

STRONGWAY™

12/24V AUTOMATIC HIGH-FREQUENCY 10 AMP BATTERY CHARGER

Owner's Manual



⚠ WARNING: Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item #5820286

SAVE THESE INSTRUCTIONS

Thank you very much for choosing a Strongway product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code: _____

Purchase Date: _____

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

This product is designed for certain applications only. Northern Tool and Equipment is not responsible for issues arising from modification or improper use of this product such as an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-800-222-5381**.

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WARNING

- Explosive gases! Prevent flames and sparks. Provide adequate ventilation during charging.
- For indoor use. Do not expose to rain.
- For charging 12/24V rechargeable lead acid automotive type and 12V LiFePO4 batteries of the size detailed in the specifications table.
- Do not attempt to charge non-rechargeable batteries. Never charge a frozen battery.
- Do not charge other types of batteries like Nickel Cadmium (NiCad), Nickel-Metal Hydride (Ni-MH), Dry-Cell etc.
- During charging, the battery must be placed in a well-ventilated area, as far as possible from any flame or ignition sources.
- This battery charger is not intended for persons with reduced physical, mental and / or sensory abilities. Similarly, persons that lack experience or knowledge (including children) should be supervised or given suitable instruction.
- Young children should be supervised to ensure that they do not play with the appliance.
- Disconnect the 120V mains supply before making or breaking the connections to the battery.
- The battery charger must be plugged into an earthed or grounded socket-outlet.
- Connection to mains supply must be in accordance with National wiring rules
- If the AC cord is damaged do not use it. Have the cord replaced or repaired by a qualified person.
- Corrosive substances can escape from the battery. Use suitable personal protective equipment (PPE) including eye protection and keep skin covered where possible. If contact with battery acid occurs, flush the area with plenty of water for at least 10 minutes and promptly seek medical attention.

WARNING

PERSONAL SAFETY

- Stay alert, watch what you are doing, and use common sense when operating the jump starter.
- Do not use the unit while you are tired or under the influence of drugs, alcohol, or medication.
- Dress properly. Do not wear loose clothing, dangling objects, or jewelry. Keep your hair, clothing, and gloves away from the battery.
- Wear the proper personal protective equipment when necessary. Use ANSI Z87.1 compliant safety goggles (not safety glasses) with side shields, or when needed, a face shield.
- Ensure the power switch is off after each use.

WARNING

WORK AREA SAFETY

- Inspect the work area before each use. Keep work area clean, dry, free of clutter, and well-lit.
- Cluttered, wet, or dark work areas can result in injury. Using the product in confined work areas may put you dangerously close to cutting tools and rotating parts.
- Do not use this battery charger where there is a risk of causing a fire or an explosion, e.g., in the presence of flammable liquids, gases, or dust. The product can create sparks, which may ignite flammable liquids, gases, or dust.
- Keep children and bystanders away from the work area while operating the tool. Do not allow children to handle the product.
- Be aware of all power lines, electrical circuits, water pipes, and other mechanical hazards in your work area. Some of these hazards may be hidden from your view and may cause personal injury and/or property damage if contacted.

TECHNICAL PARAMETERS

| | |
|------------------------|---|
| Part Number | 5820286 |
| Charger Type | Intelligent Automatic - 7 Stages |
| Input Voltage | 120 VAC / 60Hz |
| Input Current | 2.2A |
| Nominal Output Voltage | 12V & 24V |
| Output Current | 10A(12V); 5A (24V) |
| Battery Type | Lead-acid (STD, AGM, GEL) and LiFePO4 (LFP) |

MAIN FEATURES

MICROPROCESSOR TECHNOLOGY

The latest technology in battery chargers converts 120VAC to 12VDC charging power using electronic components, unlike traditional battery chargers that rely on large heavy transformers. This allows the charger to be lightweight and compact without sacrificing performance. To increase safety, polarity protection prevents the output leads from sparking due to accidental reverse connection or short circuit.

MAXIMISING BATTERY PERFORMANCE

Your battery will run longer when charged using a 7-stage charger, ensuring you get the most from your battery.

MAXIMISE BATTERY LIFE

Batteries used regularly will last longer when charged using a 7-stage charger, extending battery life.

MOUNTING DESIGN FOR EASY STORAGE

Mounting holes in the rear case of the battery charger allow for quick and easy mounting for permanent installations.

Note - When installed into caravans, motorhomes, 4WD's or similar, the charger should be mounted in a well-ventilated location, and protected from rain, water, or moisture at all time.

Connection to the mains supply must be in accordance with National wiring rules and regulations. To minimize TV/Radio interference, position the charger well away from the TV, Radio, Antenna, and the Antenna Cable

DIGITAL DISPLAY / BACKLIGHT

The digital Display provides a clear, easy-to-read display and a backlight provides visibility in poor light or when dark.

The digital display provides the actual battery voltage prior to selecting a "CHARGE OPTION", and displays the voltage and current being applied during charging.

