

# FAQs

## **Question: How many panels do I need?**

**Answer:** The number of panels needed for an RV depends on many variables. The most important is how you personally use power. Are you the type that is very frugal with power use? Or are you the type that likes to turn everything on and leave it on all day? The answer to that will have a direct effect on the size of the solar system needed and the cost. If battery depletion is limited to 50% daily, then a good rule of thumb to use is 100 Watts of solar per battery. Less if you are frugal, and more if you are a big energy user. A different calculation is used if you are interested in battery maintenance charging or trickle charging only.

## **Question: What will Just one solar panel do?**

**Answer:** The most important thing to understand about RV solar is that the solar system is nothing more than a battery charger. A solar panel on the roof of your RV or a portable RV solar system will charge your batteries using the power of the sun instead of using your generator or shore power. How quickly the batteries charge is a function of the number of panels or total system watts installed. One panel may be able to completely recharge your batteries depending on how deeply they were discharged. See [Solar Calculator](#) to determine needs.

## **Question: What can I run with solar?**

**Answer:** Remember that an RV solar system is nothing more than a battery charger. So, you can run anything from your solar system that normally runs off your batteries. If you power your entire RV off your battery bank when dry camping, then using a solar panel (or a series of solar panels) can take the place of your generator for recharging your battery bank. When dry camping, a device called a [Power Inverter](#) is needed to convert the 12V power from the batteries to 120V power for

regular household appliances.

**Question: Can I run my AC from my solar panels?**

**Answer:** Technically, Yes. However the number of solar panels and the number of batteries required to do this effectively is simply not practical. The amount of weight and space these components occupy when compared to the number of hours your AC would actually work doesn't make sense for most people. Not to mention the cost. Most die hard RV'ers agree that if you will be dry camping for long periods of time In the summer, do it In a cooler Climate where AC is not needed.

**Question: What is a charge controller?**

**Answer:** A solar charge controller is a device that is wired between the solar panel(s) and the battery bank. It controls the energy from the solar panels so that the battery bank is not overcharged or charged incorrectly. [The solar charge controller](#) also maintains a 'float charge' on a fully charged battery bank to ensure long battery life. In most cases a solar panel wired directly to a battery bank can severely damage it unless a good quality PWM type or MPPT type charge controller is used.

**Question: What's the difference between roof top RV solar systems and portable systems?**

**Answer:** [A roof top RV solar system](#) is a panel or series of panels mounted permanently to the roof. The solar panels can either be mounted flat on the roof or on tilt-up brackets. [Tilt brackets](#), when used in the tilted configuration, can yield 20-30% more energy from the solar panel if pointed and angled correctly. A roof top RV solar system will not work well if parked in the shade because RV solar panels need full sun for maximum effectiveness. And a roof top system requires many holes to be drilled in the roof of the RV requiring regular roof maintenance to prevent leaks from beginning. A portable RV solar system is exactly that....portable. And it

contains everything needed to charge your battery bank. When you make camp you can place the portable solar panel in the sun while you park comfortably in the shade because a length of cable connects the panel to the RV. The panel can be adjusted throughout the day for maximum energy production without climbing up on the roof. There are no holes in the roof of your RV to drill and no additional roof maintenance. And if you trade up to a new rig. you can easily take your portable solar panels with you.

**Question: Will solar work with my current battery configuration?**

**Answer:** Most likely, Yes. Most RV battery systems use 6V or 12V batteries, but ultimately are always a 12V system. While this is achieved in one of several different ways. a solar system for your RV can easily be configured for just about any battery configuration.

**Question: Do I need to disconnect my solar panel when plugged In to shore power or when my generator runs?**

**Answer:** No. The built in charge controller reads the battery voltage and will shut off the panel when the battery voltage reaches a fully charged level. The charge Controller also protects the system against any feedback current or other transient voltage spikes from the other devices that charge your batteries.

