

## 5-Year Limited Warranty

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

**How Long Does the Coverage Last?** This warranty runs for five (5) 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 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 EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

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

## PowerPulse® Precautions

- Make sure the correct terminal lugs are connected to the correct terminals (red on positive and black on negative). Reversing connections could damage the PowerPulse unit.
- Any solvents that may be harmful to plastic should not be used on or near the unit.
- Secure ALL PowerPulse wires and verify they are a safe distance from moving parts before starting the vehicle.

## Warning

This product is designed for use with regularly driven vehicles or regularly charged batteries or battery packs.

Because PowerPulse uses a minimal amount of the battery's energy in its conditioning process, external recharging may be required to replace the drain caused by internal discharge. If used continuously on a stored vehicle over long periods of time, PowerPulse could eventually drain the power within the battery. If this occurs, the battery can still be recharged or jumped easily and quickly. Operating the vehicle or recharging the battery can extend the rundown time.

The pulsating current produced by the product may interfere with the correct operations of some electronic devices when the unit is placed near the antenna. In order to insure no interference, the circuit box should be placed away from the antenna.

PowerPulse® is protected by the following U.S. Patent Numbers: 7,834,592B2, 8,269,466B2, 8,269,465B2, 5,592,068, 5,491,399. Other U.S. and international patents are pending.

This is just one of many battery charging and maintenance systems manufactured by



The World Leader in Battery Performance Technology

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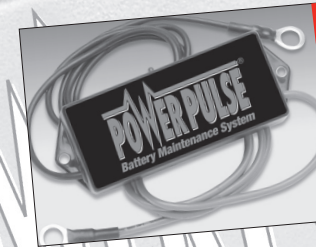
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## INSTALLATION MANUAL

# POWER PULSE®

## Battery Maintenance System



▶ Congratulations, you've just purchased one of the most effective products available for ensuring lead-acid battery performance.

PowerPulse® is NOT a charger. It is a proven electronic device that helps make batteries work harder and last longer by preventing the main cause of battery problems and failure: sulfation buildup on the battery plates.

By conditioning the plates PowerPulse helps your lead-acid batteries work harder and last longer than ever before.

Installing PowerPulse is very easy, just follow the simple instructions inside.



The World Leader in Battery Performance Technology

## Mount The Circuit Box

- 1 For 12-volt batteries we suggest you mount the circuit box near the battery and not on the battery itself. However, on large motive batteries for forklifts, pallet jacks, etc., mounting the unit on the battery is fine. Make sure it is situated in a location where it is protected and will not accidentally be disturbed by mechanics, etc. The circuit box can be mounted in one of two ways:

*1st Method:* For a semi-permanent installation, use two round head screws to attach the circuit box to the surface of the vehicle or equipment in an area away from moving engine parts.

*2nd Method:* Apply an industrial adhesive to the back of the circuit box and affix it to the surface of the vehicle or equipment.

- 2 Once the circuit box has been mounted, use plastic cable ties to secure the wires to a cable or other secure area near the battery. This will keep the wires from tangling with moving engine parts.

## Connect Lugs To Battery Terminals

**IMPORTANT:** The positive (+) PowerPulse wire (red) must be connected to the positive (+) battery terminal and the negative (—) PowerPulse wire (black) to the negative (—) battery terminal in order for PowerPulse to work.

### 12-Volt PowerPulse:

*Single 12-volt batteries —*

- 1 Slip the round metal lug at the end of the positive (red) PowerPulse terminal wire onto the bolt securing the battery clamp to the positive terminal until it sits next to the nut tightening the clamp.
- 2 Screw a hex nut onto the bolt and tighten it until it secures the lug and washer between it and the clamp nut. This will allow

PowerPulse to send a pulsating current through the terminal and into the battery which will eliminate the buildup of sulfates on the lead plates. (see Fig. 1.)

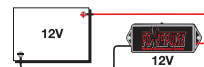


Fig. 1

- 3 Repeat steps 1 & 2 for the negative wire.

*Two 6-Volt Batteries In Series —*

For two (2) 6-volt batteries connected in series (creating 12-volts), follow steps 1 above.

On step 2 connect the positive wire to the positive terminal on Battery 1 and the negative wire to the negative terminal on Battery 2 (see Fig. 2).

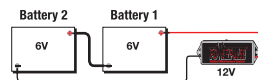


Fig. 2

*Batteries In Parallel —*

For 12-volt batteries connected in parallel install one (1) 12-Volt PowerPulse on the bat-

tery pack. Connect either to the positive and negative of one battery or the positive of the first battery and the negative of the last battery. 12V PowerPulse is most efficient in parallel connected battery packs using a maximum of 3 batteries (see Fig. 3).

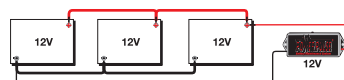


Fig. 3

### 24, 36 and 48-Volt Installations:

For 6- or 12-volt batteries connected in series to equal 24, 36

or 48 volts, use the PowerPulse unit designed for each specific voltage; 12-, 24-, 36- or 48-volt products.

Installation of multiple 12V PowerPulse units on each 12V battery segment in 24V, 36V or 48V packs will yield 30% better results.

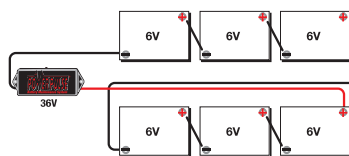


Fig. 4

To install, follow step 1 under the 12-Volt PowerPulse section. On step 2 connect the positive wire to the positive terminal on the first battery and the negative wire to the negative terminal on the last battery in the set (see Fig. 2 for an example of how a 12-Volt PowerPulse is installed on two (2) 6-volt batteries and Fig. 4 for a 36-volt PowerPulse on six (6) 6-volt batteries).

## LED

Each PowerPulse unit has an LED on top of the circuit box. When properly installed the LED will blink when the wires are attached to the battery terminals and the unit is activated. Once the unit is installed, if the LED does not light it may be due to one of the following reasons:

1. The PowerPulse has been installed incorrectly (reversed polarity).
2. There is a bad connection.
3. The battery voltage is too low to operate the PowerPulse, charge the battery then re-check.

## Basic Care and Cleaning

The PowerPulse system is completely weatherproof so normal moisture will not damage it. If the circuit box gets dusty or dirty, simply clean it with a damp cloth. DO NOT use cleaning solvents.

## Call For More Information

For more information on installing and using PowerPulse or our other PulseTech battery maintenance products, contact your local PulseTech dealer. For technical assistance or the name of the dealer nearest you call us at 800-580-7554. Or visit our site at [www.pulsetech.net](http://www.pulsetech.net).