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NOCO genius®

G3500 V2.0

User Guide

⚠ DANGER

PRIOR TO USE, READ AND UNDERSTAND PRODUCT SAFETY INFORMATION. Failure to follow the instructions may result in ELECTRICAL SHOCK, EXPLOSION, or FIRE, which may result in SERIOUS INJURY, DEATH, DAMAGE TO DEVICE or PROPERTY. Do not discard this information.

Welcome. Thank you for buying the NOCO Genius® G3500. Read and understand the User Guide before operating the charger. For questions regarding our chargers, view our comprehensive support information at www.no.co/support. To contact NOCO for personalized support (not available in all areas), visit www.no.co/connect.

What's In The Box.

- G3500 Smart Charger
- (1) Battery Clamp Connectors
- (1) Eyelet Terminal Connectors
- User Guide
- Information Guide and Warranty

Contacting NOCO.

Phone: 1.800.456.6626
Email: support@no.co
Mailing Address: 30339 Diamond Parkway, #102
Glenwillow, OH 44139
United States of America

About G3500. The NOCO Genius® G3500 represents some of the most innovative and advanced technology on the market, making each charge simple and easy. It is quite possibly the safest and most efficient charger you will ever use. The G3500 is designed for charging all types of 12V lead-acid and 12V lithium-ion batteries, including Wet (Flooded), Gel, MF (Maintenance-Free), CA (Calcium), EFB (Enhanced Flooded Battery), AGM (Absorption Glass Mat), and LIB (Lithium Ion) batteries. It is suitable for charging battery capacities from 2 to 120 Amp-Hours and maintaining all battery sizes.

Getting Started. Before using the charger, carefully read the battery manufacturer's specific precautions and recommended rates of charge for the battery. Make sure to determine the voltage and chemistry of the battery by referring to your battery owner's manual prior to charging.

Mounting. The G3500 has four (4) external holes for mounting. Mount the charger in a desired location with #6 self-drill screws. Make sure there are no obstructions behind the mounting surface. It is important to keep in mind the distance to the battery. The DC cable length from the charger, with either the battery clamp or eyelet terminal connectors, is approximately 75-inches (1,900mm). Allow for 12-inches (304mm) of slack between connections.

Charging Modes. The G3500 has eight (8) modes: Standby, 12V NORM, 12V COLD/AGM, 12V NORM [Small], 12V COLD/AGM [Small], 6V NORM, 12V LITHIUM, and 12V REPAIR. Some charge modes must be pressed and held for three (3) seconds to enter the mode. These "Press and Hold" modes are advanced charging modes that require your full attention before selecting. "Press and Hold" are

indicated on the charger by a red line. It is important to understand the differences and purpose of each charge mode. Do not operate the charger until you confirm the appropriate charge mode for your battery. Below is a brief description:

Mode	Explanation
Standby	In Standby mode, the charger is not charging or providing any power to the battery. Energy Save is activated during this mode, drawing microscopic power from the electrical outlet. When selected, an orange LED will illuminate.
	No Power
12V NORM	For charging 12-volt Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries. When selected, a white LED will illuminate.
	14.5V | 3.5A | 2-120Ah Batteries
12V COLD/ AGM	For charging 12-volt batteries in cold temperatures below 50ºF (10ºC) or AGM batteries. When selected, a blue LED will illuminate.
	14.8V | 3.5A | 2-120Ah Batteries
12V NORM [Small]	For charging 12-volt Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries. When selected, a white LED will illuminate.
	14.5V | 900mA | 2-35Ah Batteries
12V COLD/ AGM [Small]	For charging 12-volt batteries in cold temperatures below 50ºF (10ºC) or AGM batteries. When selected, a blue LED will illuminate.
	14.8V | 900mA | 2-35Ah Batteries

Mode	Explanation
6V NORM Press & Hold	For charging 6-volt Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries. When selected, a white LED will illuminate. **7.25V | 3.5A | 2-120Ah Batteries**
12V LITHIUM Press & Hold	For charging 12-volt lithium-ion batteries, including lithium iron phosphate. When selected, a blue LED will illuminate. **14.2V | 3.5A | 2-120Ah Batteries**
12V REPAIR Press & Hold	An advanced battery recovery mode for repairing and storing, old, idle, damaged, stratified or sulfated batteries. When selected, a red LED will illuminate and flash **16.5V | 1.5A | Any Capacity**

Using 6V NORM. [Press & Hold]

6V NORM charge mode is designed for 6-volt lead-acid batteries only, like Wet Cell, Gel Cell, Enhanced Flooded, Maintenance-Free and Calcium batteries. Consult the battery manufacturer before using this mode.

