CHOOSING INVERTORS AND CONTROLLERS FOR SOLAR CELL

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Abstract

In this article we are going touch on some of the topics about solar cells, invertors , controllers as well as in what they are more beneficial and at their best sufficiency. Also we are going do discuss what are the advantages and disadvantages of installing solar cells and how much does one need to wait until those cells to pay off.

Key words: AC, DC efficiency, monobloc, thermos, solar cells, solar radiation

Introduction

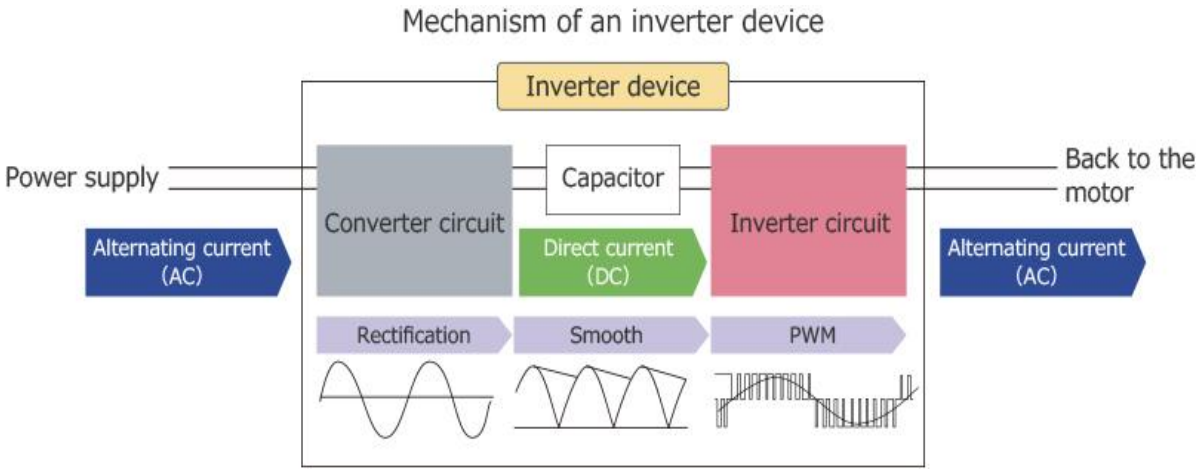
Solar cells can be arranged into large groupings called arrays. These arrays, composed of many thousands of individual cells, can function as central electric power stations, converting sunlight into electrical energy for distribution to industrial, commercial, and residential users. Solar cells in much smaller configurations, commonly referred to as solar cell panels or simply solar panels, have been installed by homeowners on their rooftops to replace or augment their conventional electric supply [1] . Solar cell panels also are used to provide electric power in many remote terrestrial locations where conventional electric power sources are either unavailable or prohibitively expensive to install. Because they have no moving parts that could need maintenance or fuels that would require replenishment, solar cells provide power for most space installations, from communications and weather satellites to space stations. (Solar power is insufficient for space probes sent to the outer planets of the solar system or into interestler space, however, because of the diffusion of radiant energy with distance from the sun) [2] .

How does an invertor work

The inverter device's role is to control the voltage and frequency of the power supply and seamlessly change the rotation speed of motors used in home appliances and industrial machineries [3-9] .

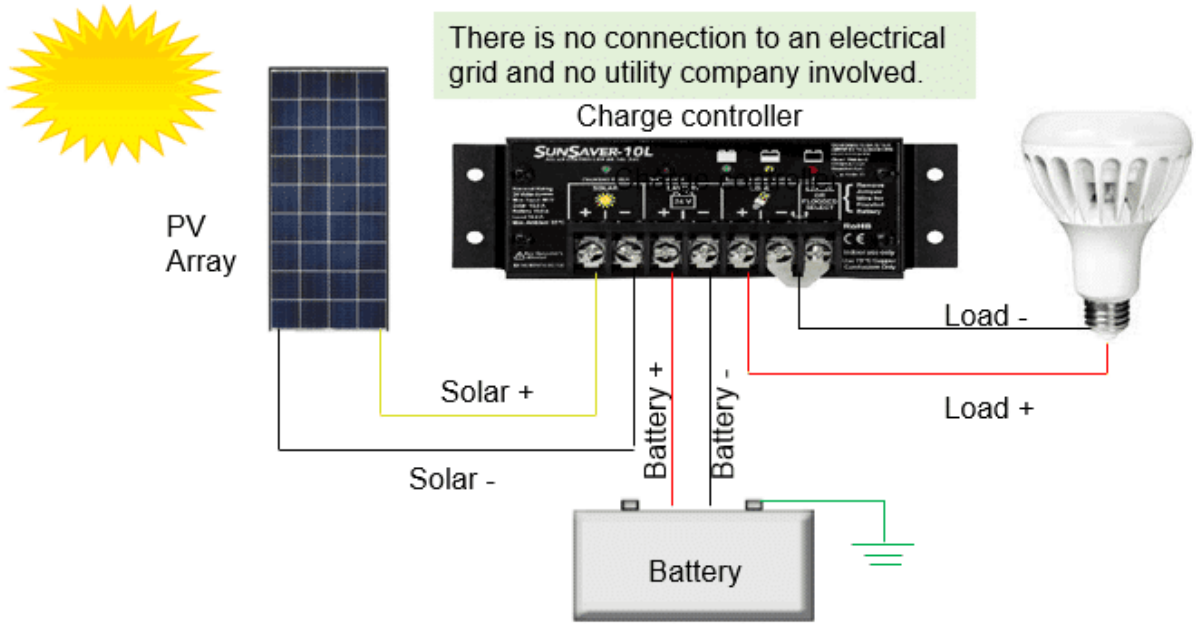
The first thing to keep in mind when it comes to enriching your understanding of the internal structure of an inverter device, is that the converter circuit converts alternating current (AC) coming from the power source into direct current (DC), and the inverter circuit changes the converted direct current (DC) back into alternating

current (AC). They work as a set. The diagram below shows the role they both play and the way they work [9-13] .



The working process of controller

The first solar charge controller schematic below (Figure 1) illustrates how a solar charge controller is connected to power a direct current (DC) load, and the second one (Figure 2) pertains to an alternating current (AC) load [14-17] .



When installing a solar charge controller, it is recommended that you connect and disconnect in the following order:

Battery to the controller first

PV array to the controller

Electrical load to the controller

When disconnecting, you reverse that order. The battery provides power to the controller so always make sure that solar and loads are disconnected before

connecting or disconnecting the battery from the controller. Connections between the battery, load, PV array, and the controller should have disconnect switches to enhance safety and facilitate ease of installation and breakdown [15-20] .

Conclusion

Solar energy is a renewable energy source, meaning you don't ever use it up. Solar energy is clean. It creates no carbon emissions or other heat-trapping "greenhouse" gases. It avoids the environmental damage associated with mining or drilling for fossil fuels. Furthermore, solar energy also uses little to no water, unlike power plants that generate electricity using steam turbines.

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