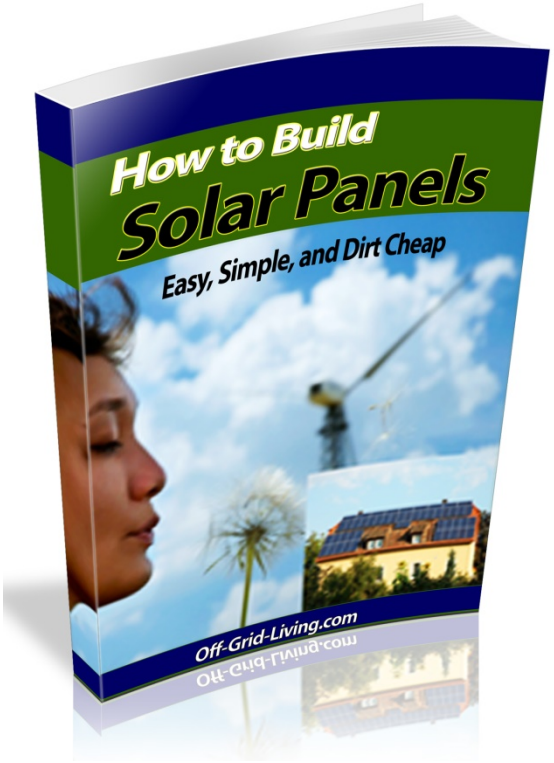
Off-Grid-Living

In An Urban and Suburban World



Lesson #16 ...

Solar System Components

By David Sieg and Information Specialists Corp.

The Disclaimers, Legal Stuff and Butt-Covering Section:

Before attempting to build a solar system for your entire house, take my course "Home Energy Made Easy" Go here: http://Off-Grid-Living.com I'll give it to you for free for being a member of this course. Understanding the concepts in that course will save $1000's of dollars when you go to build your system.

This is but one small section of a complete action plan for building solar panels dirt cheap. Which is one small section of a course on going off the grid in Urban/Suburban America. You can learn how to

- **Grow your own food year around, no matter where you live.**
- **Slash your energy and living expenses by 50% or more.**
- **Create your own fuel**
- **Finding economical shelter**
- **Alternative methods of (Legally) making money**
- **How to live anonymously**

Check out http://Off-Grid-Living.com

NOTICE: You Have the Right Give This To Anyone You Want!

But You Can't Resell this Report for your own profit!

Introduction

This lesson we will speak about how to create your own power system in your home so that you can power every day small appliances, such as cell phones, laptops, TV's, etc. One solar panel will not power your house, but a solar array might. Of course, I don't know what you've built, or what you'll be using it for. So once again, I'm going to speak in general terms.

First, we need to talk about the 3 primary components you'll need.

- Charge controller
- Deep cycle batteries
- Inverter.

A charge controller maintains the electrical current from your solar panels to your batteries and prevents the batteries from being over-charged as well as prevents the backflow of current. The charge controller is the brains of the entire system. Or maybe you could look at it as a policeman directing the flow of electrical current.

Not all charge controllers include the same features. The features you're most interested in is preventing the back flow of current, and the ability not to overcharge your batteries. For the panel you just built, a basic charge controller will do.

One important thing you need to know is how many amps your solar panel produces. If you built the one outlined in this course, using 36, 3x6 inch solar cells, you should be producing 3.5 amps. You can also check the amps yourself while the panel is in direct sunlight.

