

INSTRUCTION MANUAL

PRO-HD 12V/24V Pulse Charger & Battery Recovery Unit



INTRODUCTION

This manual contains important safety, operating and warranty information about your new charger. Before using the charger, please read all instructions and safety messages on the battery charger and on the battery.

EYE SAFETY

Always wear goggles when doing battery service. It is very easy to accidentally get acid in your eyes by wiping your eyes or face with your hands. In the event of a battery explosion, the acid usually splashes up into your face and eyes. Safety goggles are an intelligent precaution so use them, please.

!CAUTION!

To reduce the risk of injury, charge only automotive type lead-acid batteries. Please be careful: any attachment or modification may cause fire, electric shock or risk of injury.

POWER CORD CARE:

Do not operate the charger with a damaged cord or plug; replace them immediately. To reduce the risk of damage to the electric plug and cord, please pull by the plug rather than the cord when disconnecting. Make sure that the cord is located so that it will not be stepped or tripped on or otherwise subjected to damage or unnecessary wear.

EXTENSION CORDS:

An extension cord should not be used unless absolutely necessary. An improper extension cord could result in a risk of fire or electric shock.

If you find that an extension cord must be used, please make sure that:

- a) Extension cords must be grounded 110V AC cords of the proper gauge wire for the length of the extension cords (see graph in charger lid).
- b) The cord is properly wired and is in good electrical condition.
- c) The wire size conforms to the guidelines printed in the lid.

MAINTENANCE:

Do not disassemble this charger. Incorrect assembly may result in a risk of electric shock or fire. To reduce the risk of electric shock, unplug the charger from outlet before attempting any maintenance or cleaning. Turning off the controls will not reduce this risk. Do not operate charger if it has been damaged in any way. Contact Pulse Tech Products Corp. at 800-580-7554 for repairs.

!WARNING!

WARNING: RISK OF EXPLOSIVE GASES

WORKING IN THE VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE HYDROGEN GASES DURING NORMAL BATTERY OPERATION. THUS, IT IS VERY IMPORTANT THAT EACH OPERATOR OF THIS CHARGER READS AND UNDERSTANDS THIS MANUAL AND FOLLOWS THE INSTRUCTIONS VERY CAREFULLY.

To reduce the risk of battery explosions, follow these instructions and those published by the battery manufacturer and the manufacturer of any other equipment used in the vicinity of batteries. Also review the cautionary messages on this charger, on the battery and on the vehicle.

PERSONAL SAFETY PRECAUTIONS:

Someone should always be within range of your voice or close enough to come to your aid when you are working near a lead-acid battery. Have plenty of fresh water and soap nearby in case battery acid contacts your skin, clothing, or eyes.

Always wear complete eye and clothing protection. Avoid touching eyes while working with batteries. If battery acid contacts skin or clothing, wash immediately with soap and plenty of water. If acid gets in your eye, immediately flood the eye with running water for at least 10 minutes and get medical attention as soon as possible.

Never smoke or allow a spark or flame in the vicinity of a battery or vehicle engine. Be extra careful not to drop any metal tool or battery. It might spark or short-circuit the battery or some other electrical part that may cause an explosion. Use this charger for charging lead-acid batteries only. It is not intended to supply power to any low voltage electrical system other than in an automotive application. Do not use this charger on common household dry cell batteries. These batteries may burst and cause serious injuries and property damage.

Remove personal metal items such as rings, bracelets, necklaces and watches when working with an automotive lead acid battery. The battery can produce a short circuit current large enough to weld a ring or other jewelry, causing a severe burn.

Never try to charge a frozen battery.

!WARNING!

GROUNDING AND AC POWER CORD CONNECTION INSTRUCTIONS:

This charger must be grounded to reduce risk of electric shock. It is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER: Never alter the AC cord or plug provided. If it will not fit the outlet, have a proper outlet installed by a qualified electrician. An improper connection can result in a risk of an electric shock.

DANGER: Never use a two-pole adapter with the charger. It must have a grounded plug.

CHARGING GUIDELINES:

This battery charger must be connected to a 12- or 24-volt battery before it will initiate charge routine. Do not attempt to verify operation by connecting a voltmeter only to the positive and negative leads. (Unit will not start charge until sensing circuitry verifies a battery is present.)

If necessary to remove battery from vehicle to charge, always remove the grounded terminal from battery first. Make sure all accessories in the vehicle are off to avoid the chance of spark. Be sure the area around the battery is well ventilated while it is being charged. Gas can be fanned away by using a piece of cardboard or other non-metallic material as a fan.

Clean the battery terminals thoroughly. Be careful to keep corrosion from coming in contact with your eyes. Add distilled water in each cell until battery acid reaches the proper level. This helps purge excessive gas from the cells.

Do not overfill. Since the acid will expand during charging, add only sufficient water to cover the plates.

For a battery without cell caps, follow the manufacturer's recharging instructions. Refer to the instructions regarding removing or not removing cell caps while charging, and the recommended rates of charge.

When charging in a vehicle, all electrical switches such as lights, radio, heater, ignition, etc., should be turned off.

Charge will terminate when charge current drops below 1 Amp.

If battery is connected in reverse, alarm will sound. Use guidelines posted inside lid to select proper extension cord.

Indicators:

Ammeter shows charge being delivered to battery.

Red LED:	Pulsing is being applied to battery
Green Power LED:	Unit is switched on and powered
Green 12V Charge:	Unit detects a 12 Volt battery
Green Charge Complete LED:	Battery has been charged, unit is ready for next battery
Yellow 24V Charge LED:	Unit detects 24 Volt battery

CHARGING FAQ'S

1. Does the charger work on all lead acid automotive type batteries?

Yes! The Pro-HD will work on all lead acid batteries, to include GEL and Absorbed Glass Mat (AGM) style batteries.

