Lithium Lab P/L
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TECHNICAL BULLETIN #1

Continuous current issues with Lithium Lab Powerpacks

Occasional events over the past few years have given us the impetous to write this bulletin to inform our customers and users of some limitation when using Lithium Lab P/L powerpack units.

When we designed and manufactured our first batteries back in 2014 we opted to follow the Australian standards and fit a fuse internally that would make the battery inherently safe. We knew at the time, the issue of fitting a fuse, was the heat generated by the fuse when a high current is passed through for an extended period of time, however it was decided that the inherent safety of having a fuse could not be ignored. Most lithium batteries availble on the market today rely on an electronic fuse that could be un reliable at times, it also limits the current carying to a maximum of up to 150A.

We undertook extensive testing of our system and found that the relay/fuse system could handle up to 125Amps contiuous and 250Amps for 10 seconds without getting excessively hot. So we printed a label that is applied to every battery with this specification on it.

For many years we had no problem of blown fuses until we had two in the same week! One of the customers with a blown fuse had a fan heater going and then put on the microwave resulting in excess of 300A being drawn from the battery, of course the fuse blew.

The lithium battery we sell, when combined with an inverter, gives the convenience of being able to run 240VAC equipment just like when you are at home, it will do this reliably and safely, however the limitation is that combined draw from the battery cannot exceed the specification label printed on the top.

Running a fan heater off the grid makes very inefficient use of the power stored in the battery and can only be run on low power, otherwise the draw from the battery would be too great. An airconditioner on reverse cycle is a better way.

Below is a list of items often used in a caravan or mobile homes and the typical 12V current that would be drawn through an inverter from a 12 volt battery.

Phone charger	< 1A	Small 800W microwave	120A
TV 24” LED	3.5A	Toaster, 2 slice.	120A
Washing machine	25A	Single element induction cooktop. 2000W full power.	170A
Milk frother 500W	45A	Hair dryer 2100W	185A
Airconditioner	50-80A	Kettle 2200W	200A
Coffee machine 1500W	120A	Fan heater 2200W	200A

As can be seen from this list, in order to keep under the rated 100A continuous discharge, these devices can be used, but only in limited time/quantity.

In 2020 we started placing a small aliminium bar with the fuse, if you have one of these in your battery, you may choose to fit it and then you would have 250A contiuous available. It is of course recommended that you fit external protection. Always keep in mind that to get optimal lifespan from a lithium battery, continuous current should be restricted to 1/3rd of pattery capacity. If you have one of our batteries and would like to fit the “Fuse delete” bar then contact us and we will send you one.

Lithium batteries have been a revolution to living off the power grid. There are still problems to be sorted though. The answer to solve these issues is to go for a higher voltage system, 24V or even 48V as we have done in the past. Something to consider for your next caravan perhaps.

Peter Clark
Director