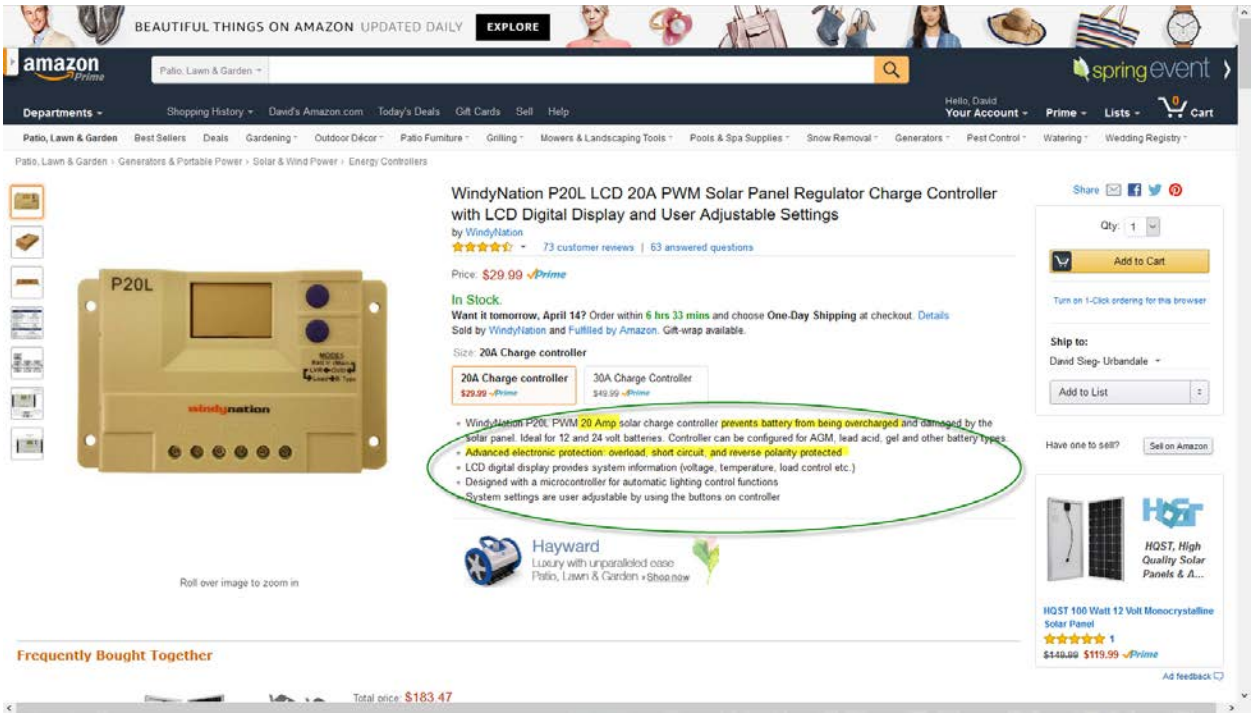
If your solar panel is producing 3.5 amps, I'd get a charge controller that can handle 4 amps or more. The deciding factor will be if you plan on adding more solar panels. The more amps, the larger charge controller you'll need.

For the purpose of this tutorial I'm going to go with a simple charge controller that has the 2 features I just talked about. So I'm looking for a charge controller that can handle 4 amps or more, prevent over charging, and a back flow preventer.

Back to Amazon.

On the first page I ran across this one: http://www.amazon.com/dp/B015S39PTU?psc=1

$30 and can handle up to 20 amps.



Keep in mind; I'm not suggesting this brand, or any particular charge controller. I'm simply showing you where to go and what to get.

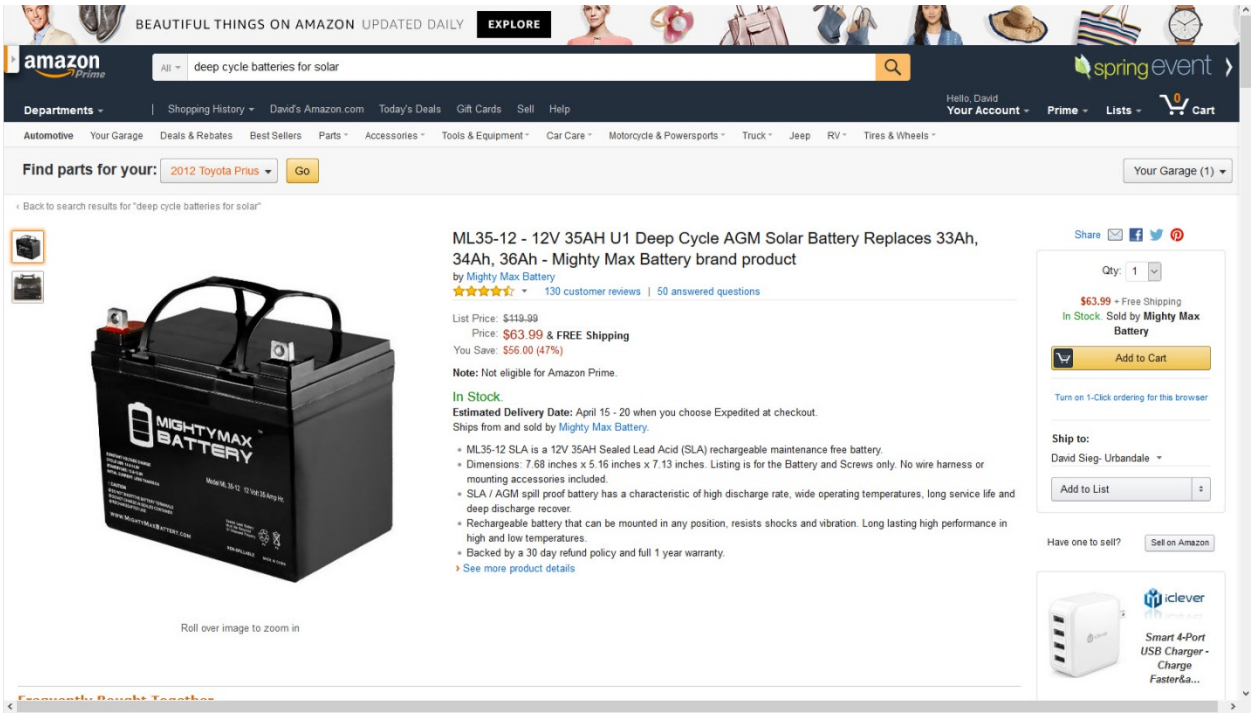
Ok, deep cycle batteries.