CAUTION. THIS MODE IS FOR 6-VOLT LEAD-ACID BATTERIES ONLY.

Using 12V Lithium. [Press & Hold]

12V Lithium charge mode is designed for 12-volt lithium-ion batteries only, including lithium iron phosphate.

CAUTION. USE THIS MODE WITH CARE. THIS MODE IS FOR 12-VOLT LITHIUM BATTERIES ONLY. LITHIUM-ION BATTERIES ARE MADE AND CONSTRUCTED IN DIFFERENT WAYS AND SOME MAY OR MAY NOT CONTAIN A BATTERY MANAGEMENT SYSTEM (BMS). CONSULT THE LITHIUM BATTERY MANUFACTURER BEFORE CHARGING AND ASK FOR RECOMMENDED CHARGING RATES AND VOLTAGES. SOME LITHIUM-ION

BATTERIES MAY BE UNSTABLE AND UNSUITABLE FOR CHARGING.

Using 12V Repair. [Press & Hold]

12V Repair is an advanced battery recovery mode for repairing and storing, old, idle, damaged, stratified or sulfated batteries. Not all batteries can be recovered. Batteries tend to become damaged if kept at a low charge and/or never given the opportunity to receive a full charge. The most common battery problems are battery sulfation and stratification. Both battery sulfation and stratification will artificially raise the open circuit voltage of the battery, causing the battery to appear fully charged, while providing low capacity. Use 12V Repair in attempt to reverse these problems. For optimal results, take the 12-volt battery through a full charge cycle, bringing the battery to full charge, before using this mode. 12V Repair can take up to four (4) hours to complete the recovery process and will return to Standby when completed.

CAUTION. USE THIS MODE WITH CARE. THIS MODE IS FOR 12-VOLT LEAD-ACID BATTERIES ONLY. THIS MODE USES A HIGH CHARGING VOLTAGE AND MAY CAUSE SOME WATER LOSS IN WET (FLOODED) CELL BATTERIES. BE ADVISED, SOME BATTERIES AND ELECTRONICS MAY BE SENSITIVE TO HIGH CHARGING VOLTAGES. TO MINIMIZE RISKS TO ELECTRONICS, DISCONNECT THE BATTERY BEFORE USING THIS MODE.

Connecting to the Battery.

Do not connect the AC power plug until all other connections are made. Identify the correct polarity of the battery terminals on the battery. The positive battery terminal is typically marked by these letters or symbol (POS,P,+). The negative battery terminal is typically marked by these letters or symbol (NEG,N,-). Do not make any connections to the carburetor, fuel lines, or thin, sheet metal parts. The below instructions are for a negative ground system (most common). If your vehicle is a positive ground system (very uncommon), follow the below instructions in reverse order.

1.) Connect the positive (red) battery clamp or eyelet terminal connector to the positive (POS,P,+) battery terminal.

2.) Connect the negative (black) battery clamp or eyelet terminal connector to the negative (NEG,N,-) battery terminal or vehicle chassis.

3.) Connect the battery charger's AC power plug into a suitable electrical outlet. Do not face the battery when making this connection.

4.) When disconnecting the battery charger, disconnect in the reverse sequence, removing the negative first (or positive first for positive ground systems).

Begin Charging.

1.) Verify the voltage and chemistry of the battery.

2.) Confirm that you have connected the battery clamps or eyelet terminal connectors properly and the AC power plug is plugged into an electrical outlet.

3.) The charger will begin in Standby mode, indicated by an orange LED. In Standby, the charger is not providing any power.

