# INSTRUCTION MANUAL

## 24V Dual Pulse Charger®
## Two Station, 24-Volt
## Recovery/Maintenance Charger

PulseTech®
Products Corporation

# IMPORTANT SAFETY INSTRUCTIONS

1. SAVE THESE INSTRUCTIONS – This manual contains important safety and operating instructions for your 24V DUAL Pulse Charger

2. Use of an attachment not recommended or sold by PulseTech Products may result in a risk of fire, electric shock, or injury to persons.

3. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.

4. An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock. If extension cord must be used, make sure:

   a) That pins on plug of extension cord are the same number, size and shape as those of plug on charger;

   b) That extension cord is properly wired and in good electrical condition; and

   c) That wire size is large enough for ac ampere rating of the charger as specified:

| | | | |
|---|---|---|---|
| Length of cord (ft): | 25 | 50 | 100 |
| AWG size of cord: | 16 | 12 | 10 |

5. Do not operate charger with damaged cord or plug – replace the cord or plug immediately.

6. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.

7. Do not disassemble charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.

8. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

9. WARNING – RISK OF EXPLOSIVE GASES.

a) WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASSES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER, YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.

b) To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary marking on these products and on engine.

10. PERSONAL PRECAUTIONS

a) Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.

b) Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.

c) Wear complete eye protection and clothing protection. Avoid toughing eyes while working near battery.

d) If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.

e) NEVER smoke or allow a spark or flame in vicinity of battery or engine.

f) Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.

g) Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.

h) Use charger for charging a LEAD-ACID battery only. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.

i) NEVER charge a frozen battery.

j) CAUTION: Pinch/Crush Hazard. Close lid slowly. Ensure battery cables are properly routed through the front.

11. PREPARING TO CHARGE

a) Remove battery from vehicle to charge. Always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.

b) Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other nonmetallic material as a fan.

c) Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.

d) Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.

e) Study all battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.

f) Determine voltage of battery and make sure it matches the output rating of the battery charger.

12. CHARGER LOCATION

a) Locate charger as far away from battery as dc cables permit.

b) Never place charger directly above battery being charged; gases from battery will corrode and damage charger.

c) Never allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.

d) Do not operate charger in a closed-in area or restrict ventilation in any way.

e) Do not set a battery on top of charger.

13. GROUNDING AND AC POWER CORD CONNECTION INSTRUCTIONS

a) Charger should be grounded to reduce risk of electric shock. Charger 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.

b) DANGER – Never alter AC cord or plug provided – if it will not fit outlet, have proper outlet installed by a qualified electrician. Improper connection can result in a risk of an electric shock.

c) This battery charger is for use on a circuit having a nominal rating of 100-240 volts and is factory-equipped with a specific electric cord and plug to permit connection to an acceptable electric circuit. Make sure that the charger is connected to an outlet have the same configuration as the plug. No adapter should be used with this charger.

14. DC CONNECTION PRECAUTIONS

a) Connect and disconnect dc output clips only after setting charger switch to the off position and removing ac cord from electric outlet. Never allow clips to touch each other.

b) Attach clips to battery and chassis as indicated in 15(e), 15(f), 16(b) through 16(d).

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

a) Position ac and dc cords to reduce risk of damage by hood, door, or moving engine part.

b) Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.

c) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, -) post.

d) Determine which post of battery is grounded (connected) to the chassis. If negative post is grounded to chassis (as in most vehicles), see (e). If positive post is grounded to the chassis, see (f).

e) For negative-grounded vehicle, connect POSITIVE (RED) clip from battery charger to POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (BLACK) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gage metal part of the frame or engine block.

f) For positive-grounded vehicle, connect NEGATIVE (BLACK) clip from battery charger to NEGATIVE (NEG, N, -) ungrounded post of battery. Connect POSITIVE (RED) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gage metal part of the frame or engine block.

g) When disconnecting charger, turn switch to off, disconnect AC cord, remove clip from vehicle chassis, and then remove clip from battery terminal.

16. FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:

a) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -) post.

b) Attach at least a 24-inch-long 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post.

c) Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post of battery.

d) Position yourself and free end of cable as far away from battery as possible – then connect NEGATIVE (BLACK) charger clip to free end of cable.

e) Do not face battery when making final connection.

f) When disconnecting charger, always do so in reverse sequence of connecting procedure and break first connection while as far away from battery as practical.

g) A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

17. ASSEMBLY INSTRUCTIONS:

a) Remove the AC power cord from the storage compartment inside the charger.

b) Connect the AC power cord in accordance with the safety instructions under group 13.

18. OPERATING INSTRUCTIONS:

a) The charger must be assembled in accordance with paragraph 17 prior to use.

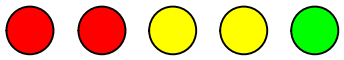
b) This charger is designed to accept input of 100-240 VAC, 15/7.5A, 50/60Hz. It is provided with a 120V North American IEC input cord. If using voltage other than 120V, use a properly rated, UL approved IEC input cord. The charger is for conditioning and charging 24V batteries only with an output power of 29.6Vdc, 3A max. This charger is designed to operate 0°C - 50°C and 10% - 85% humidity. Charger is for indoor use.

c) Connect the charger in accordance with paragraphs 1-16.

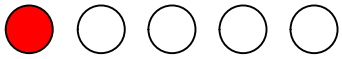
d) Turn on switch located adjacent to the IEC input connection. This switch has a built in circuit breaker. If the charger turns off for no apparent reason, turn the switch to the off position and turn it back on again. DO NOT TAMPER WITH OR REMOVE SWITCH.

e) See paragraph 19 for explanation of the LED indicators.

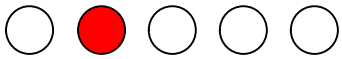
19. INDICATORS:

a) 

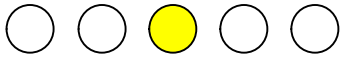
The unit will conduct a self-test when the power is turned on. Each Channel will illuminate all five of its LEDs to confirm that it is operating properly.

b) 

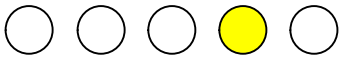
Battery Disconnected – The charger does not sense a battery present; connect the clamps to a battery to be charged.

c) 

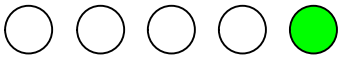
Bad Battery – The battery is not recoverable; remove and properly dispose of the battery.

d) 

Recovery Charge – The battery is in a deeply discharged state and is being recovered to allow for Pulse Charging; no action is required.

e) 

Pulse Charge – The battery is being charged; no action is required.

f) 

Charge Complete – The battery has been recovered and is fully charged; remove the battery and place it in service or leave it connected to maintain the battery in a fully charged state.

g)

Reverse Polarity – The battery clamps are connected backward; reverse the clamps to continue.

h)

Temperature Shutdown – The channel has overheated and turned off the charge to protect itself from permanent damage. No action is required. It will turn itself back on when it has sufficiently cooled.

20. MAINTENANCE INSTRUCTIONS: There is no maintenance of this charger to be performed by the user; all servicing should be performed by qualified service personnel.

21. STORAGE INSTRUCTIONS: Storage temperature -18°C - 66°C and 10% - 95% humidity.

**PULSETECH PRODUCTS CORPORATION**
**REDIPULSE PRO HD PALLET CHARGER**

**What Does This Warranty Cover?** This warranty covers any defects in workmanship or materials in this charger 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, replace or repair any defective unit with a new or rebuilt unit at no charge.

What Does This Warranty Not Cover? This warranty applies only to the battery charger. This warranty does not cover any other equipment, static damage, water damage, over-voltage damage, dropping unit, or damage resulting from extraneous causes including owner misuse. In addition, PulseTech will not be responsible under this warranty if PulseTech determines that (1) upon examination that the circuit board 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, and (2) the owner is not the original purchaser that purchased the product through an authorized PulseTech dealer or distributor. This warranty is void if owner attempts to disassemble the unit or to modify the cable assemblies. 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?** Contact PulseTech by calling 1-800-580-7554 for a Return Authorization Number. Then send the product postage prepaid with proof of purchase (sales receipt) within the warranty period to PulseTech. Battery chargers beyond the warranty period are subject to the repair charges in effect at that time.

**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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