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Which Dual Battery System Do I Need?

If you are heading off road in your 4wd and going camping one of the must haves to keep your food and drinks cold and your gadgets powered is a dual battery system. Unfortunately, you can't just come on in and purchase a 2nd battery and plug your fridge and devices into it, as you run the risk of running it flat and worse still running your starting battery flat so your car won't start.

When looking at buying a dual battery system, we recommend that you do some serious research and planning before you install it. You need to ensure that you have enough power to keep your fridge cold and still start the car.

One of the most common questions we get asked when chatting to customers about dual battery systems is what is the difference between a Smart Isolator, DC-DC Charger and Battery Management System.

In part one of this series we discussed using a smart battery isolator to charge your dual battery system, part two we looked at a DC to DC charger for charging your dual battery system. Now we are going to delve into the next level up in dual battery systems, the battery management system or BMS.

The BMS like a DC to DC charger allows you to charge the auxiliary battery from both your car alternator and solar panels. The main reason you upgrade to a BMS is if you want to also be able to charge your auxiliary batteries from 240volt.

In our Jayco camper trailer we have installed a Redarc BMS and for us there are two main reasons we want to charge via 240 volt.

1. If we are only driving a short distance to our camping spot, we can put it on charge prior to leaving so our auxiliary batteries are fully charged when we arrive at our destination
2. You may also want to camp at a powered site in a caravan park and connect to power and charge the auxiliary battery.

This BMS we installed in our Jayco is a Redarc The Manager 30. This unit has 6 main functions:

- Manages inputs including solar, vehicle via anderson plug, 240V or generator.
- Manages outputs, protects starting battery, controls voltage cut offs
- Battery charger using 240V power, can be plugged into mains power for charging
- DCDC Charger delivering the correct charging cycle for modern style batteries
- Solar Regular meaning you can use unregulated solar panels with this unit
- Real time data monitoring of inputs and outputs

It has a remote battery monitor which supplies you with a full understanding of the flow of power for your entire electrical system all on the display screen. Here is a break down of the real time data monitoring that is available on this unit:

- Home screen shows you the current percentage left in your batteries and with the current input and output what % your batteries will maintain.
- The power input status shows us the three inputs (solar, 240 & car) and where we are taking power from.

- The output status shows us how much amperage we are using. This screen is great to work out what each accessory is drawing.
- The charging status is also displayed, including:
 - Stage: bulk, float or rejuvenation the BMS will work it out what stage or charging is required and adjust accordingly
 - Mode: Touring or Storage mode, if it is going to be stored for long periods of time it is best to change to storage mode as this will increase your battery life.
 - Voltage: shows what the battery bank is currently being charged at xxx volts by the BMS
 - Battery Temp: the BMS will monitors the battery temperature and adjust the charge profile depending on the battery temperature.

The BMS like the DC to DC charger, works with AGM, Gel, Calcium, Lead Acid and Lithium Profile batteries.

Redarc and BMPRO are the most widely recommended manufacture of a battery management system in Australia. There are a range of products for different situations. Some BMS units are best suited to small vehicle systems whereas others are more complex and best suited to large caravan power systems.

I hope our three part series on how to keep your dual battery system charged has helped you decide which system is best suited to your needs.

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