4.) Press the mode button to toggle to the appropriate charge mode (press and hold for three seconds to enter an advanced charge mode) for the voltage and chemistry of your battery.

5.) The mode LED will illuminate the selected charge mode and the Charge LEDs will illuminate (depending on the health of the battery) indicating the charging process has started.

6.) The charger can now be left connected to the battery at all times to provide maintenance charging.

Understanding Charge LEDs.

The charger has four (4) Charge LEDs - 25%, 50%, 75% and 100%. These Charge LEDs indicate the connected battery(s) state-of-charge (SOC). See the explanation below:

LED	Explanation
25% Red LED 25% 50% 75% 100% ●○○○	The 25% Charge LED will slowly pulse “on” and “off”, when the battery is less than 25% fully charged. When the battery is 25% charged, the red Charge LED will be solid.
50% Red LED 25% 50% 75% 100% ●●○○	The 50% Charge LED will slowly pulse “on” and “off”, when the battery is less than 50% fully charged. When the battery is 50% charged, the red Charge LED will be solid.
75% Orange LED 25% 50% 75% 100% ●●●○	The 75% Charge LED will slowly pulse “on” and “off”, when the battery is less than 75% fully charged. When the battery is 75% charged, the orange Charge LED will be solid.
100% Green LED 25% 50% 75% 100% ○○○●	The 100% Charge LED will slowly pulse “on” and “off”, when the battery is less than 100% fully charged. When the battery is fully charged, the green LED will be solid, and the 25%, 50% and 75% Charge LEDs will turn “off”.
Maintenance Green LED 25% 50% 75% 100% ○○○●	During maintenance charging, the 100% Charge LED will pulse “on” and “off” slowly. When the battery is topped off and fully charged again, the 100% Charge LED will turn solid green. The charger can be left connected to the battery indefinitely.

Understanding Advanced Diagnostics.

Advanced Diagnostics is used when displaying Error Conditions. It will display a series of blink sequences that help you identify the cause of the error and potential solutions.

All Error Conditions are displayed with the Error LED and Standby LED flashing back and forth. The number of flashes between each pulse denotes a potential Error Condition (except reverse polarity and low-voltage battery).

Error	Reason/Solution
Single Flash	Battery will not hold a charge. Have battery checked by a professional.
Double Flash	Possible battery short. Have battery checked by a professional.
Triple Flash	Battery voltage is too high for the selected charge mode. Check the battery and charge mode.
Error LED Solid Red	Reverse polarity. Reverse the battery connections.
Standby Solid Orange	Battery voltage is too low for charge to detect or charger is in supply. Jumpstart the battery to raise the battery voltage.

Memory
Returns to last selected mode when restarted

Interactive
Alters the charging process based on organic battery feedback

Recovery
Applies a high-voltage pulse charge when low-voltage, sulfation or lost capacity is detected

Safe
Protects against reverse polarity, sparks, overcharging, overcurrent, open-circuits, short-circuits and overheating

Fast
Charges two times faster than traditional battery chargers

Compensation
Adjusts for varying A/C line voltage for consistent charging

Rugged
Dirt, water, UV, impact and crush resistant

Compact
High-frequency energy conversion for ultra-compact, lightweight and portable charger

Start-Stop
Counteracts increased cyclic energy demands placed on batteries in micro-hybrid vehicles

Firewall
Multi-level safety barrier that prevents abnormal and unsafe conditions

Optimization
Stabilizes internal battery chemistry for increased performance and longevity

Maintenance Plus
Keeps the battery fully charged without overcharging allowing the charger to be safely connected indefinitely

