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Battery Balancer launched: Not all batteries are created equal

Not all batteries are created equal – there are minor manufacturing differences within every battery. When creating a series, or series/parallel, battery bank to create differing voltages and Ah ratings from individual 12 Volt batteries, we can end up with a variance in terminal voltages on each battery. This causes the batteries to become unbalanced.

Correct series parallel connection of batteries can help mitigate these differences – but will not eliminate them. Certainly, the correct connection of batteries is an absolute pre-requisite for having a reliable system.

However – even the very best installation will still suffer from imbalance – and the consequence of that is an expensive bank system that can fail prematurely. This is costly, in both time and money.

How to control battery imbalance?

The solution is straight forward – fit a battery balancer. These products monitor the voltage of either:

- the 2 batteries in series in a 24-volt system or
- the 4 batteries in series in a 48-volt system. If a difference is detected they move energy from the higher voltage battery into the lower voltage battery to 'balance' them.

If there are multiple parallel strings then, provided the mid points are linked (as best practise suggests), the entire bank can be protected by a single battery balancer.

Monitor and Maintain

If you are using a battery monitor as part of your installation then the BMV 700 series of battery monitors are what we would propose. Amongst the many features is the ability, with the BMV-702 model, to monitor midpoint voltage deviation. This information, and alarm function, combined with the balancer provides belt and braces protection for your battery system.

Both products can be used individually, however using both gives the most insight and control.

Summary Information

So, in summary:

Midpoint deviation may well be small when the battery bank is at rest - but will increase when:

a) At the end of the bulk phase during charging (the voltage of well charged cells will increase rapidly while lagging cells still need more charging)
b) When discharging the battery bank until the voltage of the weakest cells starts to decrease rapidly, and
c) At high charge and discharge rates.

A midpoint deviation of only 2% will result in overcharging the top battery and undercharging the bottom battery.

This is why it is important to monitor midpoint voltages, and correct any imbalance, to ensure the best performance and longevity of battery strings and banks; be they 24-Volt or 48-Volt.