DC-DC (Auto) Adapters

Automotive Adapters:

No Inverters Please!

Well you can use one of course, but it's wasteful of your preciously collected solar energy for the day. If you purchase an inverter which takes the 12 Volts DC power from your battery and then converts to 110 VAC or even 220 VAC, and then plug in your standard manufacturer's "power brick" to charge you notebook, then there is another conversion energy loss getting back to 19 V DC power for the computer. A waste of energy changing states and back again.

Now that many new notebooks themselves are running at a mere 5-6 watts or power or less....using a DC-DC converter for the given box is much more critical, otherwise you are wasting energy, necessitating larger solar panels and bigger batteries at increased costs.... to do the same work.

19 Volt Notebooks

All notebooks today are 19-20 volt models. It appears to be the result of easier rechargeable cell stacking, where cells do not have to be so tightly “matched” as in the 12 volt design. We have found a very nice inexpensive 3 amp, 19.5 volt auto-adapter for around $15, shown here for a Lenovo 11e model. The goal of this final stage is further conditioning of the 10-14.5 volt output from the solar controller to the required 19 volts for the notebook to run and charge its internal Lithium batteries. This would be called a 12 volt DC to 19 volt DC "boost" converter in engineering terms. (transfer down is called "buck" converter)

This unit was found on amazon.com. **Not finished with this part today.....**

Old: The unit (right) is a relatively small box (3.25” L x 1.4” W x 1.1” H 85mm x 34mm x 27mm) with a charge indicator LED and found on eBay.16)[1] Just search for: “Battery Car Charger Cable for Asus Eee 1101HA”. The seller in the USA is “hey262mobile”; In Australia: “Lee262mobile” This unit has the correct DC connector for the machine's DC input jack (and those would be otherwise very hard to find). Rated: DC 11-14VDC OUTPUT: 19VDC 2.1A. We have stressed this to 2.8 amps and the box stayed cool to the touch.

Older 12 Volt "Netbooks"

Most notebooks are 19 volts input, however, in the beginning of small notebook computers there was the Asus line and some were 12 volt input models. Originally this was thought to be a profound advantage, because perhaps an auto-style DC adapter might not be necessary. In the end, it was still required to clamp solar panel voltages to a solid 12.3 volts coming off the solar controller and battery. Solar systems can still vary their output voltage from 11 to 14.6 volts. Such a suitable adapter was found for under $20, and could handle certain amounts of user abuse, such as short-circuits and reverse polarity. But this is mentioned more for historical purposes here.

---

[1] http://wiki.lingtransoft.info/doku.php?id=hardware:solar_computing_handbook#fn