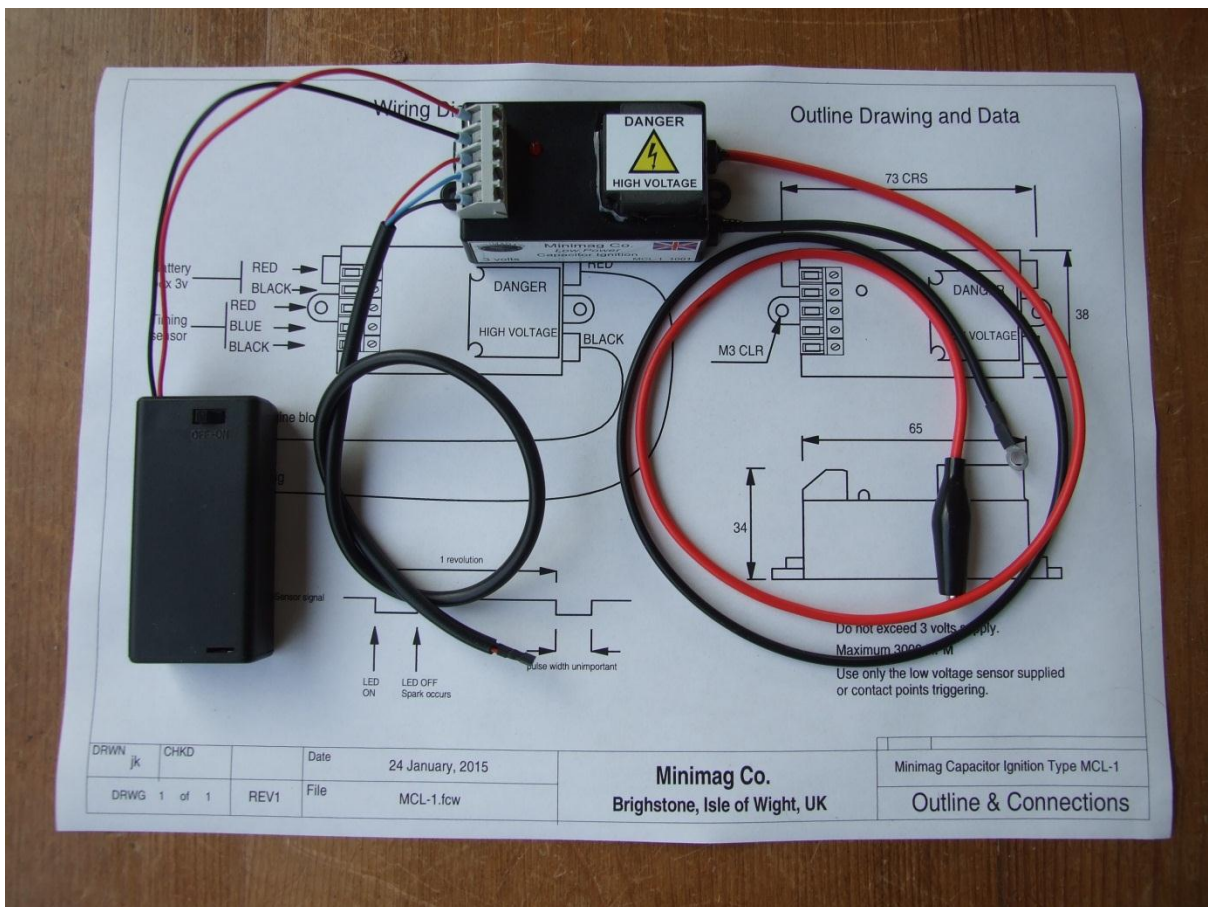




# MCL-1 Low Power Capacitor Ignition



MCL-1 Kit August 2015 Issue 4  
Minimag Co. Brighstone, I.o.W.

## About

The MCL-1 is a low input-power ignition system for moderate speed spark ignition engines requiring up to 50 sparks / sec (3000RPM for a two stroke single and 6000RPM for a four stroke single with sensor on the camshaft). It will run in excess of two hours at a steady 1000RPM and an hour at full speed on the supplied battery pack. Chief advantages over conventional coil ignition are:

1. High current battery supply not needed, runs on low voltage, low current.
2. Sensor dwell angle is unimportant and unless exceedingly long or very short will not affect performance.

## How it works

Spark timing is controlled by a Hall sensor and magnet. The sensor is fixed to a suitable bracket so that it “sees” a small magnet attached to a rotating part of the engine. The engine should be timed so that the Hall sensor switches on then off at the desired ignition point. An indicator LED is fitted to aid in setting up your timing. **WHEN SETTING UP, SHORT THE RED and BLACK OUTPUT CABLES TOGETHER TO AVOID UNWANTED AND POSSIBLY HAZARDOUS SPARKS.**

3 volts from the battery pack is boosted to 310 volts by a transistorised inverter circuit. This voltage is then used to charge a capacitor. When a Hall signal is detected:

1. The inverter is switched off.
2. An electronic switch closes, rapidly discharging the capacitor into a special ignition transformer.
3. A spark is produced between the RED output lead and BLACK ground lead.
4. After a short delay, the inverter is switched on again and the cycle repeats.

## Wiring

With reference to the wiring diagram:

1. Mount the Hall sensor and magnet on your engine.
2. Wire the sensor to the ignition unit. Follow the screw terminal colour codes.
3. Connect the RED HT lead to your spark plug.
4. Connect the BLACK ground lead to the engine block or frame.
5. Avoid running the HT and ground leads near the sensor leads.

**ON NO ACCOUNT RUN THE SYSTEM WITH EITHER LEAD DISCONNECTED  
If the HT has nowhere to go it will flash over and damage the unit and you stand a good  
chance of receiving a very nasty electric shock.**

**If you have any concerns over your ability to use the equipment safely, then please  
return it to us in good order and in original packaging. We will offer a full refund.**

## Battery holder

Remove the small screw and slide back the cover. Fit 2x alkaline AA cells, observing correct polarity. Refit the cover.

6. Connect the RED and BLACK battery wires .
7. Switch on, start your engine!