



POINT ZERO
energy

User Manual

HomeGrid™ 5000 HD



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www.pointzeroenergy.com/learn/videos/

HomeGrid™ 5000 HD Solar Generator

Congratulations on purchasing Point Zero Energy's HomeGrid™ solar generator! With minimal care and proper treatment this generator will provide years of reliable service. Carefully read, understand, and comply with all instructions before use. Keep this manual for future reference.

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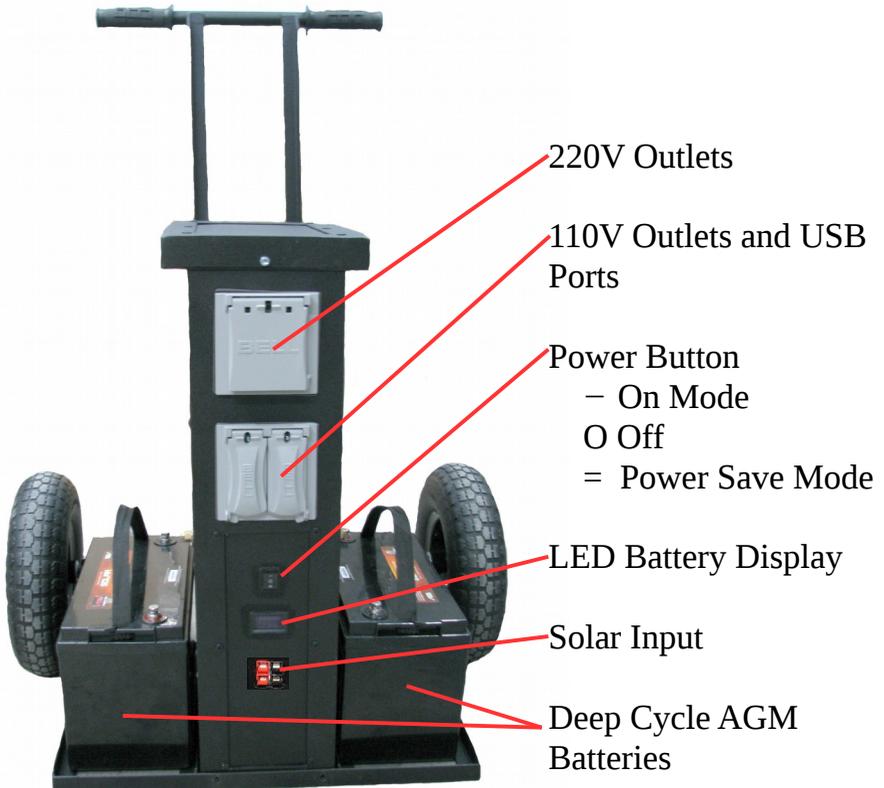
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1. GENERAL INFORMATION

1.1 About this generator

This HomeGrid™ 5000HD solar generator converts 24 volts, direct current (24VDC) to 110 and 220 volts alternating household current. Its superior surge capability allows the HomeGrid™ solar generator to easily power multiple home appliances simultaneously including refrigerators, freezers, microwave ovens, and cooking appliances. Its pure sine wave power output will safely run power tools, electronics, and medical equipment such as CPAP machines.

1.2 Controls, Indicators, Connections



1.3 Technical Specifications

HomeGrid™ 5000 HD

Weight	125 lbs (not including batteries)
Dimensions	46x20x16
Generator	
Input Voltage	24V DC
Output Voltage	110V AC Pure sine wave 220 V AC Pure sine wave
Continuous Power Output	5,000 watts
Peak Power Output	20,000 watts
Outlets	(4) 110V, (1) 220V
USB	2
Battery	
Cell type	24V Deep Cycle AGM
Capacity	1,800 watt-hours (standard) 3,700 watt-hours (extreme upgrade) 7,400 watt-hours (ultimate upgrade)
Life	3-6 years (standard) 8-10 years (extreme and ultimate upgrades)
Warranty	1 year limited

2. CHARGING YOUR HOMEGRID™ SOLAR GENERATOR

Before using or storing, make sure your HomeGrid™ solar generator is fully charged. This can be done in one of two ways: charging from the sun, or charging from the wall.