This is a portable battery designed to keep a steady amount of current over a long period of time. They can also be deeply discharged over and over again, unlike a standard car battery. In short, they are used in heavy-duty and industrial/commercial applications. Forklifts, and marine batteries are usually deep cycle.

Even though it is made to handle constant discharging, I wouldn't recommend doing so with a solar system. I wouldn't allow the battery to become drained more than 60%-80%. (This can be controlled via the charge controller) Staying within those guidelines will extend the life of the battery for years.

A typical 12v. deep cycle battery will cost anywhere from $60 on up. Amazon, of course, will have them.

http://www.amazon.com/ML35-12-Battery-Replaces-Mighty-product/dp/B00K8E0WAG/ref=sr_1_3?ie=UTF8&qid=1460561268&sr=8-3&keywords=deep+cycle+batteries+for+solar



So, you say you don't like Amazon? No sweat, you can also find deep cycle batteries at automotive stores, like NAPA, Autozone, Pep Boys and the like.

Also refer to the section of this course on how to get free deep cycle batteries.

A note about charging a deep cycle battery: in order to charge a 12 volt battery with your solar panel, your panel needs to be producing at least 18 volts. The panel made in this tutorial does. Even though it is 12 volt battery, you have to be producing more electricity than the battery is rated for.

(Remember, 36 solar cells, rated at 0.5 volts each, hooked up in a series. 0.5 volts X 36 = 18 volts)

Next, we need to talk about the inverter.

An inverter is a device that converts Direct Current (DC) to Alternating current (AC) the kind of current that most household appliances run on.

Your solar panel produces direct current. So you need a way to convert the solar energy into a useable form for your household. This is where the inverter comes in.

There are 2 types of converters you need to be concerned with:

- A modified Sine Wave Inverter
- Pure Sine Wave Inverter

A modified sine wave converter is usually used for household appliances and devices.

A pure sine wave inverter is usually used to more complex solar systems.

So you want to buy a modified sine wave converter. They can be bought usually at any electronic store, and of course, Amazon.

http://www.amazon.com/ERAYAK-Inverter-Cigarette-Alligator-Tablet-8095U/dp/B019PTST18/ref=sr_1_16?ie=UTF8&qid=1460562012&sr=8-16&keywords=inverters+for+solar+panels

