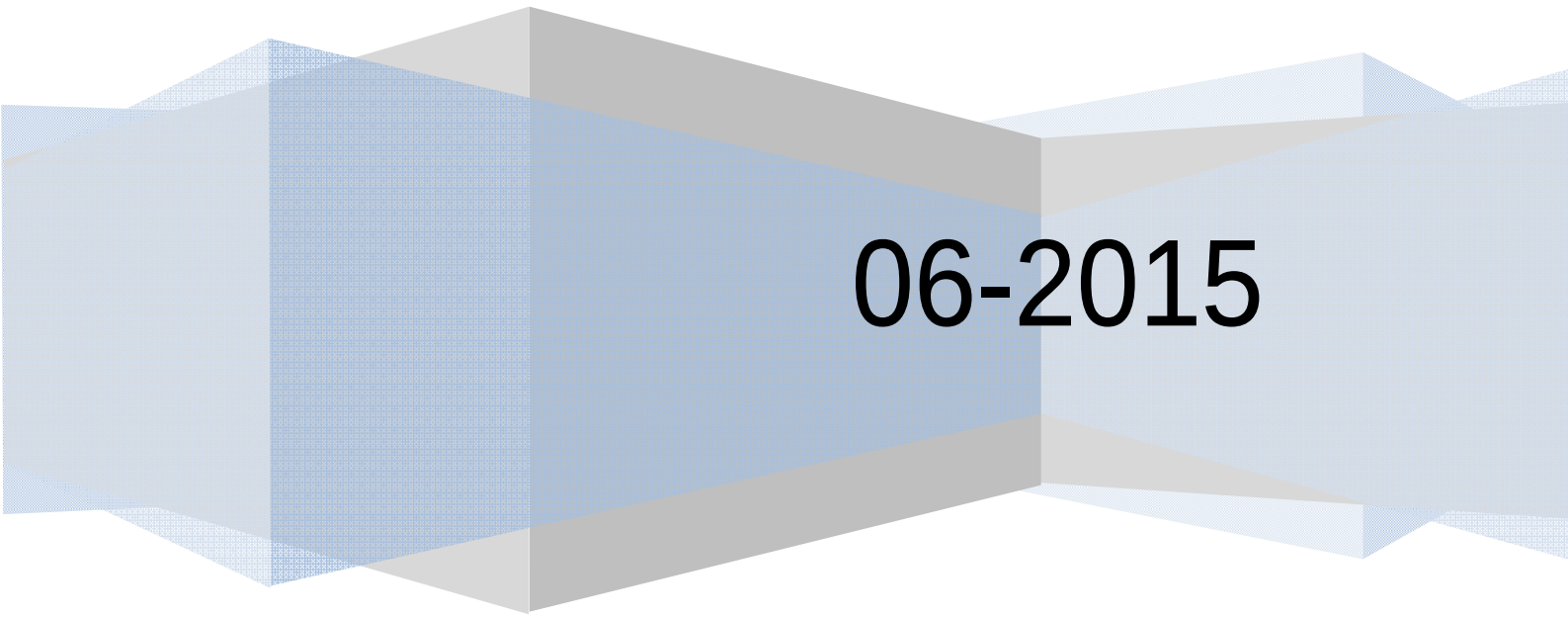
Astra Solar Limited

Solar Installation Guide

Solar Generator and Solar Lighting System



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Installation of the Astra Solar Generator

Procedure

First unpack the items from the packaging. Make sure that all the items are present and accounted for. Attach the panels to the racking supplied.

Positioning the Panels on the Roof

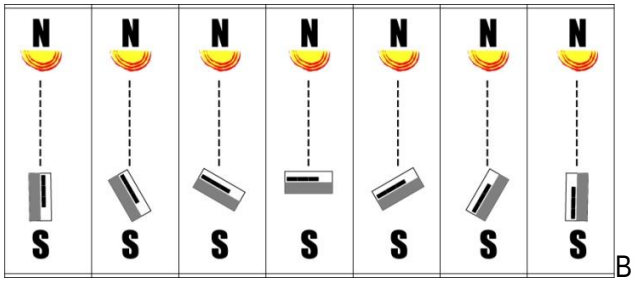
Next you will need access to the roof. Safely position the ladder so you can climb up. Get assistance to transport the solar panel and racks onto the roof.