When the charge cycles are complete and the battery is fully charged, the digital display will show FUL. If the clamps are connected incorrectly or if the battery is damaged or unable to be charged, the display will show warning icon.

PRODUCT ILLUSTRATION

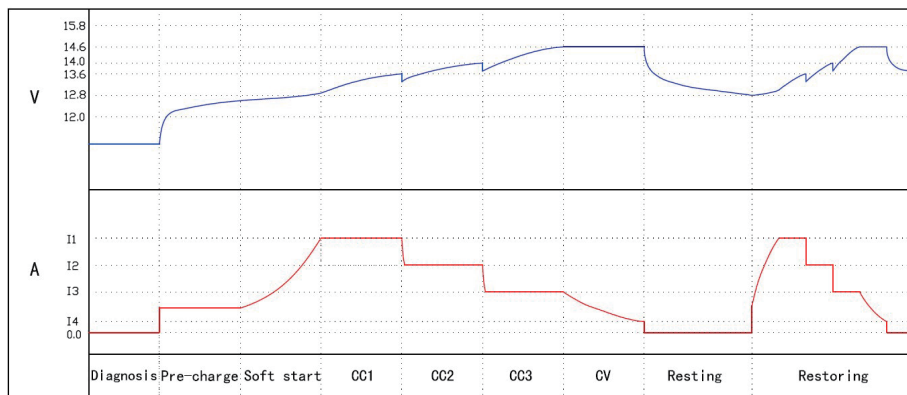


1. Power cord
2. Digital screen
3. Start / Stop button
4. Output cord

ACCESSORIES

| Accessories | Qty |
|------------------|-----|
| Main unit | 1 |
| Clamp cable set | 1 |
| O-ring cable set | 1 |
| Manual | 1 |

CHARGING STAGE INSTRUCTION



| Stage | Function | Description |
|-------|---------------------------------------|--|
| 1 | Diagnosis | The charger checks the battery condition and calculates the required charging parameters. |
| 2 | Pre-Charge | Pre-charge the battery voltage below 12V to a safe voltage above 11V with a small current, and automatically move to the next step. |
| 3 | Soft Start | At an increased voltage, the current is slowly increased over time to activate the battery and improve battery charging efficiency. |
| 4 | Bulk Charge (Constant Current) | The Bulk Charge settings will reduce the time to charge and ensure better battery health. |
| | CC1 | Quickly charge to 13.6V with maximum current and automatically turn to the next step. |
| | CC2 | Current is reduced. |
| | CC3 | The current is further reduced for an improved charge while minimizing electrolytic loss and excess temperature. |
| 5 | Constant Voltage | With the increase of battery voltage, the charging current to the battery will then be reduced to avoid battery overcharge. |
| 6 | Resting | When the voltage is less than the set value of the judgement for the bad battery, enter the float charging to the battery for a short time of maintenance, and then move to the error mode; if the voltage is greater than the set value, wait for the battery to re-charge. |
| 7 | Restoring | The charger will continue charging the battery with a small current to keep the battery voltage in a full state. If the battery voltage drops below 12V, stages 1-5, will repeat. |

CHARGER DISPLAY SUMMARY



| Digital Tube Display | Condition / Mode |
|----------------------|--|
| | Reverse polarity |
| | Error warning – bad or failed battery; faulty connection |
| | Voltage or Current values |
| | Voltage or Current icons |
| | Voltage of the battery that is being charged |
| | Power indication in charging |
| | Battery type: WET/AGM, STD, GEL, LFP |

OPERATION INSTRUCTION

BEFORE CHARGE

1. Remove the battery from the vehicle before charging if possible.
2. Ensure that all the electrical accessories in the vehicle are off.
3. Carefully follow the battery manufacturer's instructions to recharge.
4. Ensure the surrounding area is well-ventilated during charging.

Note - BEFORE attaching the battery clamps, disconnect (unplug) the battery charger from any supply socket outlet, or ensure the mains supply power is switched to OFF.

STEP 1 - BATTERY MANUFACTURER RECOMMENDATIONS

Before using the battery charger, study the battery manufacturer's recommendations, rates of charge, and any condition peculiar to the battery being charged.

STEP 2 - CHECK THE ELECTROLYTE LEVEL

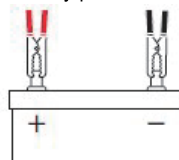
Prior to charging the battery, remove the vent caps and check the electrolyte level.

Note - For batteries without cell caps, follow the battery manufacturer's maintenance and charging instructions.

STEP 3A - CONNECTION WITH BATTERY OUT OF THE VEHICLE

Connect the POSITIVE (RED) lead/battery-clamp from the charger to the POSITIVE battery post. Connect the NEGATIVE (BLACK) lead/battery clamp from the charger to the NEGATIVE battery post.

Note - The POSITIVE terminal of a battery is defined in RED color and may be represented by POS, P, or (+); The NEGATIVE terminal of a battery is defined in BLACK color and may be represented by NEG, N, or (-). Wiggle or swivel the clamps several times – this action ensures integrity of the connection and minimizes sparks/arcing.



