Congratulations you have purchased one of the most advanced solar/ battery monitoring systems in the world. This high quality power system will give you many hours of enjoyment and light. Please read the manual carefully to understand and get the maximum benefits from your system.

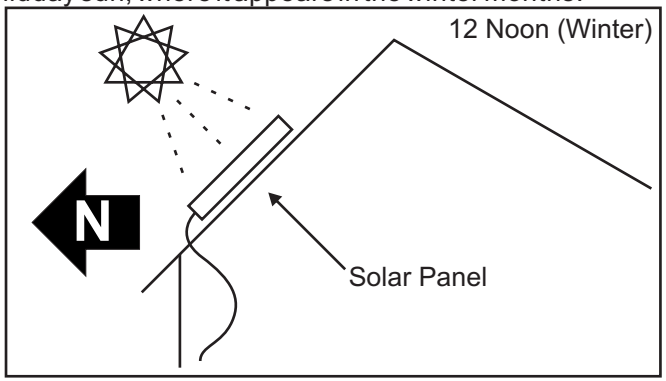
Contents of the box.

Inside you will find the following:

- 1x All-in-one Solar Charger Unit and battery box
- 2x Intelligent Dual Function LED Flood Lights
- 6x Wall Switches
- 6x Intelligent Dual Function LED Surfacemount Lights
- 1x Solar Lanterns
- 1x 100-120W Solar panel with mounting brackets

Installing the Solar Panel.

The Solar Panel should be placed facing the unobstructed midday sun, where it appears in the winter months.



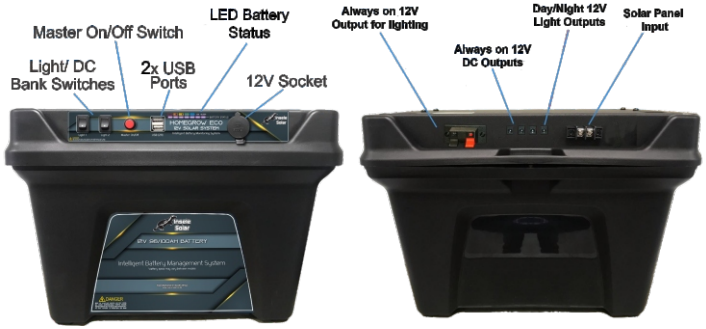
For optimal charging the sun light must not be blocked by any trees or other structures. The solar panel must be in full sun all the time with no shadows for the system to work at full capacity.
The Solar Panel is weather resistant and can be left outdoors permanently and only requires occasional cleaning.

Installing the Solar Charger Unit.

The All-in-one Solar Charger Unit and battery box should be placed in an easily accessible area where the cables from the Solar Panel and lights can be reached. The area should be cool, not in direct sunlight nor be exposed to water (rain, steam, damp etc.).

System Operation

The following diagrams illustrate all cable connection points, switches and mounting points.



Blue " " light flashing indicates that the battery is being charged.
Green " " light solid on indicates that the battery is fully charged.
Yellow " " light flashing indicates that the battery is three quarters charged.
Amber " " light flashing indicates that the battery is at half charge.
Red " " light flashing indicates that the battery is almost flat/ empty.

Note: It is normal for the system to fluctuate between different charge levels indication, due to fluctuations in the output power from the solar panel.

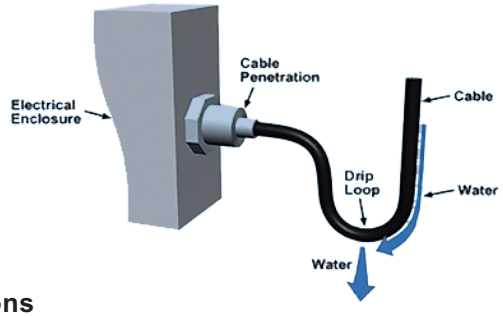
The first 2x DC light outputs are controlled by the switches on the front of the unit. These two outputs are for the outside lamps and are on a day/ night sensor, when the switches are on the lamps will automatically come on when the sun goes down (or no light detected by the solar panel) if the switches are off the lights will not come on at all regardless of the light levels. The second set of DC outputs are always on and can be used to power 12V devices such as routers, satellite decoders (STB's) and more. The always on red and black push connector 12V output can be used to power all additional lighting.

