

Sinergex NITRO

Digital Intelligent Battery Charger

OPERARATOR'S MANUAL



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WARNING! Before you install and use your Nitro Battery Charger, be sure to read and save these safety instructions.

INTRODUCTION

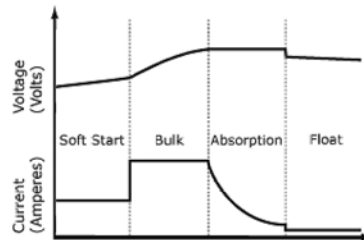
The Sinergex Nitro 3500 is member of the family of advanced battery chargers manufactured by Sinergex Technologies. Nitro chargers will increase your battery's performance and prolong its life. Please carefully read and follow the following safety and operating instructions.

The Nitro is controlled by a 12-bit AD microprocessor with 4-stage charging characteristic for charging batteries automobiles, motorcycles, snow mobiles, tractors, personal watercraft, boats etc.

Suitable for charging for common Lead Acid, AGM, Gel, Sealed and Maintenance Free batteries

NITRO 3500 Intelligent Battery Charger with 5.3 AMPS RMS

- Charges 6 or 12 VDC Batteries. 3.5 AMPS DC (5.3 A RMS)
- Automatic and Intelligent 4-Stage Charging Curve



Soft Start: Initial battery test to determine battery condition. If the battery is severely discharged charger will begin the soft

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start stage. Charging starts with reduced current until battery voltage reaches 12V.

Bulk: Major charging stage where the battery receives the majority of its charge. During this stage the battery brought to 75% - 80% of its charge. The NITRO charger delivers maximum current until the terminal voltage has risen to the set level of 14.2V for Normal battery selection and 14.0V for Gel battery selection.

Absorption: Completes the charge up to virtually 100% at a constant voltage of 14.4V at +25°C. The current tapers off after the current reached the minimum level.

Float: Maintenance charging at constant voltage, keeping the batteries at 100% charge. Normal charging mode is time-limited (max 10 days) while Float mode chargers indefinitely without damaging the battery.

Features:

- Anti Spark Protection
- Short Circuit Protection
- Voltage Compensation
- Temperature Compensation (5-6 Temperature Settings)
- Battery and Charger Overheating Protection
- Reverse Polarity Protection
- Waterproof ABS Housing. Ingress Protection Rating IP65

Touch Panel Indicators:

- REVERSE – Reversed Polarity
- FAULT – Battery Fault
- ON – Charger is Connected to AC Power Supply
- CHARGING – Battery Charger is Charging
- BATTERY CHARGED – Battery is fully charged and



is supplying the Float or Maintenance Charge

GENERAL SAFETY PRECAUTIONS AND PRE-CHARGER CHECK LIST

Do not install the Nitro Battery Charger in a zero-clearance compartment, overheating may be result.

To avoid risk of fire and electronic shock, make sure that existing wiring and power cable are in good electrical condition. Do not operate the Nitro charger if the wiring or power cable is damaged in any way.

If the AC power cable is damaged, it must be replaced by the manufacturer or its service agents or a similar qualified person to avoid hazard and further damage

Do not charge non-rechargeable batteries.

During charging, the battery must be placed in a well-ventilated area.

The battery charger must only be plugged in to an earthed AC outlet.

If the battery needs to be removed from the vehicle before charging, always remove the grounded terminal from the battery first, also ensure that all accessories in the vehicle are tuned off to prevent arcing.

Ensure the battery terminals are clean.

Always refer to the manufacturer's instructions regarding charging and charging rates and battery maintenance.



OPERATION

1. CONNECTION

If Battery is Installed in a Vehicle

Check polarity of battery terminals – for top mounted battery terminals, the Positive post (marked POS, P, +) usually has a larger diameter than the Negative battery post (marked NEG, N, -). For side mounted battery connections, the terminals are marked Positive (RED) and Negative (BLACK).

Attach charger clamps to the battery terminals, ensuring a secure connection. If charger clamps are not secure or connected incorrectly, the Reverse Polarity Indicator on the front panel will illuminate.

Negative-Grounded Vehicle: Connect the Positive (RED) charger clamp to the Positive (POS, P, +) ungrounded battery terminal. Then, connect the Negative (BLACK) charger clamp to the vehicle chassis, or the engine block (away from the battery). Do not connect the clamp to the carburetor, fuel lines, or sheet-metal body parts. Connect only to a heavy gauge metal part of the frame or engine block. NOTE: Negative- Grounded type systems are the most common in today's vehicles.

Positive- Grounded Vehicle: Connect the Negative (BLACK) charger clamp to the Negative (NEG, N, -) ungrounded battery post. Then, connect the Positive (RED) battery clamp to the vehicle chassis or engine part (away from the battery). Do not connect the clamp to the carburetor, fuel lines, or sheet-metal body parts: connect only to a heavy gauge, stable metal part of the frame or engine block.

Plug battery charger power cord into grounded AC power outlet and the Nitro is now ready for the charging process.



The Nitro's LED indicators will light to show power the charger. Using the Simple Touch panel, select the battery's voltage, 6 or 12 Volts, and select the battery type, GEL or Standard.

The Nitro will now automatically assess the condition of your battery and deliver the optimum charge.

When charging is completed, disconnect power cable from the AC power and disconnect cables and clamps in reverse order from which they were connected.

If using the Nitro for maintenance charging, leave charger connected to the battery and the Nitro will keep your battery at the optimum level of charge.