For optimal results, keep your HomeGrid™ solar generator plugged into any wall outlet using the included AC Battery Charger/Maintainer when not in use.

LED Battery Display:

The LED Battery Display indicates the charge level of your HomeGrid™ solar generator.

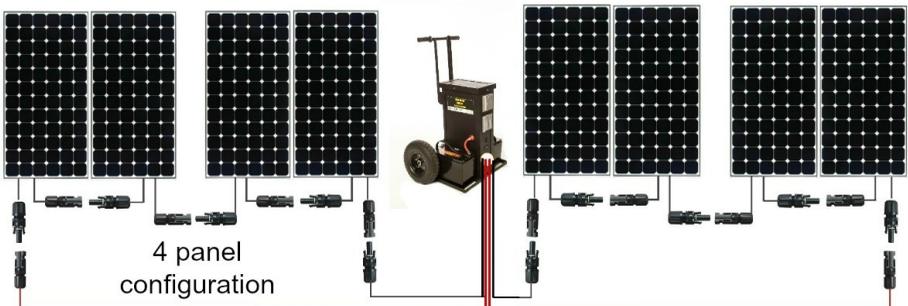
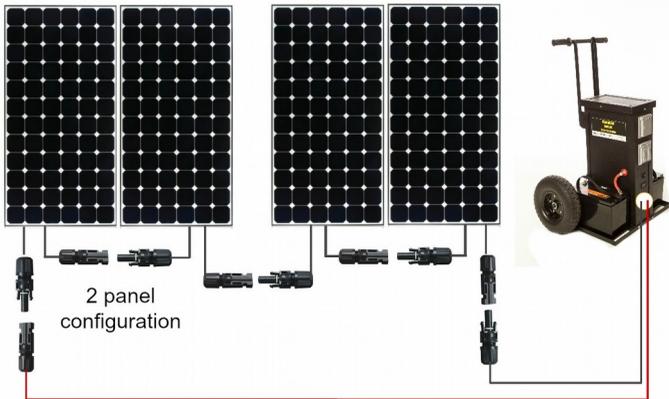
There are 4 colored segments to the LED display. As you use your HomeGrid™ solar generator, the colored segments will disappear from the display, indicating the remaining charge in the batteries.

- **Blue:** Fully charged. This color shows for a brief moment when the batteries are fully charged.
- **Green:** Indicates the batteries state of charge- green bars will disappear as the batteries are drained. When all green bars have disappeared, this means the batteries are half empty and should be charged immediately. Keeping your batteries always in the green will help stay healthy and last longer.
- **Orange:** When all orange bars have disappeared this indicates the batteries are less than 25% charge and is critical that they be charged immediately.
- **Red:** This indicates your batteries have been drained and are at a critically low level. Charge immediately.

Once your HomeGrid™ solar generator is fully charged, all colored segments will be lit, indicating a full charge.

2.1 Charging from Solar

1. Place your solar panels where they will get as much direct sunlight as possible.
2. Connect solar panels to the generator using the following diagrams.



(Charging from Solar Continued...)

3. Charge batteries until all colored segments are lit and leave charging for an additional 2 hours to ensure a full charge. The solar panels come with a charge controller which regulates the charging of batteries so there is no need to worry about over-charging the batteries.

2.2 Charging from the wall

1. Using the included AC Battery Charger/Maintainer, plug the AC Battery Charger/Maintainer into any wall outlet.
2. Connect the AC Battery Charger/Maintainer's battery clips to each terminal on the generator (NOT ON INDIVIDUAL BATTERIES). Connect these black to black, red to red.
3. The AC Battery Charger/Maintainer will automatically detect battery type and state of charge and will automatically start charging the battery.
4. The AC Battery Charger/Maintainer will indicate when the batteries are fully charged.

