

following or a combination:

- Unit connected incorrectly (reverse polarity) – change the wires to the correct terminals.
- Bad connection – clean and tighten all connections especially Megapulse unit.
- Battery has a short – have an auto electrician inspect the problem.
- Battery voltage is below the activation voltage – recharge the battery.

## 5. Attention

- Megapulse is supplied with wires 400mm in length. **The negative wire only can be lengthened** by up to a maximum of 700mm so that when they are spread apart they will reach terminals 1500mm apart.
- For recovery of severely sulphured batteries, remove battery from vehicle before attaching Megapulse and battery charger or alternatively disconnect battery leads.
- If performing repeated load tests, a minimum cooling down period of 1 minute must be allowed between each test to avoid damage to unit and voiding of warranty.

## 6. Important

- Ampere Hours (Ah) is the rating of reserve capacity for auxiliary applications and must not be confused with Cold Cranking Amp (CCA) the rating for engine starting applications.
- Although Megapulse will help to reduce electrolyte boil-off, levels should still be checked monthly.
- Because of the possibility of injury, always use caution and wear protective clothing and eye protection when working with batteries.
- Pulsing DC current produced by this product may interfere with the correct operation of some electronic devices when the unit is placed near the antenna. Install the unit away from the antenna.
- Ensure unit is fixed clear of any moving parts and wires are zip tied to avoid damage.
- Use only soapy water to clean the unit. Do not use solvents.

## 7. Warranty

Megapulse warranty covers any defect in workmanship and materials for a period of 7 years from original purchase date. The warranty is not transferable and does not restart if and when a faulty unit is replaced. The warranty does not cover misuse, neglect, accident, alteration or abnormal condition of operation or handling. No warranty exists for usage outside specifications. To obtain warranty replacement, the faulty unit must be returned to any Megapulse reseller with proof of purchase.

## 8. 6 volt, 36 volt and 48 volt models

The Red LED on these models is designed to indicate a different function. When the unit begins to flash the Red LED it is advising the user that the battery has reached 80% depth of discharge and should be recharged immediately.

### ACTIVATION VOLTAGES

6 volt:	Low 5.3v	High N/A
12 volt:	Low 10.5v	High 12.8v
24 volt:	Low 21v	High 25.6v
36 volt:	Low 32v	High N/A
48 volt:	Low 42.5v	High N/A

### Megapulse

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# Installation and User Guide

(Please keep this user guide in glove compartment of car)

## Benefits of Pulse technology

Congratulations for purchasing the most effective technology available today for ensuring maximum performance & service life from your Lead-Acid battery. Megapulse is not a charger, it is a proven electronic device using a patented Pulse Technology to make batteries work harder and last longer by preventing a common cause of premature battery failure 'Sulphur build-up on the battery plates'. Pulse Technology has been scientifically tested and proven by respected organisations around the world to be an effective remedy against Sulphuration. Pulse Technology has been in Military use for over 15 years, which is solid proof that it is essential equipment for any vehicles.

## How do I install my new Megapulse unit?

Simply install **Megapulse MK 4** to the positive and negative battery terminals, (for multiple battery banks refer to diagrams in section 3). **Megapulse** will start desulphating your battery immediately (in excess of 5000 pulses per second) after the initial battery test. **Secure the Megapulse** by screws, cable ties or Velcro tape so it does not bounce around during transit.

## What can I expect after installing the new Megapulse MK 4 ?

The Megapulse will go through a five step commissioning and test sequence, where it will establish the health of your battery (for more details refer to section 2). The battery test is repeated every 21 hours. Upon completion of this initial test the unit will pulse repeatedly green or red depending on the result of the load test with the following sequence 1 flash per sec. for 30 seconds > both LED for 1 second.

## What do repeated GREEN pulses mean and what do I have to do?

If you are seeing a **repeated GREEN pulse** then your battery successfully passed the battery test and will be maintained in peak condition by having the Megapulse unit permanently installed. A healthy battery accepts charging correctly and completely. If you move the Megapulse to other batteries, make sure to return it to the original battery every 3 months or sulphation will take over again.

## What do repeated RED pulses mean and what do I have to do?

If you are seeing a **repeated RED pulse** then your battery failed the test. It is likely the battery or batteries are suffering from sulphation and in time the Megapulse will restore lost capacity and performance of the battery if it is mechanically sound and sulphation is the problem.

