



LAWNPOWER SAFETY AND INSTALLATION MANUAL

Introduction:

Congratulations on your purchase of a SpinRay Energy LawnPower120. Your selection indicates a true appreciation of a healthy green planet, and a step in the right direction to energy independence.

Important:

For safety and to meet NEC codes, we recommend that you have the LawnPower120 supplemental solar appliance connected by a qualified electrician if you don't feel you have the necessary electrical experience. Regulations and policies for utility interconnection can vary by state. Internationally Certified Testing Laboratory (ICTL)

Installation:

For connecting the LawnPower120, we recommend using an AFCI receptacle/breaker with a continuous use cover. The 120-Volt receptacle should be attached to the (home) main electrical panel with a dedicated line via a 15 AMP fuse or breaker. Inverter and panel must be properly grounded.

The term “plug and play” as used by SpinRay Energy is meant to describe our DeckPower and LawnPower energy saving supplemental solar appliances/systems. These solar products are safe when installed as per our recommendations. For any questions contact SpinRay Energy at (401)647-3551

Micro Inverter Safety Instructions

The MG_i220 grid tied micro inverter is intended for use in photovoltaic (PV) systems. Incorrect installation may cause physical harm and/or damage interconnecting equipment. There are no serviceable parts inside the MG_i220 device. This manual contains instructions for the proper use/installation of the MG_i220 device. You can also refer to the website (www.Apparent.com) for additional information or contact the customer service department at (415) 892-3182 or customer.service@Apparent.com with any questions.

When interconnected to photovoltaic systems, dangerous voltages may be present. Properly disconnect the system from the photovoltaic system before performing any maintenance activity. At all times, follow all local, state, and national electrical and building codes. Only install the MG_i220 device after obtaining all building permits, if necessary.

Use wire rated at 90 degrees C or higher on the MG_i220 output terminals. Follow all NEC or Canadian Electrical Code Part 1 (CEC) codes, ANSI/NFPA 70 and local building requirements for attaching and running all electrical wires.

Circuits to be connected to a DC circuit are identified by the marking below, indicating that the circuit shall be DC:

Circuits intended to be connected to an AC circuit shall be identified by the marking below, indicating that the circuit shall be ac at the following operating frequency Hz:Min 59.3, Nom 60, Max 60.5:

Connect the AC equipment-ground wire to the PE terminal labeled on the MG_i220 mounting bracket.

WARNING: Limitation On Use- the MGi220 should not be used in connection with life support systems or other medical equipment or devices. Without limiting the generality of the foregoing, Apparent/SpinRay Energy makes no representations or warranties regarding the use of the MGi220 in connection with life support systems, or other medical equipment or devices.

WARNING: The AC output circuit shall not be bonded to the enclosure. The input and output circuits are isolated from the enclosure. The system grounding, required by CEC part 1, is the responsibility of the installer.

WARNING: This unit is not intended to be used with a battery.

PRODUCT DESCRIPTION

The MGi220 is a DC to AC Utility Interactive Grid Tied Micro inverter designed for connection between a photovoltaic (PV) panel and an AC load and the utility grid. The MGi220 extracts the maximum power from the PV panel and converts it to AC power. The MGi220 continuously monitors power coming from the solar panel as well as the voltage at its output terminals, making internal adjustments as necessary to maintain optimum power output to the load and grid.

The MGi220 can dynamically adjust the power factor of its AC output to meet the requirements of the load or grid. The output power factor of an MGi220 device can also be adjusted manually.

An Ethernet port on the MGi220 device allows a user to track real-time status of the device over the internet. The standard information relayed by the MGi220 device includes the input into the unit, the output of the unit, and the temperature of the unit.

INSTALLATION:

The MGi220 device is designed to be part of a power generating system. All solar panels will work with the MGi220 unit if the output power of the solar panel is between STC (standard test conditions) 100 to 240 watts, and the output voltage is between 18 to 42 volts DC. Specific wiring methods are required to ensure proper functioning of the MGi220 and for maximum power extraction. Further installation instructions can be downloaded at www.Apparent.com.