2. I properly connected the Pro-HD and it cycles on a few seconds to a minute and the charge complete light comes on, but my batteries are not charged.

When the charger cycles on and off very quickly it usually indicates a problem with the battery or batteries the Pro-HD is connected too. It can be anything from heavy sulfate build up to shorting between the plates. Test each battery to be charged to identify bad or shorted batteries that should not be charged.

CHARGER LOCATION

Locate the charger as far away from the battery as the DC cables permit. Never place the charger directly above battery being charged since gases from the battery will corrode and damage the charger.

Never allow battery acid to drip on the charger when reading specific gravity or filling the battery. Do not set a battery above, on top of charger or next to vents where fan may draw acid fumes inside the charger. Do not operate the charger in a closed-in area or restrict ventilation in any way.

CONNECTING TO BATTERY:

If using battery clamps, attach the clamps to battery posts and twist or rock them back and forth several times to make a good connection and to keep the clamps from slipping off the terminals. This will help to reduce the risk of sparking.

If using NATO slave connector, assure all power switches are off and connector is secure in vehicle socket.

Unit will auto select charge voltages based on battery voltage. For 12-volt batteries the minimum battery voltage is 5 volts. For 24-volt battery packs the minimum battery voltage is 18.5 volts.

FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE. A SPARK NEAR A BATTERY MAY CAUSE THE BATTERY TO EXPLODE. TO REDUCE RISK OF A SPARK NEAR BATTERY:

- a) Position AC and DC cords to avoid damage by the hood, door, or moving engine parts.
- b) Stay clear of fan blades, belts, pulleys, and other parts that can cause an injury.
- c) Check the polarity of the battery posts. The positive ("POS", Red or "+") battery post usually has a larger diameter than the negative ("NEG", Black or "-") post.
- d) Determine which post of the battery is grounded (connected to the chassis). In most vehicles, the negative post is grounded to chassis.
- e) For negative-grounded vehicles, connect the red positive ("POS", or "+") battery charger clamp to the positive ("POS", Red or "+") ungrounded battery post. Connect the black negative ("NEG" or "-") clamp to the vehicle chassis or engine block away from the battery. If ground described above is not available, the negative (-) battery post may be used. Do not connect the negative clamp to the carburetor, fuel lines, or to sheet metal body parts. Connect it to a heavy gauge metal part of the frame or engine block.
- f) For positive grounded vehicles, connect the black negative ("NEG" or "-") battery charger clamp to the negative ("NEG", Black or "-") ungrounded battery post. Connect the red positive ("POS", or "+") clamp to the vehicle chassis or the engine block away from battery. Do not connect the clamp to the carburetor, fuel lines, or to sheet metal body parts. Connect it to a heavy gauge metal part of the frame or engine block.

FOLLOW THESE STEPS WHEN BATTERY IS NOT INSTALLED IN VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE THE BATTERY TO EXPLODE. TO REDUCE RISK OF A SPARK NEAR BATTERY:

- a) Check the polarity of the battery posts. The positive ("POS", Red or "+") battery post usually has a larger diameter than negative ("NEG", Black or "-") post.
- b) Attach 6-gauge (AWG) insulated battery cable to the negative ("NEG", Black or "-") battery post.
- c) Connect the red positive ("POS", or "+") charger clamp to the positive ("POS" Red or "+") battery post.
- d) Position yourself as far away from the battery as possible. Then connect the black negative ("NEG" or "-") charger clamp.
- e) Do not face battery when making final connection.
- f) When disconnecting charger, always do so in reverse sequence of the connecting procedure and remove first clamp connection while as far away from the battery as possible.
- g) A marine (boat) battery must be removed and charged on shore. To charge it on board requires charging equipment specially designed for marine use.

PULSETECH PRODUCTS CORPORATION

One-Year Limited Warranty

What Does This Warranty Cover? This warranty covers any defects in workmanship or materials in the product under normal use and service.

How Long Does The Coverage Last? This warranty runs for one (1) year from the date of purchase.

What Will PulseTech Do? PulseTech will, at its option, repair the unit or replace the unit with a remanufactured unit at no charge.

What Does This Warranty Not Cover? This warranty applies only to the product and does not cover any other equipment, static damage, water damage, overvoltage, dropping of the unit, or damage resulting from extraneous causes. This warranty is void if the owner attempts to disassemble the unit or modify the cable assembly. In addition, PulseTech will not be responsible under this warranty if PulseTech determines that (1) upon examination that the unit's failure was (A) caused by misuse, neglect, accident, alteration, or abnormal condition of operating or handling (including the failure to install the product in accordance with PulseTech's instructions and observe the warnings on the product and the instruction manual), or other conditions beyond the control of PulseTech or (B) damaged in transit to PulseTech, or (2) the owner is not the original purchaser that purchased the product through an authorized PulseTech dealer or distributor. IN NO EVENT SHALL PULSETECH BE LIABLE FOR ANY DIRECT, SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL, PUNITIVE OR EXEMPLARY DAMAGES, EXPENSES, LOST SAVINGS OR LOST PROFITS OR ANY OTHER DAMAGES OF ANY KIND FROM ANY BREACH OF THIS WARRANTY OR OTHERWISE. Some states, provinces or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

How To Get Service? Send the product postage prepaid with proof of purchase (sales receipt) within the warranty period to the authorized reseller where the product was purchased or contact PulseTech directly by calling 1-800-580-7554.

How Does State, Province or Country Law Apply? This warranty gives you specific legal rights, and you may also have other rights which vary from state to state, province to province or country to country.

THIS WARRANTY IS THE SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE



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