

INSTRUCTION MANUAL



MASANGO SOLAR

60W Thin Film Portable Solar Panel

Foldable, thin film solar panel consisting of twelve 5W thin film solar modules stitched into a PVC coated canvas terminated with a 1.4m two-core cable.

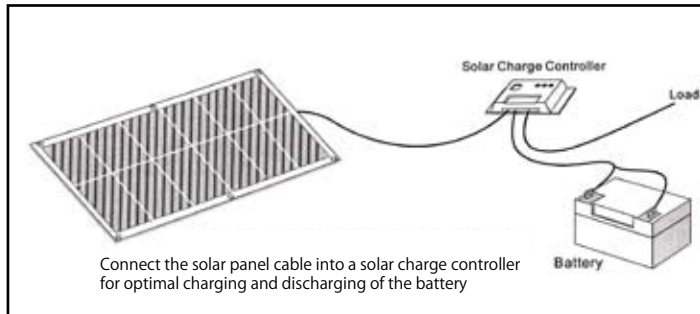
SPECIFICATIONS:

ELECTRICAL CHARACTERISTICS	SYMBOL	VALUE	UNIT
Maximum Power P_{max}	P_{max}	60	Watt
Voltage at maximum power	V_{mp}	17	Volt
Current at maximum power	I_{mp}	3.6	Ampere
Open Circuit Voltage	V_{oc}	24	Volt
Short Circuit Current	I_{sc}	4.8	Ampere

The most effective way to use your portable 60W thin film panel is in conjunction with a solar charge controller to recharge one or more 12V deep-cycle lead acid batteries. Two or more 60W panels can be connected together in parallel to generate 120W or more.

NB: IT IS NOT NECESSARY FOR THE COMPONENTS IN THIS STAND ALONE SYSTEM TO BE GROUNDED.

INSTALLATION:



THE PANEL: • Before unfolding the panel make sure the positive and negative wires of the attached cable are not touching.

- The blue/black wire is negative and the red is positive.
- Fit the positive and negative wires of the panel cable into the positive and negative ports, under the panel indicator, on the charge controller.
- To extend the panel cable use 6mm² conductor cable for extensions of 9, 15 or 20 metres. For extensions of up to 8 metres 4mm² rip cord is sufficient. Use BMC connectors/Anderson connectors to connect the extension to the panel cable.
- When using the panel it can be placed flat on the ground but ideally it should be hung at a 40 degree angle facing north. Make sure no part of the panel is in the shade.

INSTALLATION CONTINUED:

SOLAR CHARGE CONTROLLER:

- Read the operating manual before operating the solar charge controller.
- A 5A controller is sufficient for one 60W panel. When connecting two panels together in parallel make use of at least a 10A controller.
- The controller can be mounted permanently inside your vehicle, trailer or caravan near your battery.
- Connect the controller to the battery using a length of 4mm² rip cord terminated in crocodile clips or rings.
- Cabling from the solar panel, battery and load (eg. fridge) can all be connected into the controller which allows the controller to regulate the entire process of charging and discharging the battery. The controller provides the most efficient way of charging and discharging your battery. However, if preferred the load can be connected directly onto the battery.

THE LOAD

- Ideally the wires of the load cable should be fitted into the positive and negative ports under the load indicator on the charge controller. The benefit is that the controller will monitor the charging and discharging of the battery and will not allow the battery to be overcharged or overdischarged.

ALTERNATIVE INSTALLATION:

One 60W panel can be connected directly to a 12V camping fridge/freezer. Connect the positive wire from the solar panel to the positive wire from the fridge and the same with the negative wires from the panel and fridge. The 60W panel will effectively keep your fridge running as long as there is sunlight. If the fridge is placed on the freeze setting during the day the internal temperature will still be sufficiently cold by the following morning (significantly high ambient temperatures at night need to be taken into consideration). Once the sun is up re-connect the panel to the fridge and it will resume running the fridge.

CARE INSTRUCTIONS:

Wipe the solar modules gently with a damp cloth to remove sand and dust. Do not immerse panel in water.

WARNING THIS PRODUCT IS A LIVE POWER SOURCE:

Avoid short circuits. Sparks can develop especially in direct current systems during installation and operation. Do not install the solar system components in rooms where flammable gas mixtures can develop (eg. near gas bottles, lacquers, solvents). Consult your dealer when in doubt.

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