Energy Save
Minimizes energy consumption when full power is not needed

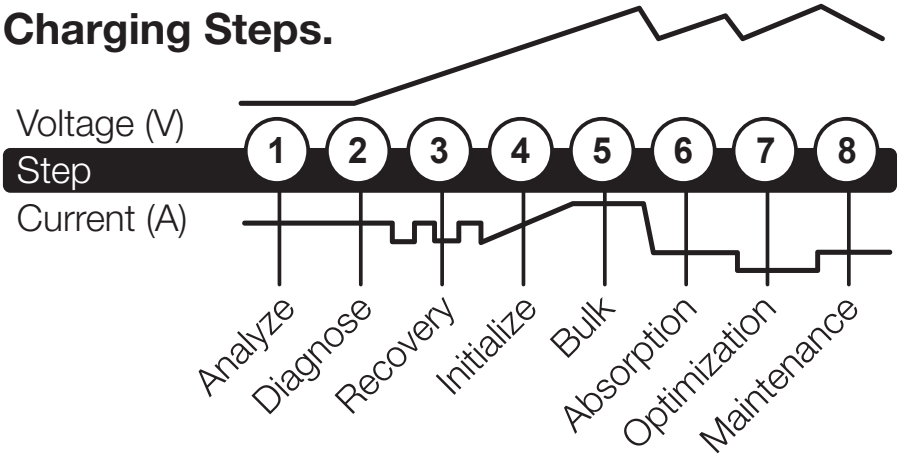
Load Tracking
Charge LEDs dynamically track the batteries state-of-charge when a load outpaces the charge current

Diagnostics
Intuitive visual diagnostic tool for detecting reverse polarity, low-voltage or damaged batteries

CANBUS
Automatically enables the charging port to charge CANBUS systems

Thermal Monitor
Internal temperature sensors adjust charge based on ambient climate

Charging Steps.



English

Step 1 & 2: **Analyze & Diagnose**
Checks the battery's initial condition, including voltage, state-of-charge and health, to determine if the battery is stable before charging.

Step 3: **Recovery**
Initializes the Recovery desulfation process (if needed) for deeply discharged or sulfated batteries by pulsing small amounts of current.

Step 4: **Initialize**
Starts the charging process with a gentle (soft) charge.

Step 5: **Bulk**
Begins the Bulk charging process based on the condition of the battery and returns 80% of the battery's capacity.

Step 6: **Absorption**
Brings the charge level to 90% by delivering small amounts of current to provide a safe, efficient charge. This limits battery gassing and is essential to prolonging battery life.

Step 7: **Optimization**
Finalizes the charging process and brings the battery to maximum capacity. In this step, the charger utilizes multi-layered charging profiles to fully recapture capacity and optimize the specific gravity of the battery for increased run time and performance. The charger will switch to Maintenance if the battery tells the charger that more current is needed.

Step 8: **Maintenance**

Continuously monitors the battery to determine when a maintenance charge should be initiated. If the battery voltage falls below its target threshold, the charger will restart the Maintenance cycle until voltage reaches its optimal state and then discontinues the charge cycle. The cycle between Optimization and Maintenance is repeated indefinitely to keep the battery at full charge. The battery charger can be safely left connected indefinitely without the risk of overcharging.

Charging Times.

The estimated time to charge a battery is shown below. The size of the battery (Ah) and its depth of discharge (DOD) greatly affect its charging time. The charge time is based on an average depth of discharge to a fully charged battery and is for reference purposes only. Actual data may differ due to battery conditions. The time to charge a normally discharged battery is based on a 50% DOD.

Battery Size Ah	Approx. Time to Charge In Hours 6V	12V
20	2.9	2.9
40	5.7	5.7
80	11.4	11.4
100	14.3	14.3
120	17.1	17.1

Technical Specifications.

Input Voltage AC:	110-120 VAC, 50-60Hz
Working Voltage AC:	85-130 VAC, 50-60Hz
Efficiency:	85% Approx.
Power:	60W Max
Charging Voltage:	Various
Charging Current:	3.5A (12V & 6V), .9A (12V Small)
Low-Voltage Detection:	2V (12V), 2V (6V)
Back Current Drain:	<5mA
Ambient Temperature:	0°C to +40°C
Charger Type:	8 Step, Smart Charger
Type of Batteries:	6V & 12V
Battery Chemistries:	Wet, Gel, MF, CA, EFB, AGM & LIB
Battery Capacity:	2-120Ah (12V), 2-120Ah (6V), Maintains All Battery Sizes
Housing Protection:	IP65
Cooling:	Natural Convection
Dimensions (L x W x H):	7.6 x 2.7 x 1.9 Inches
Weight:	1.13 Pounds

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