



OWNER'S MANUAL
PWRIG 2000, 3000 & 5000

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❖ Specifications (2000W / 3000W-DC12V, 24V 120V AC)

NO.	PARAMETER		PWRIG200012120S	PWRIG300012120S	PWRIG300024120S
1	DC input voltage		12V(10.5V~16V)		24V(21V~30V)
2	DC input voltage standard		13.4V		26.8V
3	Output voltage		120VAC		
4	Output power continuous		2000 watts	3000 watts	
5	Surge rating		4000 watts	6000 watts	
6	Efficiency(output)		90% ± 3%		
7	No load current	fan off	0.90A	0.77A	0.59A
		fan on	1.72A	1.90A	1.19A
8	Low battery shut down		10.2V		20.0V
9	Low voltage recovery		11.2V		22.4V
10	High battery shut down		17.2V		31.7V
11	High voltage recovery		15.2V		30.0V
12	Frequency selection		50hz/60hz selectable		
13	Over temperature protection		-31°F ~ 167°F(± 9°F)		
14	Over temperature recovery		136°F (± 9°F)		
15	Output wave form		Pure sine wave (Digitalized signal processor)		
16	Thermal Cooling fan		104°F (±9°F)		
17	Isolation transformer tested (withstand voltage)		2KV~2.5KV(± 0.5KV)		
18	Overload protection	input fuse	100A(1EA), 80A(1EA)	125A(1EA), 100A(1EA)	70A(1EA), 60A(1EA)
		output circuit breaker	18A or 20A	34A High speed	
		GFCI outlet / terminal	Included (Terminal 30A-3p)		
19	Applied standards		FCC part 15 sub part B class A		
20	Dimensions (Inch)		8.9 X 3.5 X 16.5	8.9 X 3.5 X 20.5	
21	Weight (LBS.)		12.2 lbs	16.0 lbs	
22	Recommended battery cables		1/0AWG or larger		4AWG or larger

► Common Applications

This inverter generates pure sine wave power, providing clean and reliable energy. It is particularly beneficial for certain electronics and appliances that operate more efficiently with pure sine wave inverters. Examples include electric stoves, testing equipment, audio and video devices, circuit board-based equipment, variable speed motors, power tool chargers, and other sensitive electronic devices.

❖ Specifications (5000W-DC12V, 24V, 48V 120V AC)

NO.	PARAMETER		PWRIG500012120S	PWRIG500024120S	PWRIG500048120S
1	DC input voltage		12V(10.5V~16V)	24V(21V~30V)	48V(41V~59V)
2	DC input voltage standard		13.4V	26.8V	53.6V
3	Output voltage		120V AC		
4	Output power continuous		5000 watts		
5	Surge rating		10k watts		
6	Efficiency(output)		90% ± 3%		
7	No load current	fan off	1.66A	0.99A	0.43A
		fan on	3.12A	1.81A	0.83A
8	Low battery shut down		10.2V	20.0V	40.2V
9	Low voltage recovery		11.2V	22.4V	42.5V
10	High battery shut down		17.2V	31.7V	61.0V
11	High voltage recovery		15.2V	30.0V	59.0V
12	Frequency selection		50hz/60hz selectable		
13	Over temperature protection		-31°F ~ 167°F(± 9°F)		
14	Over temperature recovery		136°F (± 9°F)		
15	Output wave form		Pure sine wave (Digitalized signal processor)		
16	Thermal Cooling fan		104°F (±9°F)		
17	Isolation transformer tested (withstand voltage)		2KV~2.5KV(± 0.5KV)		
18	Overload protection	input fuse	100A(4EA)	50A(2EA),60A(2EA)	60A(2EA)
		output circuit breaker	60A High speed		
		GFCI outlet / terminal	Included (Terminal 60A-3p)		
19	Applied standards		FCC part 15 sub part B class A		
20	Dimensions (Inch)		8.9 X 6.2 X 21.3		
21	Weight (LBS.)		26.0 lbs		
22	Recommended battery cables		4/0AWG or larger	1/0AWG or larger	4AWG or larger

► Common Applications

This inverter generates pure sine wave power, providing clean and reliable energy. It is particularly beneficial for certain electronics and appliances that operate more efficiently with pure sine wave inverters. Examples include electric stoves, testing equipment, audio and video devices, circuit board-based equipment, variable speed motors, power tool chargers, and other sensitive electronic devices.