*** It's best to leave your HomeGrid™ solar generator plugged into the AC Battery Charger/Maintainer during storage.**

3. OPERATING INSTRUCTIONS

3.1 General instructions

- For optimal performance, when using your HomeGrid™ solar generator keep the generator in a cool, dry environment. Although the solar panels need to be kept in direct sunlight, keeping the generator core away from any direct heat source, including direct sunlight, will keep the generator from over-heating and shutting off. Also, keep away from any combustible materials or gases.
- Keep well ventilated- the generator core generates heat.
- This inverter will only operate from a 24- Volt DC power source.
- Incorrect battery polarity will damage the inverter and void the warranty.
- Do not open the HomeGrid™ solar generator; there are no user serviceable parts inside.

3.2 What can I power?

Due to its superior surge capability the HomeGrid™ solar generator can easily power multiple home appliances simultaneously including refrigerators, freezers, microwave ovens, and cooking appliances. Its pure sine wave power output will safely run power tools, electronics, and medical equipment such as CPAP machines.

The amount of power it can run, however, will vary depending on the appliance.

When deciding on what appliances to power with your HomeGrid™ solar generator, you will need to calculate the continuous and peak loads of each appliance you want to run simultaneously to determine if the total amount of watts is within the capacity of the generator.

3.3 Determining maximum appliance wattage

When a motorized appliance motor starts, it requires an initial surge of power. This surge of power is called the "starting load" or "peak load". Once started, the appliance requires less power to continue to operate. This is known as the "continuous load".

Appliance power is rated in watts. This information is usually stamped or printed on most appliances and equipment. In some cases, a tool will be rated in amperes. To convert from amps to watts, multiply: $AMPS \times 115 \text{ (AC voltage)} = WATTS$. This formula yields an approximation of the continuous wattage load of the appliance. The start up load of an appliance is a major factor of whether this generator can power it. Start-up load is momentary. With many devices, it is approximately twice the continuous load. However, with some devices start-up load can be as high as eight times the continuous load. To determine if an appliance or tool will operate with this generator, run a test. The HomeGrid™ solar generator is designed to automatically shut down in the event of an output overload.

Below are estimated run times for each HomeGrid™ 3000 and 5000HD solar generator with their various upgrade sizes.

***Run times will vary depending on amount and sizes of batteries and solar panels.**

Appliance	HomeGrid™ 3000			HomeGrid™ 5000HD		
	Standard	Extreme	Ultimate	Standard	Extreme	Ultimate
Lights (10 watt led)	30 Hours	150 Hours	185 Hours	36 Hours	148 Hours	296 Hours
Lights (60 watt led)	8.6 Hours	42.9 Hours	52.9 Hours	12 Hours	49.3 Hours	98.7 Hours
Electric blanket	5.5 Hours	27.3 Hours	33.6 Hours	7.8 Hours	32.2 Hours	64.3 Hours
20 cf Refrigerator/Freezer	9.2 Hours	46.2 Hours	56.9 Hours	12.9 Hours	52.9 Hours	105.7 Hours
15 cu. ft. chest freezer	10.9 Hours	54.5 Hours	67.3 Hours	15 Hours	61.7 Hours	123.3 Hours
Dishwasher	0.5 Hours	2.5 Hours	3.1 Hours	0.7 Hours	3 Hours	6.1 Hours
Washing machine	1 Hours	4.9 Hours	6.1 Hours	1.5 Hours	6 Hours	12 Hours
Heat water(65°F to 105°F)	6 Gal	30 Gal	38 Gal	9 Gal	38 Gal	76 Gal
Well pump 1/2 hp	400 Gal	2000 Gal	2500 Gal	600 Gal	2500 Gal	5000 Gal
Computer and monitor	2.9 Hours	14.3 Hours	17.6 Hours	4.2 Hours	17.2 Hours	34.4 Hours
Furnace fan motor	6.3 Hours	31.6 Hours	38.9 Hours	9 Hours	37 Hours	74 Hours
Range	NA	NA	NA	0.2 Hours	0.9 Hours	1.8 Hours
cooktop stove	0.5 Hours	2.5 Hours	3.1 Hours	0.7 Hours	3 Hours	6.1 Hours
Crock Pot	2.9 Hours	14.3 Hours	17.6 Hours	4.2 Hours	17.2 Hours	34.4 Hours
Microwave	0.4 Hours	2 Hours	2.5 Hours	0.6 Hours	2.4 Hours	4.9 Hours
Wheat grinder	3.8 Hours	18.8 Hours	23.1 Hours	5.5 Hours	22.4 Hours	44.8 Hours
CPAP	17.6 Hours	88.2 Hours	108.8 Hours	23.1 Hours	94.9 Hours	189.7 Hours
Time to charge if fully drained	6 Hours	15 Hours	9.3 Hours	4.5 Hours	9.3 Hours	9.3 Hours

