

## HOW TO GET THE MOST FROM YOUR SOLAR PANEL

### 1) Get The Most Sunshine Onto Your Panel.

#### a. Keep It Clean

Yes it is quite an obvious point. Even so, it is still worth mentioning. Even the tiny solar panels on calculators need a wipe. If your panel is fixed on top of a motorhome or caravan, how often do you check it?

In good dry weather with plenty of sunshine, dust can build up and without a quick shower of rain, that dust will stay there. Leaves can stick and so can blossoms. These should be removed, as should anything else that has landed on the panel.

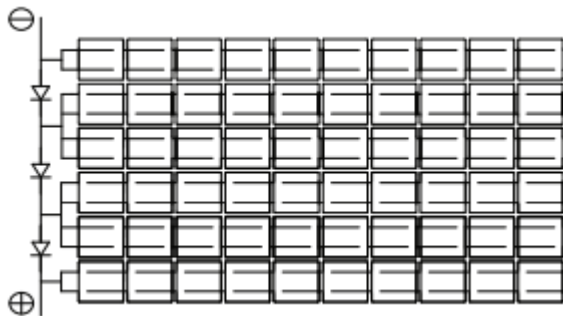
Birds of course are happy to leave deposits just about anywhere. (Combine this with nearby fruit trees and the problem is made much worse).

Keeping solar panels clean is quite simple. A mild solution of soap and clean water will do. Avoid using abrasive cleaners or solvents.

#### b. Avoid Partial Shade And Shadows

Again this might seem obvious. However there is a more technical point to this.

Bear in mind that a solar panel consists of a number of solar cells. In partial shadow, some cells are getting sunlight and some are not. Unless your solar panel is fitted with bypass diodes, then the shaded cells could actually be draining power from the sunlit cells. This could seriously deplete the overall output of your solar panel.



Electrical circuitry of cells and bypass diodes (Yingli)

If your solar panel is fitted with integral “bypass diodes” between the cells, then this power drain should not occur.

Each diode will prevent power from draining into a shaded cell.

The technical information that came with your solar panel should tell you whether bypass diodes are fitted inside your panel. If not, then the best thing to do is to avoid leaving the panel partly shaded.

Back to the obvious again. When you park your vehicle (or moor your boat), consider where the sun is going to be in the remaining daylight hours. If a nearby building or tree is going to cast a shadow on your panel then can a better parking spot be found?



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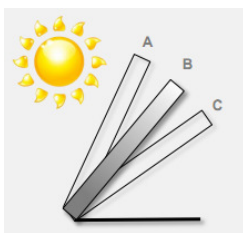


If your panel is going to be fixed in place in a driveway, garden or field, then again you'll need to consider the best spot that gets the most sunshine throughout the year.

A panel will soon be losing its efficiency if fast growing foliage has put it in the shade.

### c. Give It The Best Angle Relating To The Sun

We recommend positioning the panel so that it receives as much sunlight as possible. This is quite simple if you have a small panel as you can move it easily to track the sun.



If you have a panel fixed in place because it is attached to a wall or pole, then in the UK it's best to make the panel south facing at an angle of 50 degrees (point B in the image).

If adjustable, then set it to 65 degrees in winter (point A) and 35 degrees in summer (point C).

## 2) Use a Blocking Diode Or Charge Controller

In theory, with a solar panel receiving no sunlight (at night for example) the whole panel could act as a power drain on your battery. The battery in effect would be trying to charge the solar panel! Obviously this completely defeats the point of having a solar panel.

A very simple and low cost answer can be to fit a small component called a "[blocking diode](#)" into the circuit. This looks similar to a small fuse and the diode only allows power to flow one way, from your solar panel into your battery (or whatever you are running off the solar power). At night the power cannot be drained from your battery into the panel.



Fuse-Style Blocking Diode



Steca Charge Controller

There is a more complex device which does the job of a blocking diode and much more. Known as a "[charge controller](#)" or "charge regulator", it also stops the solar panel acting as a power drain at night. The difference is that the charge controller will also have extra features. For example there is a deluxe version (the [Steca PR1010N](#)) with a digital display and smart case (the controller in the photo). Controllers can also have user settings much like a central heating programmer for supplying power at specific times.

At Select Solar we recommend that a charge controller is used for a solar panel rated over 10W.

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