

Re: AC to DC 65+ volts 60 amp Power Supply Plans?

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On Sep 26, 1:00 pm, "Ulysses" <eatmys...@xxxxxxxxxxxxx/> wrote:

Greetings. I hope I'm in the right place.

I want to build or buy a power supply which will in effect mimic the output of solarvoltaic panels. I want to feed the output into an OutBack MX60 charge controller. The maximum input is 141 VDC and 60 amps. I can use any voltage above about 63 VDC (up to 141) to charge my 48 volt battery bank by programming the MX60. This charge controller will automatically adjust the absorb, float, and equalize charge rate voltages and times. I plan to power it with a 120 VAC 60 Hz generator.

What I had in mind is a step-down transformer, a couple of rectifying diodes, and a smoothing capacitor. The problem that I expect to encounter is ripple. The MX60 is only designed for solar panels so it may behave incorrectly (or worse) if there is any ripple or pulsing present. Any suggestions? I don't want to do anything that might damage my rather expensive charge controller. I'd be happy to buy a power supply if it's not too expensive but so far all of my searches have not turned up anything. Are there any web sites that have high current power supply plans? I couldn't find any.

Thanks.

That's a lot of solar panels you're wanting to mimic. At 10% efficiency, I suppose it's about 25 to 30 square meters of surface. Do you really need that much current? If you really want your source to look like solar panels, you should have it look like a moderately high impedance. Into a short circuit, solar panels look about like constant current sources. Also, if a shadow passes over the panels (even the right small portion of them) the output drops drastically. Controllers have to be able to handle that sort of thing.

A mains-frequency transformer that size won't be a small piece of iron either. You'd probably be a lot better off with switching supplies, and you can filter the output to get the ripple to a low value with a lot smaller components than it will take to do it with a mains-

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frequency supply. Now if you have three phase mains available, the ripple can be much more tolerable, but it's still a lot of capacitance (or a little less capacitance and some inductance; a little inductance goes a long ways in reducing ripple especially if you want to get to a very low ripple percentage.

There are surplus houses that deal in power supplies...though 4kW supplies aren't all that common anyway. Also, I'm not too surprised you're not finding plans for them (switching type, at least) on the web. That's a lot of power, potentially kinda dangerous to be playing with, and because of the currents involved, the physical construction details and proper selection of components is critical.

Cheers,
Tom

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