Working with the MGi220 Device:

The MGi220 is designed for installation and electrical connection on a single 18V-42V DC Module. The MGi220 is designed for installation indoor or outdoor and has a rated NEMA6 rainproof wet location enclosure rating. The MGi220 is designed to operate with a 120V single-phase utility connection.

WARNING: Disconnect all AC sources prior to any wiring.

WARNING: Exposure to sunlight may energize. To prevent the production of electric current while working on the installation, make sure all solar modules are covered with an opaque material before conducting any wiring connections.

Ground the system:

Micro inverter/solar panel grounding:

First thing you will have to do is go to your local home improvement store (home depot, lowes etc.) and purchase a 5/8" diameter ground rod, the clamp/nut, a 14 AWG length of wire to go from the inverter to the ground rod.

Drive/pound the ground rod into the ground all the way. Attach the wire to the center lug on the inverter (as shown in photo to the right). Run the wire to the ground rod and attach it using the purchased clamp/nut.

Once all connections have been made and verified the system may be energized to check functionality. Important: After verifying system functions, turn off the system until inspections and approval from the city/county and utility provider have been obtained, if necessary.



WARNING if not properly grounded there will be a risk of electrical shock from lightning and other unforeseen hazards.

LawnPower Assembly



Photo 1

The above (photo 1) is what your SpinRay DeckPower or LawnPower Supplemental Energy Saving Solar Appliance should look like when it gets delivered.

After you receive the LawnPower system follow these assembly instructions:

1. First, cut the plastic bands holding the shipping container together as in photo 2.

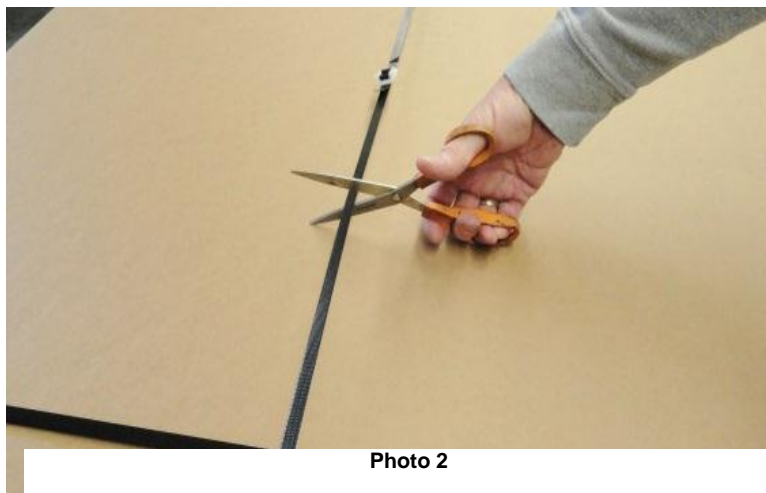


Photo 2

2. Remove the container cover (top) leaving the system in the bottom container (photo 3).



Photo 3

3. Take an inventory on the following parts that should be in the container.
1 Panel, 1 Micro Inverter (attached to panel), (2) Lawn legs, (2) Angle brackets, Output cord (photo 4).



Photo 4

4. Mount the Lawn legs. Unscrew the screws (2 on each corner) that lawn legs will be mounted (photo 5).

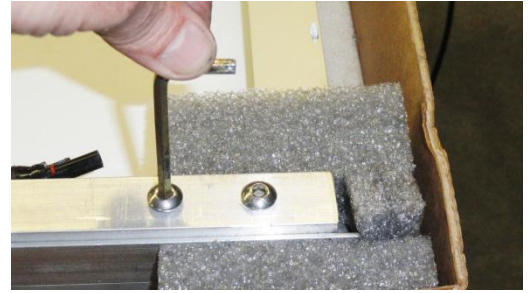


Photo 5

4. Place the lawn leg over the threaded holes and screw them in, repeat on other corner as per the photos to the right (photo 6).