Features

- Includes a DSP (Digital Signal Processor) driver, the inverter outputs a high quality, pure sine 120 Vac.
- All AC and DC functions are automatically controlled by the DSP providing precise power.
- The inverter dynamically adjusts its output in response to fluctuations in battery voltage, both high and low, ensuring a consistent and reliable 120 V AC output.
- The enhanced efficiency of this inverter maintains nominal output voltage, even under low DC input conditions.
- With the pure sine wave output voltage with less than 3% variation, this inverter ensures stable power delivery to AC loads.
- Equipped with integrated protection circuits, the inverter automatically shuts down during low or high voltage scenarios and operates reliably across a wide temperature range.
- Designed with advanced circuitry, this inverter effectively suppresses RF noise generated during DC-to-AC conversion.



Note : This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

❖ Reference

This inverter features a Digital Signal Processor that converts DC 12V, 24V, or 48V into 120V AC power. Proper sizing of the inverter based on the surge rating of the load is crucial. To prevent damage to the inverter and ensure your safety, adhere to the recommendations provided in this manual. Ignoring these warnings could result in damage to the inverter and void the warranty.

❖ Prior to using this product please read this operation manual thoroughly. Inappropriate use may cause damage to the product!

I . Use of battery (DC power)

- 12V Battery : When using 500 watts of output (120V AC) with a 100A battery, you can use this product for 2 hours (8.3A used under 100W) in optimal conditions.
 - 24V Battery : When using 500 watts of output (120V AC) with a 100A battery, you can use this product for 4 hours (4.2A used under 100W) in optimal conditions.
 - 48V Battery : When using 500 watts of output (120V AC) with a 100A battery, you can use this product for 8 hours (2.1A used under 100W) in optimal conditions.
-

II . Use of AC power outlet (120V AC)

When using an extension cord or the terminal block, select a cable properly sized for the AC output amps.

The maximum recommended length is 150 feet. Make sure the cable is secure.

Shorts for loose cables or inferior quality cable is not covered under warranty.

III. Alarm display function (red LED)

- Output short circuit
 - Output overload
 - Over temperature protection
 - Battery low voltage (alarm/LED)
 - Battery high voltage (alarm/LED)
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IV. Fan operation

Based on the 120V AC load of this product the fan automatically operates when the temperature increases.

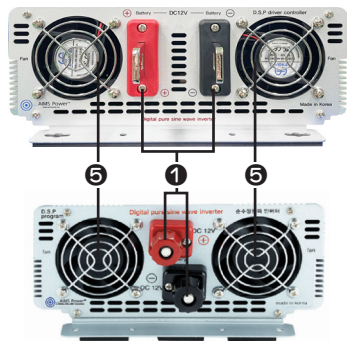
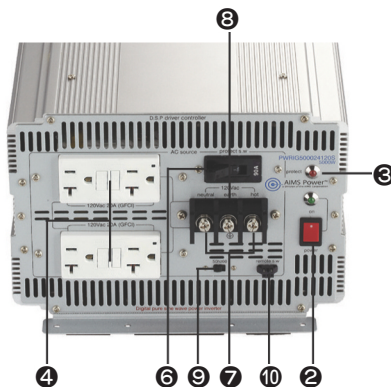
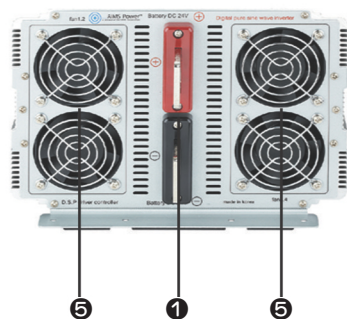
Thermal fan engages at 104°F~113°F