If Battery is Outside of Vehicle

Check polarity of battery posts. For top mounted battery connectors, the positive post (marked POS, P, +) usually has a larger diameter than the negative battery post (marked NEG, N, -). For side mounted battery connections the positive (+) terminal is RED and the negative (-) terminal is BLACK.

Connect the Nitro's positive (+) RED battery clamp to the positive (+) battery terminal.

Stand as far back from the battery as possible, and do not face battery when making final connection.

Carefully connect the negative (-) BLACK charger clamp to the negative (-) BLACK battery terminal. Ensure connection is secure.

Connect the charger's AC power cable to a grounded AC power outlet.



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The Nitro will now automatically assess the condition of your battery and deliver the optimum charge.

When charging is completed, disconnect power cable from the AC power and disconnect cables and clamps in reverse order from which they were connected.

If using the Nitro for maintenance charging, leave charger connected to the battery and the Nitro will keep your battery at the optimum level of charge.

2. CHARGING

Once you have connected the Nitro battery charger to AC power, it will sound a tone for 0.5 seconds and the Simple Touch power panel LEDs light for two seconds.

Connection with reversed polarity – If the DC battery clamps are connected improperly to the battery terminals, the Reverse Polarity LED will indicate the reversed polarity. The battery charger's warning buzzer will also sound. If this occurs simply disconnect the battery charger from the AC power connect the DC clamps correctly to the battery terminals. Reconnect the charger to the AC power.

The battery charger is now in the Standby operating mode and the "12V", "GEL" and "ON" LEDs are illuminated. This is the standard charging mode and as soon as the START button is pressed, the charger switches immediately into the 12V GEL cell battery charging mode.

If you require an alternative selection, proceed as follows:



Step 1 – Select the desired battery voltage. **6V or 12.**

Step 2 – Select the battery type. GEL or Standard. “**GEL**” or “**STD**”.

GEL indicates a common Maintenance Free battery, e.g. Gel Cell, VRLA, AGM & etc. **STD** indicates a common lead acid battery or calcium battery.

Step 3 – Press the “**START**” button to begin charging the battery.

Battery Fault – A few seconds after switching on to the operating mode, the LED indicator “**FAULT**” will illuminate if the following occurs:

- A. Low battery voltage - < 3 V
- B. High battery voltage - > 15 V (12 V battery) / > 7.5 V (6 V battery)
- C. Battery short circuit or battery cell short circuit
- D. Wrong choice of voltage for the battery

Under these conditions, the battery charger will stop charging. In the event of A, B or C, the battery may be defective and we advise you to consult your nearest battery service centre. If the problem is attributable to D, all you have to do is select the appropriate voltage and proceed to charge the battery.

3. WHEN THE BATTERY IS COMPLETELY CHARGED

When the LED “**FULL**” illuminates, the battery is completely charged. The battery charger now switches to the Float mode and doesn't require your attention until the next time it is used. The Nitro battery charger will automatically maintain your battery.



When the alternating current plug is removed from the power supply connection, the battery charger switches off.

The battery charger automatically switches back to the "Stand By" mode if the charger DC clamps are removed from the battery while the AC cable is still connected to the AC power supply.

CHARGING TIME

The table below is a guide to the typical charge time for different batter sizes of 6V/3cells or 12V/6cells battery:

Battery Size	Charging Time
20Ah	6 hours
24Ah	7 hours
30Ah	9 hours
36Ah	10 hours
44Ah	13 hours
55Ah	16 hours
75Ah	20 hours

IMPORTANT SAFETY INSTRUCTIONS

GASES

When a NORMAL/LEAD ACID battery is being charged you may notice bubbling in the fluid caused by the release of gas. **WANRING, THIS GAS IS FLAMMABLE. ENSURE THERE ARE NO NAKED LIGHTS OR SPARKS.**

During the charging process, the charger and battery must be placed at a well ventilated area. **DUE TO RISK OF EXPLOSION, ONLY CONNECT AND DISCONNECT THE CHARGER DC CLAPMS WITH THE BATTERY WHEN THE CHARGER IS DISCONNECTED FROM AC POWER!!!**

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Types of Batteries

This charger is only suitable for charging the specified batteries and should not be used to recharge non-rechargeable, NICAD or any other type of battery.

POINTS OF NOTE

When not in use, the battery charger must be kept at a dry area to avoid moisture. Keep away from any liquid, rain or snow at all times.

This battery charger is not designed for installation on to the vehicle as a fixture.

WARNING

Avoid getting ELECTROLYTE (Battery Acid) on your skin or clothes. It is acidic and can burn skin. If this occurs, rinse the area of contact immediately with running water.

Never charge a frozen battery. If battery fluid (electrolyte) becomes frozen, bring battery into a warm area to allow battery to thaw before you begin charging.

Never set a battery on top of charger or vice versa.

Avoid touching the battery clamps together when the charger is on.

Never operate charger if it has received a hard blow, been dropped, or otherwise damaged. Take it to a qualified professional for inspection and repair.

Be sure to position the charger power cord to prevent it from being stepped on, tripped over, or damaged.



Never pull on the AC power cable to remove AC plug from the AC power outlet. Pulling directly on the cord may cause damage to the cord or the plug.

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.

ENVIRONMENTAL PROTECTION



Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your local authority or retailer for recycling advice.

WARRANTY

Sinergex Technologies 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 authorized Sinergex 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. Sinergex Technologies makes no other warranty expressed or implied. Sinergex Technologies is only responsible for repair or replacement (at Sinergex Technologies' Discretion) of the defective product. and is not responsible for and consequential damage or inconvenience caused by the defect.

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