**Question: How do I know I'm buying good solar panels?**

**Answer:** There are over 600 solar panel manufacturers in the world today. And most are not made in the USA. This is due to the fact that the largest solar panel consumers in the world are not Americans. Therefore it should not come as a surprise if the manufacture names you hear are unfamiliar. When determining a good quality solar panel, there are several things to look for:

1. Select a high efficiency solar panel. These are usually 16% efficient or more and will be 'Monocrystalline'. 'Polycrystalline'. or 'Multicrystalline. There is a type of solar device now being sold called 'Thin Film'. It is usually 5-7% efficient. It works fairly well, but you need 3-4 times more surface area of the material to absorb the same energy a crystalline panel needs. With RV roof space at a premium, thin film just doesn't make much sense.

2. The panel should be made with A-grade solar cells. In the world market for solar panels it is not unusual for the panels to be made by one company and the cells by another. Ask who makes the cells and what grade they are. B-grade solar cells are easy to spot. They are second quality and usually the rejects. They are lower efficiency with a high temperature coefficient. They work. but will yield less energy overall.

3. Be sure the solar panels have an electrical safety rating. Either TUV or UL or some other relevant test is important. Remember that CE is not an electrical safety test.

4. Lately, some manufacturers are starting to use thinner aluminum frames on the solar panels and fewer layers of substrate. This has the effect of making the panels less rigid. Solar panels like this should be avoided for mobile applications.

5. Be sure the panels have a manufacturers label on the back which details the electrical characteristics of the solar panel. The serial number should also be visible. Don't take the dealers word for the wattage of the solar panel. Physical size of the solar panel has little to do with the output power.

6. The standard solar panel warranty on the marketplace is one year for workmanship issues and 20 years for power output. Some manufacturers offer more. This is a good indication of the manufacturers confidence in their product.

7. Watch out for panels that seem too inexpensive. Sometimes something is missing. Recently there have been panels sold without the standard electrical junction boxes installed on the back. These panels have no safety rating and are difficult to use. They are shipped to the U.S. in this condition where the manufacturing is to be completed. but never is.

**Question: Do I need flat mounted or tilt mounted solar panels?**

**Answer:** [Tilt mounted panels](#) will produce 20-30% more energy each day than flush mounted panels. Roof top tilt-up brackets are available for your RV solar system which allow you to operate them flat or in a tilted position. Most users leave their solar panels flat in the summer. When dry camping in the winter months for extended periods. They tilt them up 40-50 degrees for maximum energy production.

**Question: How can I determine the power rating of my existing solar panels?**

**Answer:** On the back of every solar panel should be a manufacturers label detailing the electrical characteristics. Operating current (amps), operating voltage. and wattage are all listed there.

**Question: Do I have the right wire?**

**Answer:** RV solar systems are usually built from panels from 16-18V. When wired together, high current (amps) is usually produced. This makes wire gauge (thickness) very important when designing for maximum energy yield. The higher the current, the thicker the wire required. When adding an RV solar panel to an existing system, the wiring may need to be either upsized or additional wire added in order to efficiently handle the additional current. This should be discussed with the dealer. For RV solar applications, it is good practice to use wire that has insulation that is protected from UV light and is oil and gas resistant. It costs a little more, but won't deteriorate in direct sunlight or

hostile environments.

**Question: How do I know I'm getting a good install?**

**Answer:** Sadly, good installations are hard to come by. The size of the shop or qualifications of the installer won't necessarily mean your installation will be done right. Like anything else, do your homework. The people that do this well will be easy to check out. Sometimes spending \$100-\$200 more on a system installed by a well qualified and experienced company will save you \$1,000's later repairing damage caused by shoddy work or improper materials.

**Question: Can I install solar on my RV myself?**

**Answer:** Sure! [Portable RV solar systems](#) require no installation and minimal training. Simple [roof top solar systems](#) can be self installed if you are handy with wire, basic hand tools, and an understanding of RV construction. When selecting equipment, be sure to work with a dealer or distributor that will provide quality solar products and technical assistance during your installation process. It may cost a bit more than the discount 'box houses. but you will be happier with the outcome.