

## THE USE OF BUCK BOOST REGULATORS

### **13.8 volt (mobile) models**

These units differ from the 12v consumer types only in that on these mobile models the output voltage is fixed at 13.8 volts.

This suits those appliances which are sold and intended for mobile operation, and therefore expect to operate at or around 13.8 volts, the average voltage level when a vehicle engine or charging system is running. Such appliances can be quite voltage sensitive, to lower voltages in particular.

Good examples are Amateur (Ham) VHF and UHF rigs, where transmit RF power can drop off rapidly if the applied battery voltage drops.

When a (nominal) 12v lead acid battery drops below 12.2 volts or so, there is still useable energy available, even though the connected radio may reduce output power.

The buck-boost regulator will elevate the low voltage to the required or expected 13.8, restoring full power operation.

Please note the unit does not 'create' energy, and it is not 100% efficient.

Therefore, more volts means slightly less ampere-hours available from the battery at the time, but of course without the boost converter to raise the voltage to a suitable working level, the available ampere hours (current) is not available to be used!

All models have complete electrical isolation between Input and Output (no common ground), and in addition the aluminium case is electrically isolated.

**Copyright Cruising Electronics 2011**

**Cruising Electronics New Zealand**

**[www.cruisingelectronics.com](http://www.cruisingelectronics.com)**