

# User manual

## 1. DISCLAIMER

Sunshine Solar Ltd will not be responsible for any consequential loss, personal injury, or installation error.

## 2. INFORMATION

These Flexible panels are designed to withstand the harshest environments from -30 to +50 degrees. The top surface is made from ETFE, which is particularly resistant to damage, scratching and delamination. The surface has a special self healing property if light scratching occurs. The cell circuit is fully encapsulated in a watertight envelope and mounted on a powder coated aluminium sheet providing strength and heat dissipation without magnetic interference.

**This Flexible Solar Panel is NOT highly flexible.** They are designed to fit flush to a surface with a curve of no greater than 3 degrees or 3cm per 1m panel length.

Flexing and bending greater than this WILL cause micro cracks in the cell circuit resulting in premature failure. In these circumstances the warranty provided with this product will be void.

Customers should read and understand all safety precautions before installation, wiring and maintaining solar panels. When the solar panel is exposed to direct sunlight or other light it will generate a current, we suggest that the solar panel is installed by a person who has solar panel installation experience.

## 3. INSTALLATION SAFETY

Before installing, wiring, operating, or Maintaining PV modules, you should read and understand all safety precautions. Direct current (DC) is generated when the surface of the module is exposed to direct sunlight or other lights sources, and direct contact with the live parts of the module, such as terminals, may result in an electric shock whether connected to the module or not. We recommend that PV module installation is conducted by personnel with experience in PV system installation.

- Do not install a solar panel with damaged surface or damaged backsheet.
- Always handle the solar panel with care, and preferably with two people .
- Please do not artificially focus the light on the solar panel.
- Wear soft soled shoes if walking on the solar panel, but avoid where ever possible.
- Do not drop solar panel or allow objects to fall on the solar panel .
- Do not damage or scratch the front or backside surfaces of the solar panel .
- Do not scratch the cabling or bend with force .
- Do not install or handle solar panel when they are wet or during periods of high wind . When installing, take care to keep modules and in particular their electrical contacts, clean and dry before installation.
- Do not touch the terminal box or the ends of the output cables (connectors) with bare hands when in sunlight, regardless of whether the PV module is connected to or disconnected from the system .
- Do not attempt to increase solar panel output by concentrating light on its surface with mirrors.
- Do not expose the solar panel to corrosive liquid or gas.
- When mounting solar panel at a height adhere to all relevant safety regulations.
- Be sure to use components (cables, fuses, etc) with ratings greater than 25% of solar panel/s maximum current ratings.

### 3.1 ELECTRICAL INSTALLATION

Installation should be performed by experienced installers.

- Before connecting solar panel, Please keep the contacts clean and dry .
- Before mounting the solar panel test the output of the with a multi meter. (if test fails contact Sunshine Solar Ltd)
- When mounting the panel on a curved surface ensure the junction box is at the top or bottom of the curve (flat surface), do not mount the solar panel short side onto the curve, this may damage the junction box connections and void the warranty.
- Ensure the polarity of the solar panel is correctly wired to the solar charge controller (if this is not adhered to the warranty will be void).
- PV modules can be wired in series or in parallel. The number of Modules in series and in parallel shall be designed according to the system configuration.
- Every positive cable to the battery(ies) should have an adequate fuse.
- This fuse should be place between the battery and solar charge controller .

### 4. MAINTENANCE

A well set-up PV array requires a minimal maintenance, however performance and reliability can improve by adopting these simple tips.

The amount of electricity generated by a solar panel is proportional to the amount of light falling on it.

A solar panel with shaded cells will produce less energy and therefore it is important to keep modules clean.

- Do not clean the solar panel in conditions of wind, heavy rain or heavy snow.
- Use a soft cloth together with clean warm water when cleaning the solar panel.
- When cleaning do NOT step on the solar panel and do NOT spray the backside of the solar panel or the cables.
- Take care to avoid severe thermal shocks which might damage the solar panel. Clean the solar panel with water which has a similar temperature to solar panel being cleaned.
- Do not clean the solar panel using high pressurized water.

### 6. Warranty for Flexible solar panel

- Sunshine Solar Ltd guarantees that for twelve (12) months from the date of delivery, its Flexible solar panel shall be free from defects in materials and workmanship under normal, application, installation, use and service conditions. If the Flexible solar panel fail to conform to this warranty, then for a period ending twelve (12) months from date of delivery to the customer, Sunshine Solar Ltd will, at its option, either repair or replace the product, or refund the purchase price as paid by the Customer. The repair, replacement or refund remedy shall be the sole and exclusive remedy provided under the Limited Product Warranty and shall not extend beyond the twelve (12) months period.