Use the compass and/or the map on your smartphone to determine which way is North. Ideally the panels should be mounted on the section of the roof that has the most Northerly aspect. If the building is oriented in a North-West direction this does not matter. Use your compass or phone to check.

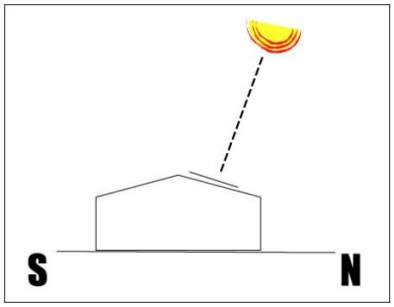
Examine the surrounding area. If there are any trees or object that cast a shadow on the roof make sure that the panels will not be shaded by it when installed. Bear in mind that shadows will move throughout the day and something that is not shaded in the morning may be completely shaded in the afternoon. Try to judge the area of the roof that will get the best exposure to direct sunlight throughout the day.

NB. It is better to have the panels on a South facing roof section with good sunlight then on a North facing section that receives shade.

How Panels Should be Located



Birds Eye View Showing Building Orientation



Side View

Attaching the Panels to the roof

Pick a section of the roof to drill holes and affix the racking. When drilling into a corrugated metal roof only drill holes at the apex of the corrugation and not in the valley. This will prevent rain water from flooding the holes.

Use the roofing screws to attach the racking to the roof. Use the silicon to seal the holes in the roof before the roofing screws are fully inserted.

Be sure to use the silicon seal to coat and fill all holes drilled for cables and roofing screws. This will prevent any water from entering the roof space.

Run the cable from the generator inside the building to the panel on the roof.

Turning on the Solar Generator

- Make sure the inverter and the power switch on the frame are both set to OFF.
- First turn the inverter on so the batteries provide power.
- Second turn the power switch on so panel is charging the batteries. It must be done in this order.

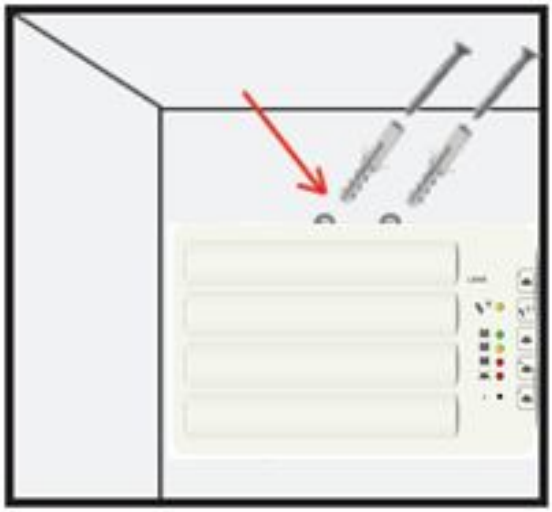
Installation of Lighting System

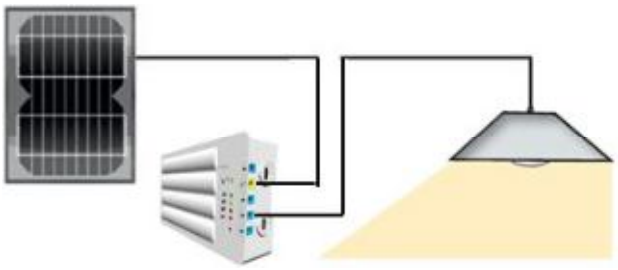
Place the Solar Module in direction to the sun for maximum performance. Avoid any shading of the module! The angle should be at least 15 degrees to ensure that the rain can wash dirt from the module. Make sure that the solar module is securely mounted to withstand heavy winds and storms.