USB ports have a 2A max output (2x 1A or 1x 2A) and are compatible with most major cellphone and tablet brands that charge via a USB cable.

Output on the "car" 12V charger socket is 12V 5A 60W.

Cable Routing

Route the main cable from the Solar Panel to the Solar Charger Unit. Connect battery input from battery box to the Solar Charger Unit.
The various lights will be routed from the Solar Charger Unit to their required positions. The Floodlights will be routed to the DC light outputs on the back of the solar charger. Any other lights will be connected to the always on power connection with Wall mounted switches to control the lights.
Cables must have a drip loop before connecting to the unit to avoid condensation entering the unit along the cable. Other devices such as cell phones and tablets can be plugged directly into the unit for charging. Be careful not to break or bundle the cables as this can lead to power loss, connectivity loss or shorts causing a system failure.



Functions

- To turn **ON** the unit for the first time press and hold the Master power button for 3 seconds.
- To turn the unit and USB chargers on and off press the master power button once.
- **SLEEP MODE ONLY** at night (can't be enabled while charging), hold down the power button for 4 seconds to enter sleep mode
- **SLEEP MODE**, after 2 minutes the unit will turn off completely. To exit SLEEP MODE hold down the power button for 4 seconds.
- Intelligent Dual Function lights, switch on the light once for **FULL BRIGHTNESS**, flick the switch off and on again to enter DIM mode. Repeat the on and of flick of the Switch to return to **FULL BRIGHTNESS** again.

Warnings

- Do not allow any liquids to spill on the battery charger or battery box.
- Note that this unit contains no user serviceable parts and disassembly will void your warranty.
- Do not connect any 220V AC appliances to the charger (eg kettles, stove, iron, fridge)
- Do not connect any other power source to the input except for the solar panel (input DC ONLY!).
- 12VDC System ONLY, no other voltages allowed.
- Do not cut, join or extend the supplied cables.
- Keep the battery control unit and battery box away from direct heat eg stove, candles
- Do not use battery box outside where it is exposed to direct sunlight, wind or rain.

Testing and Troubleshooting

The system should work as follows:

- When the sun shines onto the solar panel and it is connected to the Solar Charger Unit the charge indicator on the LED display with flash blue.
- When the battery is fully charged and the panel is unplugged the USB ports and lamps will remain on (when the master switch in on).

Should you be experiencing any problems please follow the steps below:

- Check all connections to ensure that they are secure and free from debris.
- If the LEDs are not functioning, the system may have gone into battery protection mode and has shut down. Please wait for solar power to be available to recharge the system and restore full functionality.
- If all instructions are done as per this manual and the unit is still not functioning please contact your installer.

Maintaining the System

The system is low maintenance, however the following should be done to ensure the systems life:

- Clean the Solar Panel monthly to prevent dirt build up.
- Remove any structure or trees casting shade onto the Solar Panel.
- The batteries expected life span is 2-3 years, with proper care is can last longer. Should the battery stop functioning correctly please contact the unit supplier to find out how to get the battery replaced.
- Be aware that abuse of the system will shorten the battery life span.

FAQ

Q: Will the solar panel overcharge my battery?
A: No, the charge controller ensures that a steady charge is supplied to the battery and will not overcharge the battery.

Q: Can the battery be over discharged and damaged during normal use?
A: No, the charge controller monitors the battery and if it reaches the minimum allowable level it will disengage the battery to protect it from damage.

Q: How do I clean the solar panel?
A: Dust and dirt should first be swept of the panel surface using a soft brush then using a wet cloth to wipe the panel surface to remove the remaining dirt and grime.

Q: Is the solar panel kit waterproof?
A: Yes, the Solar panel is waterproof, but not the solar charger controller and battery box.

Q: If I go away on holiday should I unplug my system?
A: No, it is not necessary.

Installed by:

Name:_____

Tel: _____

Date: _____

Customer Name: _____

Location:_____

Insele Solar Charger

Homegrow Eco

Expandable Home Solar System
MPPT Intelligent Battery Management System

Manufactured in South Africa

Installation Instructions and Operations Manual