

SOLAR PANEL FEATURES

- ▶ Reliable top quality German made Poly-crystalline Silicon Cells
- ▶ Folding Legs for optimum panel angle
- ▶ Strong Aluminium Frame
- ▶ Strong Tempered Glass
- ▶ Carry Bag
- ▶ 5m Cable with battery clips
- ▶ In line Anderson Plug on 80W and 120W panels to connect to battery systems in camper trailers and caravans
- ▶ 80W and 120W panels fold in half for easier transportation
- ▶ Quality Phocos charge controller with battery overcharge protection and reverse polarity protection



Battery Clips

Phocos
Charge Controller

Anderson Plug

FREE POWER FOR CAMPING

A 12 volt deep Cycle Battery is an ideal power source for camping. 12V power can be used for many things such as to run lights, fridges, fans and to charge phones, cameras etc. The only problem is that the battery will need to be recharged at some point. Portable Solar Panels will give free power from the sun to recharge your battery.

A Solar Panel is made up of a number of silicon photo-voltaic cells that are joined together in series and housed in an aluminium frame. Light hitting the surface of the cells is converted into electricity which passes through a charge controller and into your Battery.

Outdoor Connection's range of solar panels consists of a 25W panel and an 80W and 120W folding panels. All models are equipped with folding legs for the optimum panel angle, a 5m cable and a Phocos charge controller.

Poly-crystalline Cells

Outdoor Connection's Solar Panels use top quality Poly-crystalline silicon cells. The German made cells are manufactured by Q-Cells, a highly regarded manufacturer of photo-voltaic cells and assembled into Solar Panels in China. The high standards of manufacture and quality control both in Germany and China ensure that these panels are very reliable and have a high conversion rate of converting light into electricity. Apart from reliability and quality, Poly-crystalline cells use less energy to manufacture so have a smaller carbon footprint.

Poly-crystalline cells generally have a lower conversion rate than good Monocrystalline cells. However, Outdoor Connection's Poly-crystalline cells have a higher than average conversion rate and because the Solar Panels have a larger surface area of silicon cell they generate the same power as a similar sized Monocrystalline panel.



Charge Controller

All Outdoor Connection's Solar Panels are equipped with a top quality Phocos Charge Controller. The purpose of charge controller is to regulate the power supply into the battery. It will also monitor the charge level of the battery and cut power supply to the battery when it is fully charged. The controller also prevents losing charge from the battery if the panel was not generating power due to shade.

What size panel do I need?

The Solar Panel Calculator can be used to assist in calculating your needs. Three things must be considered to determine what size panel will suit your requirements.

1. Daily power consumption - the average amount of power (in Amp hours) the appliances you use will consume. You will need to know what your daily power usage will be to determine what size battery and what size panel you will need.

2. Battery capacity - The battery should be a deep cycle battery because they are designed to be discharged down to a maximum of 25% of their capacity whereas a car starting battery is designed for short bursts of a high amount of power and should not be deeply discharged. The battery capacity of a deep cycle battery is measured in Total Amp Hours (Ah). For example a 100Ah battery will have 75Ah of power available. You may not always have good weather to use your solar panel so you should allow a number of days when you can not charge the battery. Three days is a common figure used so in the case of the 100Ah battery you would have 25Ah available for daily use over three days.

3. Panel Power Production – This is calculated by multiplying the panel's operating current (per hour) by the number of hours of full direct sunlight the panel receives. You should allow surplus power to top up your battery in case you have had days when it was not fully recharged.

	SP25	SP80	SP120
Rated Power	25W	80W	120W
Operating Current	1.39A	4.44A	6.66A
Packed Size	35 x 58 x 2.5cm	51 x 61.5 x 7.7cm	67 x 69.5 x 7.7cm
Weight	3kg	9kg	12kg

Daily Power Consumption

Average power consumption of regularly used items.

Appliance	Watts	Amps (W ÷ V= Ah)	Number of hrs used per day	Total amps per day (amps x hrs per day)
Total				

Battery Capacity

The available power per day should be higher than the daily consumption.

Deep Cycle Battery Capacity	Ah
Available Power Capacity x 75% (max depth of discharge)	Ah
In case of poor charging conditions how many days do you want to run your appliance without recharging the battery. (Refer to Battery Capacity notes)	Days
Available Power Per Day (available power number of days)	

Panel Size

The panel power production should be higher than the daily consumption and also have reserve capacity to cover days of little or no charge. The table below has the power production information for the Outdoor Connection range of Solar Panels. (Because the light is not as strong earlier in the morning and later in the afternoon and because the panel may not always be facing directly at the sun allow 5 1/2 hours of full direct sunlight for approximately 8 hours exposure.)

Power Rating	Operating Current (Amps per hour)	Daily Amps Produced (based on a 5 1/2 hours of full direct sunlight)
25W	1.39A	7.65Ah
80W	4.44A	24.4Ah
120W	6.66A	36.6Ah