

TWO-YEAR LIMITED WARRANTY

What Does This Warranty Cover? This warranty covers any defects in workmanship or materials in any circuit board in the Pro-Series™ products under normal use and service.

How Long Does The Coverage Last? This warranty runs for two (2) years from the date of purchase.

What Will PulseTech Do? PulseTech will, at its option, replace or repair any defective circuit board with a new or rebuilt circuit board at no charge.

What Does This Warranty Not Cover? This warranty does not cover any parts other than the circuit board. 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, 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.

LIMITATIONS OF LIABILITY

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.



The World Leader in Battery Performance Technology

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OPERATING INSTRUCTIONS

PRO-SERIES™ CHARGE / MAINTENANCE SYSTEM

Model: Pro-12

Charges, Maintains and Conditions Multiple Lead-Acid Batteries at the Same Time!

The Pro-Series systems are revolutionary units designed to charge and maintain several lead-acid batteries at the same time. The primary function of each model is to preserve new batteries at peak charge levels by keeping the plates in like-new condition during storage situations. This unit uses our unique *ReNew-IT Pulse Technology*® to remove damaging lead-sulfate deposits on the battery plates. By "cleaning" the plates, the Pro-12 helps batteries provide maximum performance and reliability. The Pro-12 is ideal for any type of company or facility that sells or stores batteries. It's also great for refreshing new batteries that have been sitting in storage too long. Using the Pro-12 is simple. Just follow the easy instructions inside.



IMPORTANT SAFETY INSTRUCTIONS (SAVE THESE INSTRUCTIONS)

1. SAVE THESE INSTRUCTIONS - This manual contains important safety and operating instructions for the battery charger model Pro-12.
2. Do not expose charger to rain or snow.
3. Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, injury to persons, or damage to product.
4. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
5. 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 charger as specified in Table 1 (see inside).
6. Do not operate charger with damaged cord or plug – replace the cord or plug immediately.
7. 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.
8. 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.
9. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
10. WARNING – RISK OF EXPLOSIVE GASES.
 - a) WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES 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.
11. 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 touching eyes while working near battery.

(Continued inside.)

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WARNING: Because of the possibility of personal injury, always use extreme caution when working with lead-acid batteries.

- 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 LEAD-ACID batteries only. It is not intended to supply power to a low voltage electrical system. 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.

12. PREPARING TO CHARGE

- a) Always 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.

13. CHARGER LOCATION

- a) Never place charger directly above a battery being charged; gases from battery will corrode and damage charger.
- b) Locate the charger as far away from batteries as dc cables permit.
- c) A strip of industrial grade hook and loop is included. Use it to mount the charger on the side of the battery storage rack, on a shelf within reach, or on a wall.
- d) Never allow battery acid to drip on charger when reading gravity or filling battery.
- e) Do not operate charger in a closed-in area or restrict ventilation in any way.
- f) Do not set a battery on top of charger.

14. DC CONNECTION PRECAUTIONS

- a) Connect and disconnect dc output clips only after setting any charger switches to off position and removing ac cord from electric outlet. Never allow clips to touch each other.
- b) Attach clips to battery posts and twist or rock back and forth several times to make a good connection. This tends to keep clips from slipping off terminals and helps to reduce risk of sparking.

15. FOLLOW THESE STEPS WHEN THE 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) Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post of battery and the NEGATIVE (BLACK) charger clip to the NEGATIVE (NEG, -) post of battery.
- c) Do not face battery when making final connection.
- d) A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

Table 1
Recommended minimum awg size for extension cords for battery chargers.

AC input rating, amperes		AWG size of cord			
		Length of cord, feet (m)			
Equal to or greater than	But less than	25 (7.6)	50 (15.2)	100 (30.5)	150 (45.6)
12	14	16	12	10	8
14	16	16	12	10	8
16	18	14	12	8	8
18	20	14	12	8	8

