

THE SOLAR TRADER - FLEXI SERIES

Instruction manual

Flexible triple-junction solar battery chargers,
available in 5W, 10W and 32W



The Solar Trader's Flexi panel's are made with Uni-Solar's unique triple junction spectrum-splitting thin film amorphous silicon solar cells. These provide exceptional battery charging performance in both overcast and hot conditions.

Flexi panels have a long life, are virtually unbreakable and are highly reliable. Each panel comes fitted with a blocking diode and 3m cable in a potted junction box. Bypass diodes are connected across each cell, so, unlike many solar panels, the modules continue to produce power even when partially shaded. The cells are sealed in Tefzel, a Teflon-like product that is flexible, weatherproof and durable.

With no glass and no frame, Flexi-panels are lightweight and easy to transport.

Flexible triple-junction solar battery chargers in three popular sizes, to deliver the versatility you need with the power you demand:

5W Flexi panel - Ideal for 12V battery maintenance charging.

10W Flexi panel - A great power source for weekend camping, caravanning and boating. Extends your battery life.

32W Flexi panel - The panel of choice for extended touring, cruising and mains-independent vacationing.



- Flexible
- Durable
- No glass
- Lightweight
- Shadow tolerant
- Maintenance-free
- Waterproof and floats
- Seawater resistant
- Vandal resistant
- **All of which means more power into your battery!**

ELECTRICAL SAFETY

Caution! These instructions will require you to connect a photovoltaic solar panel to a battery source. Observe polarities when connecting solar panels and batteries. Photovoltaic panels produce electricity when exposed to light, so keep them covered when installing them. Battery charging can produce flammable gasses and vapours. Ensure that the area is well ventilated. Do not allow water to come into contact with wire connections, charge regulator or battery. Do not short-circuit either the panel or the battery. The voltage from a single panel is not hazardous, but where several panels are linked, there is a potential shock hazard.

Fitting instructions

Mounting

WARNING: Although the panels are flexible they cannot be rolled up and they must not be curved around a diameter less than 45cm.

Flexi-panels can be mounted on curved surfaces such as hatch covers, decks and vehicle roofs, or tied down on sail covers, dingies, and canvas awnings. They should be positioned where they can receive as much sunlight as possible. For the best performance in the UK this is south-facing at an angle of around 45 degrees. The more sun they receive the more power they will give you!

Flexi-panels can be mounted permanently or temporarily using the grommets at each corner. They can also be glued to a clean, smooth surface using an adhesive such as Sikaflex.

Regulator

A regulator is not required for use with the 5W Flexi panel if the battery is larger than 30Ah. A regulator should be used with the 10W and 32W Flexi panels.

Wiring

WARNING: Reverse connection to the battery will be a fire hazard. It will also damage your modules. Observe polarity carefully, checking with a multimeter if in doubt.

When working on the solar panels it is good practice to keep them covered so they are not producing electricity.

There is approximately 3m of 2-core cable attached to the 10W panels and approximately 0.5m of 2-core cable attached to the 32W and 5W panels. The red core is the positive cable and the black is the negative.

If you are going through a charge controller, first connect the controller to the battery, following the controller's own instructions. You can then connect the panel cable to the charge controller. Connect the positive cable from the panel to the positive input on the charge controller, and the negative cable to the negative input.

If you are connecting directly to a 12V battery (not recommended for the 32W Flexi-panel) then you will need to fit crocodile clips or ring or spade terminals to the positive and negative cable strands.

Maintenance

The module requires very little maintenance. Dust, snow, leaves and anything else that could block the light, needs to be removed from the panel. It can occasionally be lightly cleaned using a mild solution of soap or clean water. Do not use any abrasive or solvents. Any punctures or pinholes on the surface of the module should be repaired using transparent silicone at once.

Warranty

The Solar Trader grants the original purchaser of the Flexi-panel a **12 month warranty** on the materials of the module and a **5-year warranty** on the power output of the module. The Solar Trader guarantees that the unit will produce at least 80% of the maximum power rating for 5 years after the original purchase. The Solar Trader warrants the module to be free from defects in materials and workmanship under normal conditions of use for 12 months after the original purchase. Proof of purchase is required for a warranty claim.



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Electrical Characteristics

Model number	06003FX01	06003FX02	06003FX03
Rated power	5W	10W	32W
Operating voltage (Vmp)	16.5V	16.5V	16.5V
Operating current (Imp)	0.33A	0.6A	1.94A
Open circuit voltage (Voc)	23.8V	23.8V	23.8V
Short circuit current (Isc)	0.4A	0.74A	2.4A
Max system voltage	30V	30V	50V
Series fuse	0.75A	1.5A	5A
Dimensions (mm)	542×248×15	538×426×15	1430×425×15

Electrical specifications ($\pm 10\%$) are based on measurements performed at Standard Test Conditions (STC) of 1000 W/m² irradiance, Air Mass 1.5 and Cell Temperature of 25°C.

During the initial 8-10 weeks of operation, the module has higher electrical output than rated output. The output power may be higher by 15 %, the operating voltage may be higher by 11 % and the operating current may be higher by 4 %.



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