## Other factors affecting the battery, giving a failed test result. Check the following:

1. Low electrolyte – add demineralised water to bring cell levels to maximum.
2. Battery is low in charge or flat – recharge battery immediately.
3. Sulphation – Megapulse is designed to eliminate this but a minimum of 4 weeks is needed for results.
4. Poor connections – Check all wires connected to the battery are firm and clean (especially Megapulse).
5. Battery case distortion – old battery cases sag due to prolonged exposure to heat in the engine bay. There is nothing you can do to rectify this problem.
6. Battery plate corrosion – in time the plates will corrode and the battery fail, but by installing Megapulse corrosion can be reduced maximising battery life.
7. Battery plate material shedding – this is due to road vibration and under-charging causing the plate material to be too soft. Installing Megapulse will maximise charging, therefore reducing plate material shedding by keeping it firm and in place longer.

## What can I do to slow down Sulphation?

1. Keep a **Megapulse MK 4 permanently** on your batteries. Each unit can maintain up to 1500 Ah.
2. Keep the charge in your **batteries above 50%**, refrain from discharging batteries below 50%.
3. **Recharge the batteries** as soon as possible.

## 1. General information

Installing Megapulse is quick, easy and requires no special skills or tools, just follow the instructions. Megapulse is designed to work with all charging systems. Megapulse must be installed directly on the battery. Megapulse can also be used in series installations for large battery banks, eg. 4 x 36v units can be installed in series on a 144v system using 12 x 12v batteries. Alternatively 3 x 48v units can be used on the same 144v system. Since each unit conditions up to 1500 Ah of battery capacity, adding more units will raise the rating by 1500 Ah each time, therefore in the example above the 4 x 36v units can condition a total of 6000 Ah, while the 3 x 48v units can condition a total of 4500 Ah.

PLEASE NOTE Megapulse is made up of 2 independent systems; the primary function is the pulse system and the secondary function is the load test & LED display. Megapulse will pulse the battery with the correct amount of pulse after installation regardless of the load test result.

Megapulse is moisture, dust and vibration proof, the unit is protected against accidental reverse polarity connection. The total power consumption is 20 milliamp. Megapulse is also equipped with an electronic

dual voltage activation switch (12v, and 24v models only) allowing either Low or High activation. Low is typically used for auxiliary / deep cycle and large battery bank application whereas High is typically used for engine start application. **Note** as the total consumption is very small (less than a dashboard clock) there is no need to change the activation voltage from the factory default Low setting to the High setting unless the vehicle sits unused for more than 30 days at a time.

Megapulse employs an intelligent state of health detection system; the unit automatically adjusts the pulse output to achieve maximum desulphation in the shortest time. Megapulse is also equipped with an industry standard battery load tester (12v, and 24v models only). Megapulse performs the load test and displays the results as follows; Green LED indicates the battery has passed the test, while Red LED indicates the battery has failed the test. Megapulse performs the load test after initial installation (engine must be off and battery in rest mode) and subsequent 21 hour intervals. **Note** the battery load test is limited to batteries of 10 Ah capacities and above.

Upon installation Megapulse will begin the commissioning sequence as follows;

1. Red + Green LED will flash alternating for 3 seconds (indicates unit start-up)
2. Green LED will be lit for 1 second (indicates factory default low activation setting)
3. Red + Green LED will be lit for 1 second (indicates periodical voltage check)
4. If the battery is below 13 volt (rest mode), the load test will be performed
5. Red or Green LED will flash depending on result of the load test 1 flash per second for 30 seconds
6. Step 3 is then repeated every 30 seconds indicating that Megapulse is constantly monitoring the battery

## 2. How to change voltage activation setting

To change the activation voltage after the unit has been installed, place the magnet on the spot marked 'Magnet' wait for the LED to confirm the activation has been changed by displaying one of the following; Green LED indicates Low activation or Red LED indicates High activation then remove the magnet from the unit. **Please Note** Megapulse will restart pulsing only after the magnet has been removed from the unit.

## 3. Installation instructions

### Single 6 volt or 12 volt battery

Remove nuts from the battery clamps. Do not remove clamps from the battery; attach the eyelet connector of the Red (+) wire onto the bolt of the positive post clamp. Repeat for Black (-) wire, attaching it to the bolt of the negative post.

### Two 6 volt or 12 volt batteries in parallel

Attach the eyelet connector of the Red (+) wire onto the bolt of the positive post clamp of the first battery, repeat for Black (-) wire attaching it to the bolt of the negative post clamp of the second battery.

### Two 12 volt batteries in series = 24 volt

Attach eyelet connector of the Red (+) wire onto the bolt of the positive post clamp of the first battery, repeat for Black (-) wire attaching it to the bolt of the negative post clamp of the second battery .

### Three 12 volt batteries in series = 36 volt

### Four 12 volt batteries in series = 48 volt

Attach the eyelet connector of the Red (+) wire onto the bolt of the positive clamp of the first battery, repeat for Black (-) wire attaching it to the bolt of the negative clamp of the last battery. Same principle applies to battery banks using 2 volt cells.

## 4. Troubleshooting

If the unit does not activate it may be one of the

