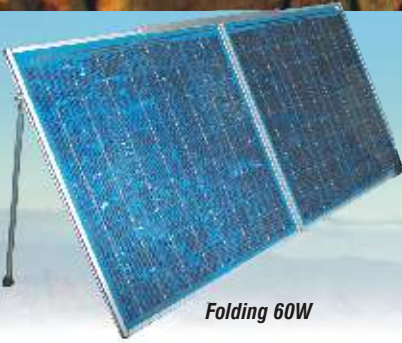


50W/60W/100W SOLAR PANELS

CONVERT THE SUN'S RAYS INTO USEABLE POWER

Types of Solar Panels

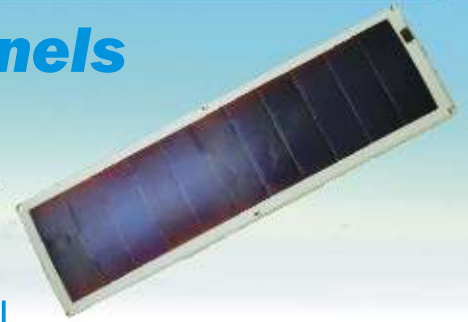


Folding 60W



Monocrystalline Panels

Monocrystalline solar cells appear black in colour, are of a rigid construction and do not fill the entire panel area. As a result they only effectively pick up light when correctly aimed towards the sun. They are durable in construction but do not perform quite as well as polycrystalline cells in excessive heat.



Amorphous Panels

Amorphous solar cells are of a non crystalline structure and are purple in colour. They are flexible and their wiring gives them better performance in shaded conditions. To achieve the desired output the panel has to be much larger than monocrystalline or polycrystalline panels.

Polycrystalline Panels

Polycrystalline solar cells are a blue colour, with the individual crystals being visible from multiple angles. The cells are cut to a square shape which gives the best power production for a given panel size. Aiming is not critical as the cells are picking up the light from many different angles.

What are solar cells?

Solar cells are the building blocks of solar panels. They are solid state semiconductor devices that convert light directly into electricity. They are usually made of silicon with traces of other elements and are first cousins to transistors, LED's and other electronic devices.

How do they work?

A solar cell consists of layers of semiconductor materials with different electronic properties. In a typical polycrystalline cell the bulk of the material is silicon doped with a small quantity of boron to give it a positive or p-type character. A thin layer on the front of the cell is doped with phosphorous to give it a negative or n-type character. The interface between these two layers contains an electric field and is called a junction.

Light consists of particles called photons. When the light hits the solar cell, some of the photons are absorbed in the region of the junction, freeing electrons in the silicon crystal. If the photons have enough energy the electrons will be able to overcome the electric field at the

junction and are free to move through the silicon and into an external circuit. As they flow through the external circuit they give up their energy as useful work (turning motors, lighting lamps, etc) and return to the solar cell.

This solar cell (photovoltaic) process is completely solid state and self contained. There are no moving parts and no materials are consumed or emitted.



on Solar Cells



on Controller & Connections



100W Folding Panel in Padded Carry Bag



50W Solar Panel & Stand

Things to note about Solar:

- The solar panel is used to charge a 12 volt battery. *The battery runs the Accessories*
- A 50 watt panel provides approx 3.75 amps.
- They are not fragile, in fact modern panels have warranties of up to 20 years.
- They are designed to withstand severe weather conditions, from ice and snow to searing desert heat.
- They have no moving parts and produce power silently.
- They are inherently stand-alone systems that reliably operate unattended for long periods if correctly designed.
- They require no connection to an existing power source or fuel supply.
- They can be combined with other power sources to increase system reliability (hybrid systems).
- They consume no fossil fuels; their fuel is abundant and free!

SOLAR PANELS & ACCESSORIES

	PART NO.	DESCRIPTION	TYPE	POWER	SIZE	WEIGHT
A.	PIRMX30	A GRADE PANEL	POLY	30W	590x503mm	5.8kg
B.	PIRMX50	A GRADE PANEL	POLY	50W	835x537mm	7.6kg
C.	PIRSX80	SOLAR PANEL	POLY	80W	1461x502mm	-
D.	PIR60FLD	FOLDING PANEL	POLY	60W	590x503mm(f)	11.4kg
D.	PIR100FLD	FOLDING PANEL	POLY	100W	835x537mm(f)	15.6kg
D.	PIRMX75	SOLAR PANEL	MONO	75W	1109x530mm	-
D.	ESH60	SOLAR PANEL	MONO	60W	1000x500mm	7kg

Kits including cable, stand and carry bag are also available.