
14	Connecting aluminium plate	BA02-00014
15	Transformer	BA02-00016
16	Swivel castor	BA02-00018
17	Rear wheel	BA02-00019
18	Power cord	BA02-00020
19	Rocker (mains) switch	BA02-00021
20	Acrylic panel label	BA02-00023
21	Rectifier bridge	BA02-00026
22	AC contactor	BA02-00028
23	Main board assembly	BA02-00029
24	Heat sink	BA02-00030
25	Quick connector - red	BA02-00031
26	Quick connector - black	BA02-00032
27	Fuse holder cover	BA02-00033
28	200A Fuse strip (2pcs)	BA02-00035
29	LCD protective frame	BA02-00036
30	Control board assembly with LCD screen	BA02-00037
31	Keypad board assembly	BA02-00038
32	Square button frame	BA02-00039
33	Square button cap	BA02-00040
34	Fan bracket	BA02-00041
35	Fan	BA02-00042
36	M4 x 10 screws	BA02-00043
37	Relay	BA02-00044
38	Shunt	BA02-00045
39	M5 x 8 screws	BA02-00046
40	Positive jump cable with clamp	BA02-00048

Ref No	Description	SIP Product Code
41	Negative jump cable with clamp	BA02-00050
42	M3 x 8 screws	BA02-00051
43	M4 x 30 screws	BA02-00052
44	M4 x 8 screws	BA02-00053
45	M4 x 8 screws	BA02-00054
46	M4 x 16 screws	BA02-00055
47	M8 x 20 screws	BA02-00056
48	M6 x 14 screws	BA02-00057
49	M4 hex nuts	BA02-00058

10 UK - Declaration of Conformity

We, SIP (Industrial Products) Ltd, Gelders Hall Road, Shepshed, Loughborough,
Leicestershire, LE12 9NH, United Kingdom

As the manufacturer within the UK, England, Scotland and Wales, declare that the

SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER - 03597

Conforms to the requirements of the following regulation(s), as indicated:

Electrical Equipment (Safety) Regulations 2016

Electromagnetic Compatibility Regulations 2016

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The following designated standards have been applied:

BS EN 62233:2008

The following technical standards have been applied:

EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021+A16:2023

EN 60335-2-29:2021+A1:2021+A11:2024

BS EN IEC 55014-1:2021

BS EN IEC 55014-2:2021

EN IEC 61000-3-2:2019+A1:2021+A2:2024

EN 61000-3-3:2013+A1:2019+A2:2021



Mr. P Ippaso - Managing Director

SIP (Industrial Products) Ltd

Date: 08/06/2026



11 EU - Declaration of Conformity

We, SIP (Machinery Europe) Ltd, ASM, Block One, Quayside Business Park, Dundalk,
County Louth, A91 DP8R, Republic of Ireland

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

SIP STARTMASTER® DSC850A 6V/12V/24V DIGITAL JUMP STARTER/CHARGER - 03597

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

2014/35/EU	Low Voltage (LVD) Directive
2014/30/EU	Electromagnetic Compatibility (EMC) Directive
2011/65/EU	Restriction of Hazardous Substances (RoHS) Directive

The following harmonised standards have been applied:

EN 62233:2008

The following technical standards have been applied:

EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021+A16:2023
EN 60335-2-29:2021+A1:2021+A11:2024
EN IEC 55014-1:2021
EN IEC 55014-2:2021
EN IEC 61000-3-2:2019+A1:2021+A2:2024
EN 61000-3-3:2013+A1:2019+A2:2021



Mr. P Ippaso - Managing Director
SIP (Machinery Europe Ltd)
Date: 08/06/2026



12 Notes



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 recycling agent. This will allow the recycling of raw materials and help protect the environment.

**FOR HELP OR ADVICE ON THIS PRODUCT PLEASE CONTACT
YOUR DISTRIBUTOR OR SIP DIRECTLY ON:**

T: 01509 500400

E: sales@sip-group.com or customerservice@sip-group.com



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