48v solar system

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Below are some options for 12V, 24V, and 48V configurations, using Renogy 100W, ...

Solar consumers areno longer asking if it is possible to power their lives with the sun, they are testing the limits of those possibilities. Just a couple years ago, we wrote a blog with the prophetic title, 48V Systems: The Future of Solar. Well, folks, the future is now!

Whether you are living in an RV, off grid cabin, or suburban neighborhood, you can power everything from lights and computers to residential refrigerators and air conditioners with energy from the sun.

How do you determine what size your system should be, which voltage you should choose, and which components you need? The questions all boil down to your daily energy needs, the types of appliances you want to run, the size of your solar array, and the amount of space you have available for both panels and batteries.

While most RVers can easily and inexpensively build a 12V panel and battery system that meets their basic DC and AC needs, folks with greater energy demands may find that a 24V system can help them run more powerful AC appliances. Going further, those who invest in a 48V system with enough solar panels and battery storage capacity, can even run electric heating and air conditioning!

The greater your energy demand and the more powerful your appliances (especially if they heat or cool), the greater the current (amperage) flowing through your wiring. The greater the amperage, the larger the wiring has to be for safety - and, not surprisingly, larger wiring is more expensive.

Previously, with 12V systems, that meant adding more panels, larger capacity charge controllers, and huge battery banks, plus all that beefy wiring. Now, many solar consumers with higher energy demands are moving away from 12V and toward 24V and 48V systems for overall cost-space-benefit.

Looking at the basic Volts (V) x Amps (A) = Watts (W) equation, you can see how to achieve the same wattage by doubling the voltage of your overall system, thereby reducing the amperage by 50% at each step up in voltage.

Overall, these higher voltage systems are not only safer, they are more cost effective, more efficient, weigh less, can be easier to build, and experience less transmission loss. The best news, the components, which were in production in 2020 when we wrote that prophetic article, are now readily available!

Before we proceed, below is some terminology in this article you"ll need to understand.

If you are brand new to solar, we encourage you to read our Unscrambling the Alphabet Soup of Solar Terminology blog for some additional help with terminology, as well as watch our Solar 101 video.

Once you have your head around some solar terminology, use our NEW Solar System Sizing Worksheet to calculate your energy needs, and determine the necessary size of your solar array, battery bank, and charge controller using the built-in solar calculator. The worksheet will then help you build a system and create an organized order for all of the components, wiring, accessories, and mounts that you will need. Our affiliate links in this blog, combined with our CANLIFE promo code, will save you 10% on all non-sale Renogy items - which can amount to hundreds of dollars in savings if you are building a larger system!

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