❖ Installation and Startup Instructions

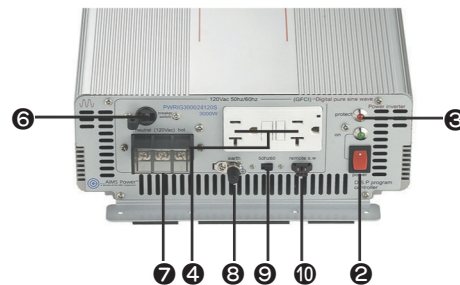
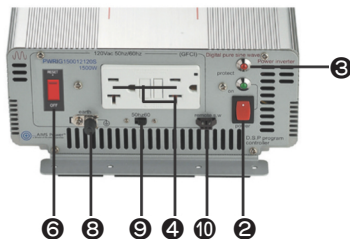
1. Prepare the Inverter
 - Ensure the inverter is in the OFF position, and disconnect all DC breakers or fuses.
Confirm that both the AC breaker switch and the GFCI protection on the inverter are in the OFF position.
2. Connect DC Cables
 - Attach the Red (⊕) and Black (⊖) cables securely to the inverter then connect to the battery. The cable length should be under 10 feet and adhere to the minimum recommended gauge stated on page XX of the manual. For distances exceeding 10 feet, use a larger cable gauge as appropriate.
 - It is strongly recommended to incorporate an inline fuse, breaker, or shut-off switch. **DO NOT REVERSE THE POLARITY.**
3. AC Wiring
 - Connect the AC wires from your breaker panel or connected device to the AC terminal block of the inverter. You may also plug any AC devices into the GFCI outlet.
4. Install DC Components and Verify Voltage
 - Install a DC fuse or switch, or engage the DC breaker/shut-off switch.
 - Use a multimeter (AIMS has a multimeter part # CLAMPMETER) to verify that the DC voltage at the inverter's Red (⊕) and Black (⊖) terminals matches the operating specifications of your model.
5. Adjust Settings
 - Set the AC frequency switch to 60Hz for U.S. applications. Adjust the DC low-voltage switch according to your battery requirements.
6. Power Up the Inverter
 - Turn the RED power switch on the inverter to the ON position.
 - Listen for three beeps, indicating successful startup. If a steady beep occurs, refer to the troubleshooting section of the manual.
7. Final Setup
 - Switch on the AC output breaker and press the GFCI reset button on the receptacle.
 - The inverter is now ready for operation.

❖ Overview

• PWRIG500012120S • PWRIG500024120S • PWRIG500048120S



• PWRIG200012120S • PWRIG300012120S • PWRIG300024120S



❖ Important:

Locate the number below to the number on the front or back of the inverter on page 10.

1) Input Terminal (12V, 24V or 48V)

Prior to making any connections make sure you match the battery voltage to the inverter input voltage. You will probably notice an arc when connecting a discharged or new power inverter to your batteries. Make sure to connect battery (⊖) to Black and battery (⊕) to Red.

Tighten terminals. In case of extreme vibration, go back and verify terminals are tight.

※ Tip : When connecting multiple 12Vdc batteries, connect all the Red (⊕) together and all the Black (⊖) together. (Parallel) this will keep the input Voltage at 12Vdc. Never connect batteries with different voltages. If using 24Vdc or 48Vdc, confirm you are wiring your batteries properly.

2) Power Switch

This is the main unit Power Switch. When this is turned OFF, the inverter is off. When turned ON, the inverter is on. You may or may not have 120V AC out, depending on the two Protection Switches.

3) Overload Protection LED

When the inverter self-test process completes, the red LED will illuminate. If this red LED is off, there may be an internal error.

First you will hear a buzzer, followed by the LED illuminating. You should immediately turn off all of your equipment.

The LED will automatically reset once the overload situation has been resolved. The overload may be caused by one or more of the following:

- Short circuit on AC line
- An actual overload occurred exceeding the inverter's output power
- Over temperature
- Low battery voltage
- High battery voltage

4) AC Voltage Source

Please make sure no other power source can ever feed back into these outlets. It will permanently damage the inverter and void the warranty.

5) Automatic Fan Operation

These fans are thermally controlled and will turn on automatically when needed.

6) Protection Switch

The Protection Switch is a circuit breaker. If the output is exceeded, the breaker will POP and you will have to manually reset it. This circuit breaker protects inverter in case of overload or short circuit. If you have to reset the breaker, verify the startup and running current (listed on equipment) requirements for your equipment. Startup may be several times higher than the running rate, and may cause this protection breaker to pop.

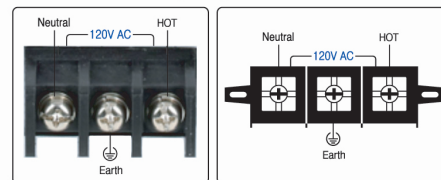
Example : Air conditioners and air compressors have high startup requirements called Locked Rotor Amps (L.R.A.).

7) AC Terminal Block (120V AC)

This Terminal block is a convenient way of direct connecting equipment to achieve the full output power of the inverter. Be very careful as these may be "hot" and if touched may cause severe injury and electrical shock.

Warning : It is strongly advised to have a professional electrician handle the wiring of these terminals. Touching them with bare hands can result in severe electrical shock. Additionally, incorrect wiring may lead to permanent damage to the inverter and connected equipment, which would void the warranty.

❖ Please see wiring diagram



8) Case Ground Terminal

We recommend you use this terminal to ground the inverter case. It may be required to prevent damage to certain devices. 8-10 AWG cable is recommended.

