WHAT THE VOLT ARE YOU TALKING ABOUT?

BMPRO
INVICTA
A BETTER BATTERY

It is important to understand the difference in voltage behaviour when comparing lithium batteries to lead acid equivalents. When out there camping and exploring the great beyond we need to know we can extract as much 'power' from our battery as possible when we need it most.

We have discussed before regarding the higher available battery capacity due to the deeper level of discharge possible in a lithium battery, well the story gets better.

One of the characteristics of a lithium battery is that the voltage does not 'drop-off' (reduce) until much later compared to lead batteries. Power is all about volts and amps (watts = volts x amps). Electrical devices all require power (watts) to operate and this is made up mathematically from the voltage and amps. The maths is quite simple: to operate the device you need constant power (watts) and if the amps or volts decreases the opposite must increase so that when "X" together you still get constant power. In a lead acid battery, the voltage will drop much sooner, forcing the amps to increase in compensation to maintain power. More amps used equates to swift consumption of the available power from your AGM battery, compared to that of a lithium as the voltage remains above 12V for longer. In short, an Invicta LiFePO4

In camping terms - it means longer run time for fridges, radios & lights!

2X
HIGHER
DISCHARGE

battery offers more efficient use of its available capacity, lithium iron phosphate, which gives longer run time, compared to a regular AGM.

What needs to be remembered, however, is that you can't just rely on watching the voltage of a battery. It can only be used as a very rough guide as to the amount of its remaining capacity. In fact, with lithium you need to be vigilant. The lithium batteries contain sophisticated electronics internally and inbuilt protection mechanisms including a disconnect (open circuit) protection mode that, if drained of power at 10.0V, the battery will go into sleep mode. This mechanism ought not be confused with a traditional Low Voltage Disconnect (LVD) which is a device used to disconnect the loads connected to a battery at a pre-set voltage of anywhere between 11.5 to 12.0V, to ensure the battery is not damaged prior to being fully recharged again.

With lithium batteries you need to be mindful that if it does go open circuit due to the extremely low voltage and put a load onto the terminals the battery will effectively drop to 0V. This is a problem as most chargers need to see a minimum of 6 or 9 voltage across the terminals to turn on. All BMPRO power management systems contain an inbuilt LVD to protect batteries and the ability to charge lithium batteries that enter this mode. Recommended if a lithium battery goes into a low discharge mode that you should be recharging it within the fortnight.

For years we've been told to maintain lead acid batteries on trickle or float charge over winter storage periods, due to self-discharge characteristics. Left for any length of time unused and without connection to a charger you will find that after a couple of months or potentially even just weeks depending upon the state of the battery that is has gone totally flat and may not be recoverable. The difference with lithium batteries is that with an extremely low self-discharge rate, they can be left for long periods without requiring charge, assuming there are no loads. From full charge you can expect a new standard lead acid AGM battery to self-discharge to approximately 80% in 4 months from full charge whereas a Lithium will in the same scenario will take around 8 months. Recommended to store Lithium batteries at around 50-60% state of charge.