3.4 How to Use

1. Place your solar panels where they will get as much direct sunlight as possible.*
2. Connect the solar panels to the generator using the red and black connection wires. See diagram in section **2.1 Charging from Solar**.
3. Turn power switch on by flipping switch to the “up” position.
4. The generator is now on and ready to use.
5. Plug your 110V or 220V appliances into the generator outlets for use.**

For instructions on how to set up your HomeGrid 5000 HD for home backup using the 220V outlet please see our instruction video at <http://pointzeroenergy.com/learn/videos/>

*The HomeGrid solar generators can be used without solar panels connected. However, connecting the solar panels and using with sunlight will increase your run time. If you do not wish to charge with solar while using you can skip to step 3.

**Because there is no standard 220V outlet your appliance may not be compatible with the generator outlet. If this is the case, you need to change your cord on your appliance with one that is compatible. Visit <http://pointzeroenergy.com/learn/videos/> for more information on this.

Power-Save Mode:

If you're planning on running an appliance that cycles on and off, like a refrigerator or freezer, you can save power by using the Power-Save Mode, with the power switch flipped in the “down” position.

3.5 Storage and Maintenance

Having your HomeGrid™ solar generator connected to a power source, like a solar panel or trickle charger, while in storage keeps the battery in good condition and topped off. This will not only prolong the life of the batteries, but will ensure that your HomeGrid™ solar generator is charged and ready to go at any time. If you can't keep your HomeGrid™ solar generator plugged into a power source during storage, fully-charge your generator every 6 months and store it in a cool, dry place. Failure to maintain your HomeGrid™ solar generator by following these steps can result in battery damage which will void the product warranty.

4. TROUBLESHOOTING

If there is no power to outlets, or appliances are not running properly, follow these steps:

1. Make sure the POWER button is turned on (in the “up” position).
2. Check the LED Battery Display. If there are no green bars displaying, turn off your HomeGrid™ solar generator and charge the batteries.
3. Reset the HomeGrid™ solar generator by following these steps:
 - a. Turn the HomeGrid™ solar generator off by flipping power switch to middle position.
 - b. Wait 5 seconds then turn on by flipping switch to the “up” position.
4. Make sure the HomeGrid™ solar generator is not in direct sunlight. This may over-heat the generator core and cause it to shut down. This can be remedied by moving the generator into the shade or indoors and allowing it to cool for at least 1 hour. Reset the HomeGrid™ solar generator by following the steps in Reset the HomeGrid™ solar generator, #3.

If you are still experiencing trouble with your HomeGrid™ solar generator, please contact us at support@pointzeroenergy.com

5. FAQ'S

What type of batteries come with my HomeGrid™ solar generator?

The HomeGrid™ solar generator comes stock with two 12V Deep Cycle AGM batteries. However, these can be customized to the buyers preference. Sizes, types and prices will vary.

Can I replace the batteries in my HomeGrid™ solar generator?

Yes. As long as you purchase batteries that fit the correct dimensions of the HomeGrid™ solar generator's battery rack, you can replace your stock batteries with any two 12V Deep Cycle batteries. When replacing batteries it's best to replace both batteries at the same time, and with the same type of battery to get the maximum life of your battery bank.

How do I know if my HomeGrid™ solar generator is charged?

All green bars will be displaying in the LED Battery Display.