9) Selectable Frequency Switch

Selection is available between 60Hz and 50Hz. Convert and use according to the set frequency of the devices. (60Hz is required in the U.S. market)

10) Remote Power Switch Port

If your application requires the inverter's ON/OFF switch to be mounted in a separate location, you may use the supplied remote wire to connect an open/close toggle switch of your choice. The wire is included in the accessory bag included in the box, with your inverter.

❖ Troubleshooting:

For red LED and Protection switch

Symptoms	Possible problem	Possible solution
Warning red LED is illuminated and has low output voltage	Your device requires more power than the inverter is able to produce. The inverter has been overloaded.	Stop the operation of the connected devices Use the inverter under a lower condition than the specified output capacity (refer to instructions)
The output voltage is low or has no output voltage with small AC loads.	Check the charging status of the battery with a meter Check the durability of the battery with a meter Check all connections between battery and inverter	Check to see if the battery is fully charged with a meter. Check to ensure the correct wire gauge is connected between battery and inverter and AC output.
The warning red LED illuminates the overload alarm is beeping	Check for abnormalities on the devices connected to the inverter Check if the consumption powers of the devices are normal with a meter.	Remove devices operating abnormally. Check the inrush surge of all connected devices. MAX surge ability of the inverter is 200% of the output capacity for 500 milliseconds
Fuse breaks Protection switch has been tripped	Check all wiring connections. Check the devices connected to the inverter	Check the + (Pos.) and - (Neg.) connections are made properly. Make sure the connected device does not exceed the capacity of the inverter
High output voltage is present output of the inverter has increased drastically	Check if the input voltage of the battery is correct at 12V, 24V or 48V DC	Turn off the devices connected to the 120V AC output of the inverter Check the voltage of the battery with an external multi meter.

Tips for Improving Inverter Service Life

Before using the inverter with heavy motors or appliances, it is essential to confirm the startup requirements of your equipment. These requirements are often significantly higher than the running requirements, typically 3 to 5 times the continuous rating. Additionally, ensure adequate ventilation is provided for safe and efficient operation.

❖ General problems:

- Audio system noise* : Noise may be generated from the speakers or amplifier when using the inverter to power low-grade stereo systems and large portable radios. This is due to the interference between the electricity and current running through each device. You are hearing the RF generated by the inverter.
- TV interference* : The operation of this inverter may cause interference in receiving specific TV channels; in this case perform the following procedure's to try to resolve the problems.

Audio, TV and wireless devices shall be installed in an area as far as possible away from the inverter. Try installing a line filter on affected device.

❖ Cautions during use

- For normal operation, devices with excessive loads applied momentarily such as refrigerators, air conditioners, electric motors, hand tools Etc. Should be within 60% of the maximum output capacity of this inverter. Check the capacity of this inverter as well as the capacity of the intended devices to be used.
 - When the rated continuous capacity of the motor is equal to or greater than the rated capacity of the inverter, operation of the intended device may not be available due to the inverter's lack of surge ability. (Example. A 2000 watt motor with a 2000 watt inverter, the startup of the motor may be 6000 watts and cause the inverter to fail.)
 - Devices using heaters will increase the temperature of the inverter drastically. When using devices like this make sure to provide proper ventilation for the inverter. Improper ventilation will cause inverter shutdown and malfunction resulting in irreversible damage.
 - Audio and video devices shall be used within the maximum power rating of the inverter. If the rating capacity is exceeded there will be a momentary cut-off. For safe operation use 75%-80% of the listed capacity.
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Warranty

This product is designed using the most modern digital technology and under very strict quality control and testing guidelines. If, however, you feel this product is not performing as it should, please contact us: techsupport@aimscorp.net or (775)359-6703.

We will make every effort to resolve any concerns with your product. If repair or replacement is required, please keep a copy of your receipt or invoice, as it must be submitted when requesting an RMA number. This product is covered by a full 2-year warranty from the date of purchase. This warranty is valid worldwide with the exception that freight and duty charges incurred outside the contiguous 48 United States will be prepaid by customer.

Except as noted above, AIMS makes no warranty of any kind, express or implied, including without limitation the implied warranties of merchantability and fitness for a particular purpose. In no event shall AIMS be liable for indirect, special or consequential damages. This warranty only applies to AIMS Power branded products. All other name brand products are warranted by and according to their respective manufacturer. Please do not attempt to return non-AIMS Power branded products to AIMS Power. Full warranty details can be found at www.aimscorp.net/terms-and-conditions-and-privacy/. For additional products, please visit our web site: www.aimscorp.net

PRODUCT REGISTRATION INSTRUCTIONS

Scan the QR code or visit www.aimscorp.net. You'll find the registration link at the bottom of the home page. Registering your product validates your AIMS Power warranty and ensures fast, prioritized support if you ever need it.

