Series and Parallel Calculations



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When connecting cells in series the negative terminal of the first cell is connected to the positive terminal of the second cell. The negative terminal of the second cell is connected to the positive terminal of the third cell. This continues until we reach the total number of cells required in series.

Next enter the pack series and parallel values. Best to enter what you think are the target nominal values. The step size sets the values used up and down from the nominal series and parallel numbers.

The first chart top right gives the calculated pack voltages. As you can see, these are just against the number of cells in series as the number in parallel doesn't alter these values at this level of calculation. The number of cells in parallel will effect the pack voltage under load, but that is a different calculation.

The SeriesParallel worksheet hopefully gives you a tool that allows you to understand how changing the configuration of a battery pack changes the voltage range, total energy and mass.

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Web: https://www.sumthingtasty.co.za/contact-us/ Email: energystorage2000@gmail.com WhatsApp: 8613816583346