Here's one for $30

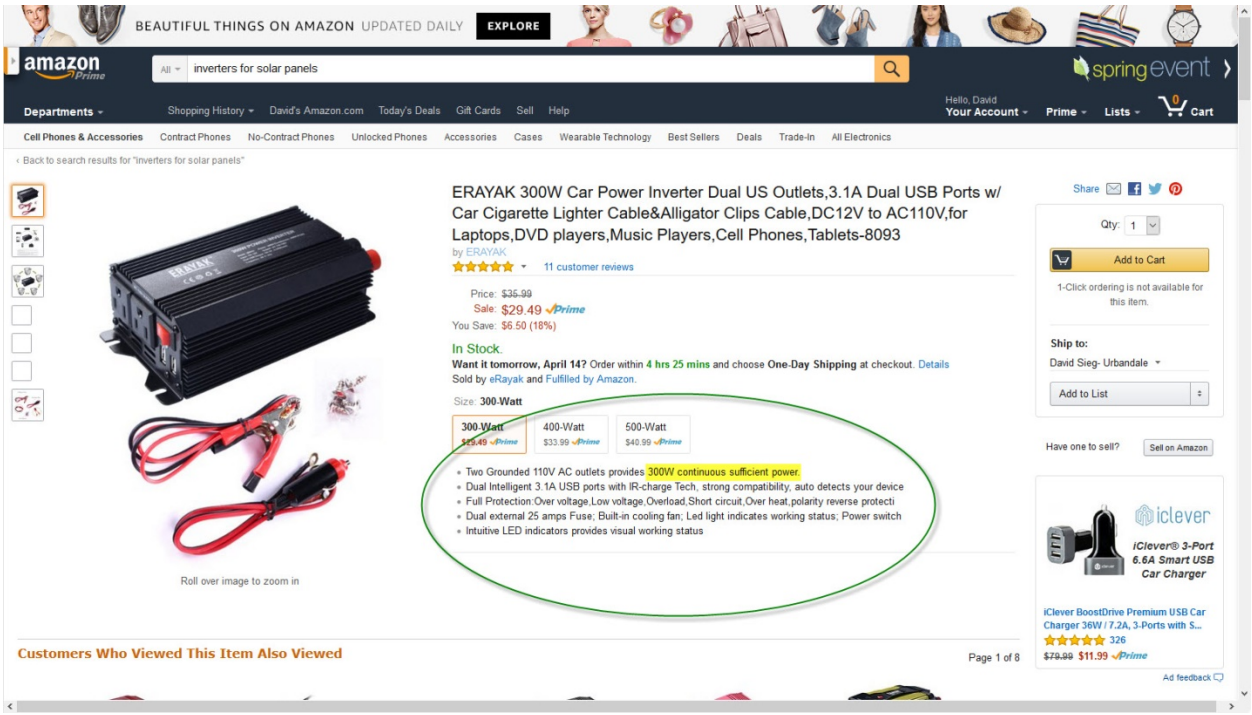
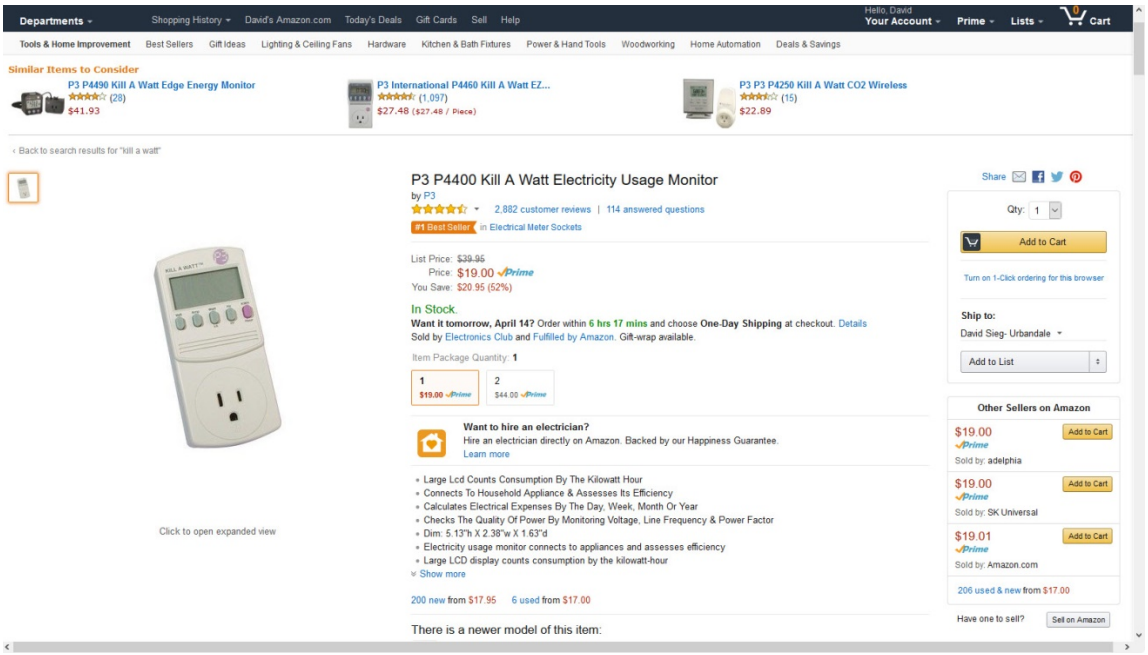


Figure out ahead of time how many watts the devices you want to hook up will be using. You can usually find these on the bottom listed with the "UL Label" or you can look it up on the company's website.

If you want an absolute dead simple way to determine wattage, you can buy a "Kill A Watt" meter off of Amazon for $19.

http://www.amazon.com/P3-P4400-Electricity-Usage-Monitor/dp/B00009MDBU/ref=sr_1_1?ie=UTF8&qid=1460563016&sr=8-1&keywords=kill+a+watt



Now that you know what the various components do, in the next lesson we'll hook it all up and start generating some power.

PS...Don't forget you can get personalized coaching at Off-Grid-Living.com/ For some this is the ideal way to get hands on experience as well as personal attention needed to make this work for you.

Coming Up Next ...

Lesson #18: "Mounting Your Solar Panels on the Roof"

In the next lesson we'll be going into a number of "Do's" and "Don'ts" when mounting your solar panel on the roof.