OPERATING INSTRUCTIONS

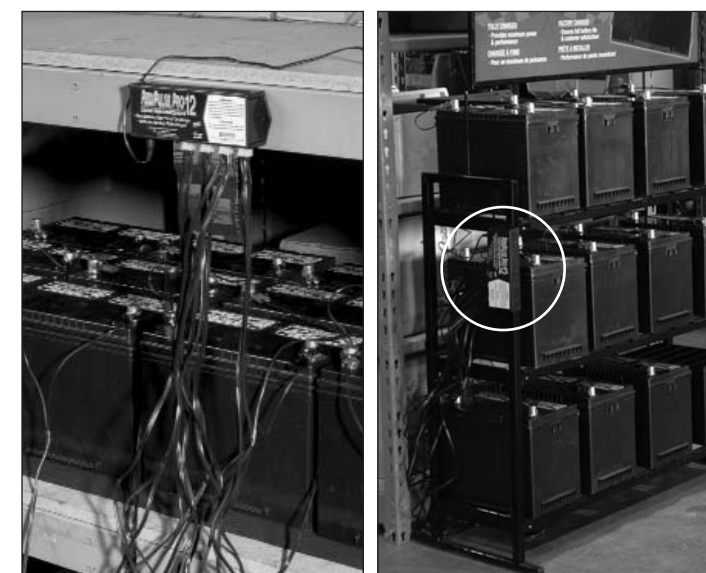
PREPARATION FOR SERVICE & OPERATION

- Inspect the Pro-12 charger for visible damage which might have occurred during shipping and delivery.
- Plug the ac adapter into an electrical outlet (110-volt or 220-volt depending on unit). NOTE: This adapter is specially designed for this unit. DO NOT use any other adapter. If the adapter has to be replaced at some point in time, contact PulseTech to order another one.
- Connect the separate positive and negative clamps to each battery (one single 12-volt battery or two 6-volt batteries connected in series to equal 12 volts — DO NOT use on 12V batteries in series). For single 12V batteries: Attach the red positive (+) clamp to the positive (+) battery post and the black negative (-) clamp to the negative (-) battery post. For 6-volt batteries in series: Attach the positive wire to the positive terminal on Battery 1 and the negative to the negative terminal on



Battery 2. If an audible alarm sounds, it indicates an improper connection.

- Push and hold red power button until you hear an audible beep (see Illustration 1 at right).
- The Pro-12 will initiate a self test during which each of the 12 battery LED indicators will come on green, turn yellow and then red. Then the Pulse and Charge indicator LEDs will come on.
- Once the self test is complete, the unit will begin cycling through each of the batteries connected. A red LED indicates the battery is discharged, yellow indicates marginal, and green indicates the battery is ready for issue. The upper left LED indicates the unit is Pulsing and the lower left LED indicates the unit is Charging (see Illustration 2 at right)



Pro-12 units maintaining batteries in a fleet service facility (left) and batteries on a retail shelf waiting to be sold (right).

Illustration 1: Bottom View of Unit

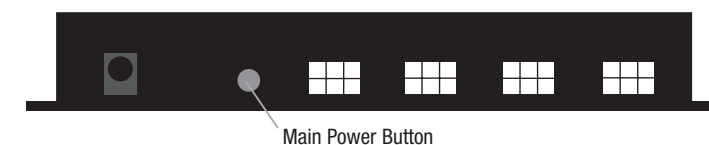
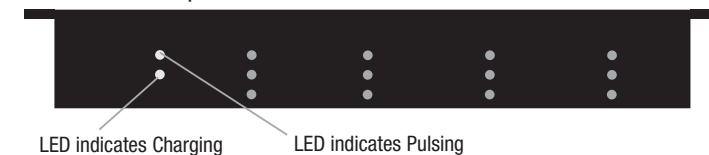


Illustration 2: Top View of Unit



PRECAUTIONS

DO NOT USE THIS PRODUCT ON BATTERIES INSTALLED IN VEHICLES. Always remove battery from vehicle prior to charging.

- Use each set of wires only on one single 12-volt battery or two 6-volt batteries connected in series to equal 12 volts. DO NOT use on 12-volt batteries in series.
- Make sure the correct terminal attachments are connected to the correct terminals (i.e. red on positive and black on negative).

PATENTS

The Pro-12 Charge/Maintenance System is protected by the following U.S. Patent: Re 35,643. Other U.S. and international patents are pending.

What makes the ReNew-IT Pulse Technology® utilized by PulseTech products so unique — and so effective — is the distinct pulse waveform that defines it. This patented waveform has a strictly controlled rise time, pulse width, frequency, and amplitude of current and voltage pulse.

No other battery maintenance systems in the world has this specific waveform which means no other system can provide the same exceptional benefits as PulseTech battery charging and maintenance systems.