SolarInnovate Energy Solutions

Battery cabinet storage time calculation

Overview

How to calculate the voltage of a battery in a series?

Even if there is various technologies of batteries the principle of calculation of power, capacity, current and charge and disharge time (according to C-rate) is the same for any kind of battery like lithium, LiPo, Nimh or Lead accumulators. To get the voltage of batteries in series you have to sum the voltage of each cell in the serie.

How many watts a battery can be discharged in one hour?

2 batteries of 1000 mAh,1.5 V in series will have a global voltage of 3V and a current of 1000 mA if they are discharged in one hour. Capacity in Ampere-hour of the system will be 1000 mAh (in a 3 V system). In Wh it will give 3V*1A = 3 Wh.

How long does a lead acid battery take to charge?

Last example, a lead acid battery with a C10 (or C/10) rated capacity of 3000 Ah should be charge or discharge in 10 hours with a current charge or discharge of 300 A. C-rate is an important data for a battery because for most of batteries the energy stored or available depends on the speed of the charge or discharge current.

What does C-rate mean in a battery?

C-rate is used to scale the charge and discharge current of a battery. For a given capacity, C-rate is a measure that indicate at what current a battery is charged and discharged to reach its defined capacity.

What happens if you discharge a battery in one hour?

Generally, for a given capacity you will have less energy if you discharge in one hour than if you discharge in 20 hours, reversely you will store less energy in a battery with a current charge of 100 A during 1 h than with a current charge of 10 A during 10 h. This phenomenon is significant for Lead batteries,

much less for lithium batteries.

What is the global capacity of 2 batteries in series?

The global capacity in Wh is the same for 2 batteries in serie or two batteries in parallel but when we speak in Ah or mAh it could be confusing. - 2 batteries of 1000 mAh,1.5 V in series will have a global voltage of 3V and a current of 1000 mA if they are discharged in one hour.

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