STEP 3B - CONNECTION WITH THE BATTERY MOUNTED IN THE VEHICLE

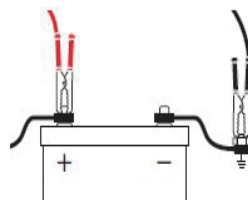
Determine if the vehicle is Positively (+) or Negatively (-) earthed.

Note - The battery terminal NOT connected to the chassis MUST be connected to the Battery Charger first (1st). The second (2nd) clamp from the Battery Charger must be connected to the chassis, away from the battery and fuel lines.

Refer to the following guides for the correct battery clamp connection sequence:

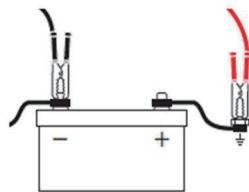
Negatively Earthed (Most Vehicles)

Note - Negatively earthed vehicles usually have a cable (usually BLACK or GREEN) connecting the Negative battery terminal to the vehicle's chassis. Connect the POSITIVE (RED) lead/battery clamp from the battery charger to the Positive (+) battery terminal. Connect the NEGATIVE (BLACK) lead/ battery clamp from the battery charger to the vehicle's chassis - away from the fuel lines or moving parts.



Positively Earthed

Connect the NEGATIVE (BLACK) lead/battery clamp from the battery charger to the Negative (-) battery terminal. Connect the POSITIVE (RED) lead/battery clamp from the battery charger to the vehicle's chassis - away from the fuel lines or moving parts.



STEP 4 - CONNECT TO MAINS POWER

Connect the battery charger to a 120V mains power socket and turn on the mains power.

The digital screen will illuminate to confirm that the Battery Charger is receiving power, and the actual battery voltage will be displayed.

STEP 5 - SELECT VOLTAGE / OPTION

Select Charge Volts (12V or 24V) and battery type (WET/AGM, STD, GEL, LFP) by press button.

Note - if the battery charger does not detect a properly connected battery, or detects an incorrect battery voltage, the "warning" icon will display on the screen and charging will not commence.

STEP 6 - CHARGING

An icon of a battery will appear on the top right of the display window during the battery charge sequence – bars will flash inside the battery icon to show that the battery is in charging. The voltage and current being applied to the battery will alternate on the digital screen.

Note - The screen is backlit to assist when light is poor, or when dark. To conserve energy, the backlight will extinguish after approximately 2 minutes. To re-energize the backlight, simply press the MODE button. once the battery is fully charged, FUL will display on the screen.

Note - If at any stage during charging, the battery is found to be faulty, the "warning" icon and BAD will be displayed and charging will terminate.

STEP 7 - DISCONNECTION

Once charging is completed and "FUL" icon displayed on the digital screen, BEFORE removing the battery clamps, switch the mains supply power to OFF, and disconnect (unplug) the battery charger from the supply socket outlet.

Note - If left connected, the charger will monitor the battery and maintain the battery ready for use - preventing slow discharge over time, which is detrimental to lead acid batteries.

Battery out of the Vehicle

Remove the NEGATIVE (BLACK) connection first. Then remove the POSITIVE (RED) terminal clamp.

Battery mounted in the Vehicle

Remove the chassis connection first.

Then remove the other battery clamp from the battery terminal.

Q&A

Q. What does it signify if reverse polarity and warning icons appear?

A. Clamps reversed – check and reconnect.

Q. What does the warning icon signify?

A. Bad connection of clamps – check and reconnect.

Bad Battery condition – unable to recover or recharge.

Q. Can I use the charger as a power supply?

A. Automatic chargers are designed to only supply power to the battery clips when correctly connected to a battery; this is to prevent sparks or damage to the charger or battery if connected incorrectly. Consequently, this safety feature prevents the charger from being used as a 'Power Supply'.

Q. Why is there no output on the battery charger's battery clamps when it is turned on?

A. The charger incorporates reverse polarity and short circuit protection that makes it much safer to use. For this reason, the charger will only output power when connected to a battery exhibiting a voltage above 0.5 volts (0.5V).

Q. Why won't the battery take a charge?

A. There are various conditions may cause this problem. Check the voltage selection for the battery, and/or ensure adequate time is provided to allow sufficient charge cycles (up to 48 hours).

Q. What is a Faulty Cell?

A. 12 Volt batteries contain 6 cells (24 volts batteries contain 12 cells) - one faulty cell is enough to ruin your battery. If the "warning" LED illuminates after a period of charge, you should test the cells using a hydrometer. If one reading is lower than the rest it indicates a faulty cell. It is pointless to continue charging, as the battery needs replacing.

LIMITED WARRANTY

Northern Tool and Equipment Company, Inc. "We" or "Us" warrants to the original purchaser only ("You" or "Your") that the Strongway product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of **one year** from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim, any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You, This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law, The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.

STRONGWAY™

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Northern Tool & Equipment Company, Inc.
Burnsville, Minnesota 55306
www.northerntool.com

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