

12v lithium battery charge chart

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Lithium batteries, like any other batteries, have a specific discharge curve. That means that the voltage of the LiFePO₄ battery decreases with the decrease in battery capacity (from 100% to 0%). The specific battery voltage state of charge (SOC) is determined by voltage charts. To help you out, we have prepared these 4 lithium voltage charts:

Lithium battery state of charge charts are a reflection of the results we get with Peukert's law. This battery capacity law is an approximation of the capacity of lithium batteries at different rates of change and looks like this:

Since we have LiFePO₄ batteries with different voltages (12V, 24V, 48V, 3.2V), we have prepared all 4 battery voltage charts and, in addition, LiFePO₄ or lipo discharge curves that illustrates visually the reduction in voltage at lower battery capacities.

Let's start with a 12V lithium battery voltage charge, and go one-by-one to 24V, 48V, and 3.2V lipo batteries voltage charts:

Notice that at 100% capacity, 12V lithium batteries can have 2 different voltages; depending if the battery is still charging (14.4V) or if it is resting or not-charging (13.6V).

What is interesting to see is that a 12V lithium battery has an actual 12V voltage at only 9% capacity.

Here is a similar chart for 24V lithium batteries:

As you can see from this 24V lithium battery state of charge chart, the relative relationship between voltage and battery capacity is the same as for a 12V battery. It's just that a 24V battery has a 100% higher voltage. The 24V actual voltage in this case is also measured at 9% capacity.

We see that the slope of the line is the same as for 12V lithium batteries. In fact, all lithium batteries have this kind of slope, since they function on the same underlying technology.

You can see that 48V lithium battery voltage ranges quite a lot; from 57.6V at 100% charge to 40.9V charge. The 48V voltage is measured at 9% charge, the same as with 12V and 24V lithium batteries.

Here is the 48V lithium discharge voltage graph that illustrates these voltages visually:

3.2V lithium batteries are those regular batteries you put in older TV remote controls.



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