How often do I have to charge my HomeGrid™ solar generator?

It's best to charge your solar generator once every three months. You can do this by charging from any electrical outlet (see section 2.2 Charging from the Wall) or using solar (see section 2.1 Charging from Solar).

How do I know if my appliance will work with the HomeGrid™ solar generator?

When figuring what appliances can be powered with your HomeGrid™ solar generator you will need to calculate how much the continuous loads are of each appliance you want to run *simultaneously* to determine if the total amount of watts is within the capacity of the generator.

You can find the wattage of the appliance by looking at the manufacturer's information (this information is usually stamped or printed on most appliances and equipment) or using a Kill A Watt meter to measure it's wattage. Add all wattages of appliances to be run to determine if the total amount of watts is within the maximum continuous and surge watts of the HomeGrid™ solar generator.

(FAQ continued)

Can I have my solar panels connected while using my HomeGrid™ solar generator?

Yes. In fact we recommend you use your generator in this way so that the solar panels can be recharging your batteries while in use.

Can I add more batteries and solar panels to my HomeGrid™ solar generator?

Yes. Due to the large watt capacity of the HomeGrid™ solar generator there are many options to increase the battery and solar panel capacity of your system. In fact, if you add enough batteries and solar panels you can have a fully functional off-grid system.

Can I run my refrigerator AND freezer during power outages?

Yes. However, the length of time these can be powered simultaneously will vary depending on the efficiency of your appliances and the capacity of your batteries and solar panels.

6. WARRANTY

ONE-YEAR LIMITED WARRANTY

This HomeGrid™ solar generator is warranted to the original purchaser only to be free from defects in workmanship and material under normal consumer use during the applicable warranty period (see WARRANTY PERIOD) and subject to exclusions set forth in paragraph 4.

Warranties for other Point Zero Energy products may vary.

WARRANTY PERIOD

The HomeGrid™ solar generator, with all included components, whether stock, upgraded, or custom built, are covered by the LIMITED ONE-YEAR WARRANTY. This limited warranty is valid for one year from the **original purchase date**; meaning this warranty is **NOT** transferable and is **only valid for the original consumer**. The sales receipt from the original consumer purchase, or other reasonable documentary proof, is required in order to establish the start date of the warranty period.

WHAT IS COVERED

Components that are covered under the LIMITED ONE YEAR WARRANTY include, but are not limited to:

HomeGrid™ solar generator:

This includes inverter, steel frame, internal electronics, and any attachments including tires and handles.

Solar Panels:

All solar panels are additionally covered under the specific solar panel manufacturer's 25 year warranty.

Battery or Battery Bank:

Any batteries or battery bank which are included in the HomeGrid™ solar generator or any HomeGrid™ system.

EXCLUSIONS

This warranty does not apply to damage from misuse, alterations, abuse, normal wear and tear, lack of maintenance, accidents, or repairs made or attempted by anyone other than an authorized service technician. This warranty does not cover repair if:

- Normal use has exhausted the useful life of the generator and wear and tear items (including batteries, control panels including digital displays, tires, outlet plugs, switches, and extension cords if applicable).
- The customer fails to install, maintain, and operate the product in accordance with the instructions and recommendations of the company set forth in the HomeGrid™ solar generator operator's manual.
- Damage occurs due to freezing, heat exposure, water exposure, rust, corrosion, thermal expansion, fire, dropping, or improper use.

This warranty does not cover freight or labor charges associated with the inspection and testing of generators.

HOW TO RECEIVE SERVICE

To obtain warranty service, you must contact us at 208-530-2393 or returns@pointzeroenergy.com prior to returning any product to receive an RMA form.

UNAUTHORIZED RETURNS WILL NOT BE ACCEPTED AND WILL BE REFUSED. CUSTOMER IS RESPONSIBLE FOR ALL SHIPPING COSTS ON UNAUTHORIZED RETURNS.

Buyer is responsible for any initial shipping charges required to ship the product for warranty service. Point Zero Energy will pay the return shipping charges if the product is repaired or replaced under warranty.