Photo 6

5. Remove the angle brackets and remove the installed screws in them (photo 7).



Photo 7

6. Screw both angle brackets onto the LawnPower bracket (photo 8).

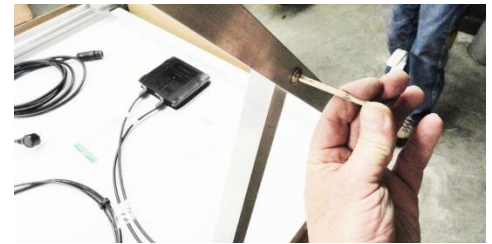


Photo 8

7. Now the system should look like the photo 9 to the right.



Photo 9

8. Find the MC4 connectors as shown to the right, both a positive (+) and a negative (-) lead are supplied coming off the solar panel and micro inverter (photo 10).



Photo 10

9. Connect the positive lead from the panel to the positive lead on the inverter. Do the same for the negative lead (photo 11).



Photo 11

10. Here are the input (left) plug attached to the plug and the micro inverter output (right) plug (photo 12).



Photo 12

11. Now plug in the input plug to the inverter output plug. Turn them in opposite directions until you feel them click together. Push then tight and then turn the locking nut on the micro inverter output plug until it locks. Try pulling them apart, if they do not come apart you are successful (photo 13).



Photo 13

12. The panel should be ready to place on your lawn and run.

13. Now remove the system from the bottom of the shipping container.

14. You will need to purchase 4 tent pegs to secure the lawnpower system to the ground (photo 14).



Photo 14

15. Below are 2 photos on how and where to put the pegs. In photo 15 you will insert the peg in the lawn leg and either use a rubber hammer or use a piece of wood to drive the peg all the way into the ground. In photo 16 insert the pegs as in the previous way. If it does not look like the below photos review the previous steps.



Photo 15

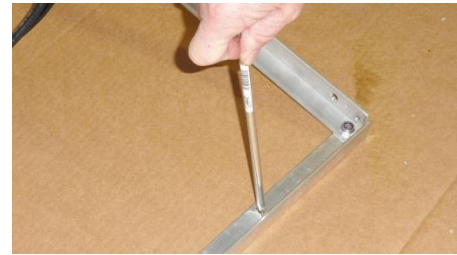


Photo 16

16. Once the panel is mounted you can now plug your system into the recommended continuous use electrical box (photo 16). Make sure all warnings and recommendations have been followed to ensure years of safe green electricity.



Photo 16

LawnPower120 Specifications:

240 Watt Mono Solar Photovoltaic Panel:

- Peak Power: (+or – 3%) 240W
- Rated Voltage: 30.3V
- Rated Current: 7.92A
- Open Circuit Voltage: 37.6V
- Short Circuit Current: 8.55A
- Max Series Fuse Rating: 15A
- Module Efficiency: 14.69%
- Number of Cells: 60
- Weight: 43.3 lbs.
- Operating Temperature: -40 degrees C to +85 degrees C
- Certifications: TUV, ICTL, ISO, CE



Micro Inverter Specifications:

- Max Power 220 watts AC
- Power Tolerance + - 3%
- Power Source DC Solar Voltaic Panel
- Startup Time Initial Power ON 300 Seconds
- Overload Current Protection Current Limiting
- Power Extraction Method Proprietary PTT
- Efficiency 91%

DC INPUT

- Maximum PV Open Current V 42 VDC
- Minimum PV Operational V 18 VDC
- Maximum Solar Panel Wattage 240 W
- Reverse Polarity Protection Yes
- Rated Input Current 8 A
- Max. Input Short Circuit Current 10 A DC
- Overcurrent Protection Yes

AC OUTPUT

- AC Output Voltage 108 – 132 VAC 60 Hz
- AC Output Rated Current 1.5 A
- AC Output Maximum Current 1.75 A
- AC Output Continuous Real Power 190 Watts
- AC Output Maximum Fault Current 6.3 A
- AC Overcurrent Protection Yes



LawnPower120 Warranty:

(SR240M) 240 Watt Mono Solar Photovoltaic Panel:

5-Year limited warranty on material and workmanship

12-Year at 90% and 25-Year at 80% limited warranty on minimum power output

120-Volt 60Hz AC Micro-Inverter:

15-Year limited warranty

Returns:

All returns have to be repackaged in their original shipping container.
DON'T DISCARD THE SHIPPING CONTAINER.

There is a 2 week (14 day) period at which you have to return the system.