

Rich Solar FAQs

Technical Questions:

How does solar work with my RV?

Solar power allows you to take your RV off the grid while still using your refrigerator, lights and other appliances for extended periods. Solar panels convert the sun's energy into direct current (DC) electricity, and this charges your RV's batteries, storing the electricity. A power inverter converts this DC power to AC (alternating current) in order to run many of your RV appliances.

What is the difference between DC and AC power?

DC (direct current) power is drawn directly from the battery and will run several types of RV appliances, like lights and water pumps. AC power (alternating current), is what is used in your home. An inverter in your RV converts your DC battery power into AC for AC-powered devices such as TVs, hair dryers or coffee makers.

What is the difference between on-grid and off-grid?

On-Grid Systems tie directly to your utility grid, offering an alternative source of energy in addition to what your utility company provides. By utilizing on-grid solar systems, you can greatly or completely reduce your electricity bill. In addition, depending on the size of your on-grid system, you may receive monetary returns.

Off-grid systems do not tie to the utility grid and are sustained using a battery bank. The battery bank can be hooked up to an inverter, which converts DC voltage to AC voltage allowing you to use any AC appliances or electronics. Common off-grid applications include cabins, Off-Grid vehicles, boats, and dry camping. Off-grid systems can also be used in a variety of other applications, including emergency power backup during a power outage.

Can I run my TV, refrigerator, or water pump on solar?

Yes. Many RV refrigerators can run on DC or AC power. You can also use solar to power your water pump. Most TVs run on AC power, requiring an inverter.

How long can I run my appliances or electronics on solar?

That depends on the number of appliances, how much power they consume, and what size of battery bank you have installed. Contact our customer service by phone at 1-800-831-9889 or by email at support@richsolar.com to help determine your requirements.

What is the difference between amps, watts and volts?

Think of your power system as a gas station. Amps are like gallons of gas that fill your RV's battery, and volts are like the pressure at the gas pump. You need a certain voltage 'pressure' to fill your batteries (the gas tank). – Watts are simply the amps multiplied by the volts.

What is the difference between a solar kit and a solar system?

Our solar kits provide the basics you need for charging your RV battery — they contain a solar panel, solar charge controller, and cables. A solar system includes more components (such as an inverter, transfer switch, battery charger, and fuse block) so you can run AC appliances and electronics, charge your battery, and connect both shore and solar power to your RV's breaker panel.

Why do I need a solar controller/regulator?

The solar charge controller is required to prevent your solar panels from overcharging your RV batteries.

Do I need to install an inverter if I only want to charge my boat or RV battery with a solar panel?

No, you only require an inverter if you want to convert DC battery power to AC household power in order to run devices like TVs, tool chargers, and microwaves.

What is the difference between a pure sine wave and a modified sine wave inverter?

All AC devices can run with pure sine wave power. Modified sine wave power replicates AC power, but not perfectly. While modified sine wave inverters are much less expensive, many devices run poorly when it is used — for example, portable tool chargers, high-end TVs and stereos, CPAP machines, and microwaves.

Will solar work in the winter in my state or province?

Will the sun be shining? Solar will work any time there is sunlight shining on the panel. If there is a snow buildup on the panel, the system will not work.

Do I have to penetrate my roof to install a solar panel system?

Not necessarily. In many applications, we can permanently mount the panels on the roof of your RV using a sealant. As an alternative, our portable solar kits can be set up on the ground.

Do I need any additional cables in order to use my power pack and solar panel?

While all the cables that are needed for you to use your power pack and/or solar panel are included you may find it more convenient to have additional accessory cables, click [here](#) to visit our accessory page.

What voltage are your panels? Will they work with my 12V, 24V or 48V system?

We have nominal 12V and 24V panels. These panels actually produce 20+V and 30+V, respectively. Whether it will work with a 12V, 24V, and 48V will depend on the controller that you use. All the controllers we offer will work with 12/24V systems. The MidNite Classic controllers will work with 48V systems.

Solar Panels

Solar Panels:

What type of batteries does this panel charge?

You can recharge all types of 12 volt rechargeable batteries including lead-acid automotive batteries, deep cycle (traction type) batteries, gel-cell batteries, and heavy duty (stationary type) batteries. When using the Solar Module to run appliances on a regular basis, we recommend the use of deep cycle marine batteries which are designed to withstand frequent charge and discharge cycles.

Can the Solar Module drain my battery at night?

Once the solar charge controller is installed there is no danger of reverse current, so you may leave your panel installed overnight.

Can the Solar Module overcharge my battery?

Yes, but only if used without the charge controller. That is why it is important to use a solar charge controller. Do not connect the panel directly to the battery with wattages of 15Watts or higher. Always use in conjunction with an appropriately sized solar charge controller.

Can I run my 110 volt appliances with my solar power system?

Yes. You can run your 110 volt appliances with the use of an inverter, which would attach to your battery to change the battery's 12 volt (DC) energy into 110 volt (AC) or 220 volt (AC). Inverter is not included.

Can my panel be left outdoors without a protective covering?

Yes. The Solar Module has been weatherproofed and can be mounted outdoors without any additional protection.

How do I know if the panel is producing voltage?

Use a multimeter (not included) to accurately read the panel's voltage. Under full sun the multimeter should read 20-22 V DC.

Do I have to disconnect the panels from the battery when I drive my RV or while I am recharging my battery by other means?

No, solar panels are designed to be permanently connected to the battery. There is no need to disconnect them while driving a RV for example, or when charging the batteries by other means such as AC chargers, or a vehicle's generator or alternator.

What can be done if the wires are too short?

Additional connection cables should only be purchased through the RICH SOLAR Website (www.richsolar.com).

What is the difference between monocrystalline and polycrystalline?

There is a difference in the manufacturing technique, and as a result monocrystalline cells are more efficient. The monocrystalline cells can produce more power in a smaller space. Also, monocrystalline panels have a darker blue color, almost appearing black, and are usually higher in price due to the increased efficiency. Polycrystalline panels on the other hand are less efficient and require more space. However, the difference in size and efficiency do not impact power. A 100 Watt monocrystalline panel and a 100 Watt polycrystalline panel will both output 100 Watts, neglecting power loss in the system, but a monocrystalline panel will output 100 watts with a smaller surface area.

How long will PV modules last?

RICH SOLAR Framed Solar Panels have a performance warranty of 25 years. After 5 years they should output more than 95% of the rated power, after 10 years it is 90% and 25 years it is 80%.

How does solar system fair in extreme weather conditions?

The module temperature for our RICH SOLAR solar panels ranges from -40°C to 90°C. Whereas our charge controllers have an operating temperature of -35°C to 55°C. The majority of our solar panel are water proof and do fare well in extreme conditions however, our charge controllers are not water proof. We recommend storing and securing the charge controller in a well ventilated dry space.

Will panels still charge on cloudy days?

This will also depend on the conditions. If it is cloudy and overcast, likely not. If it is cloudy and bright still, then it probably will charge but it won't be very much.

Will my system still generate power during a blackout?

For an off-grid system, the solar panels will continue to generate power as long as the sun is still out.

How much maintenance is required?

We recommend cleaning the solar panels on a weekly or bi-weekly basis in order to keep their performance high.

How long does it take to charge a 12-Volt battery?

There are many elements in this calculation. The size of the battery capacity and availability of sun are the two most important considerations.