Mount the Battery Box on the indoor wall only!

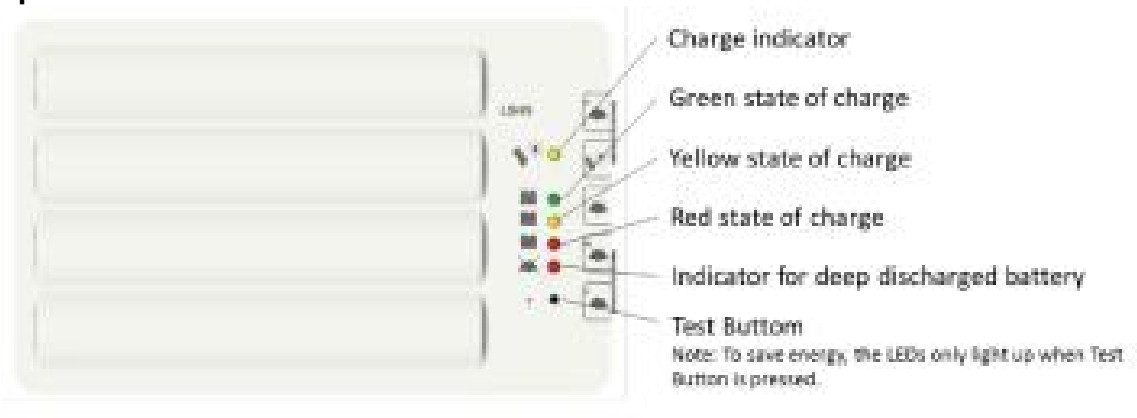
Place the lamp at your desired location and using a Hook Screw. Make sure the cable is not pulled too tightly. If you need to extend a cable please use a cable provided.

Connect the Solar Module to the Battery Case. Make sure the Solar Module is plugged into the appropriate yellow socket. Connect the cable of your chosen fosera lamp to the blue socket of the LSHS. As soon as the Battery Pack is connected to the Solar Module and the Test Button is pressed, the yellow light indicates that the systems battery is charging and well connected to the Solar Module.





Operation



During the daytime the yellow charging LED should be on. It indicates that the system is being charged and well connected to the module.
Check the status of the system by pressing the Test Button:
"Green State of Charge LED" indicates that the battery is full (81-100%).
The system can work at the highest capacity.
If the "Yellow State of Charge LED" is on, it indicates that the battery is moderately charged (21-80%).

If the "Red State of Charge LED" is on, it indicates that the battery is low
(0-20%). It needs to be connected to the solar module to charge the System
If the "Indicator for deep discharged battery" is on, the battery is completely empty; all appliances will be switched off automatically in this state (e.g. the lamp does not turn on). Connect to the solar module to charge the Battery.

USB ports:

The USB automatically turns on if system runs (panel connected, loads connected, Test Button pushed).
If the system is not in use, it automatically turns of after 24 hours. To start the system again, press "Test Button".

Error Indication

Over current protection:
If all red LEDs and one yellow LED start blinking after 32 seconds, too many “high consumption appliances” are connected to the system. The total consumption should not exceed 5A.
Solving the malfunction:
Disconnect one or more appliances from the system and press the “Test-Button”.
Short circuit protection:
If all LEDs blink every 2 seconds, a short circuit has happened.
Solving the malfunction:
Please disconnect all appliances and check the plugs.
After reconnecting appliances, the system can be used again, if the short circuit has been resolved.

Special Night Light Function

The outlet which is marked with “NL” has a night light function.
The night light function turns this port automatically on, once it gets dark outside and keeps the light connected to this port on all night or until the battery is empty.
At dawn the light will turn itself automatically off again.
Note:
This function needs to be ordered separately and is not automatically included. The output is permanent.