

Sinergex

PureWatts *Elite* 150



User's Manual

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WELCOME

Thank you for purchasing a Sinergex PureWatts Elite 150 power inverter. Sinergex products are manufactured to the highest possible standards incorporating the latest power conversion techniques.

Please take a few moments to read this manual as it contains hints and tips to ensure correct operation and extended life of your inverter.

Throughout the manual, you will notice **CAUTION** and **WARNING** statements. Please pay attention to these!

CAUTION statements relate to the practices that may damage your inverter, battery, electrical system or equipment you are attempting to operate.

WARNING statements relate to practices that may cause injury or death.

CAUTION & WARNING: DO NOT USE OR ATTEMPT TO USE THIS PRODUCT UNTIL YOU HAVE READ THIS USER'S MANUAL IN ITS ENTIRETY. IMPROPER INSTALLATION OR USAGE OF THIS DEVICE MAY BE HAZARDOUS AND MAY CAUSE DAMAGE TO OTHER ELECTRICAL EQUIPMENT AND WILL VOID WARRANTY.



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HOW YOUR INVERTER WORKS

Your Sinergex PureWatts Elite 150 simply and silently converts DC battery power to 230V 50Hz or 110V 60Hz household mains AC electricity.

This is achieved by converting the low battery power to high voltage DC power. An advanced switching system then switches the DC power at intervals to create an AC waveform (similar to household mains power) at 230 volts 50 Hz or 110 volts 60 Hz.

Sinergex PureWatts Elite inverters are supplied standard with features generally available on larger, more expensive units - providing cleaner, more reliable AC power and inverter life.

Your Sinergex PureWatts Elite 150's output is known as Modified Sine Wave (MSW). This is an approximation of household grid power. It is suitable for most AC appliances.



MODIFIED SINE VS. PURE SINE WAVE

Modified Sine Wave inverter are compact and cost effective. However, they do have a few minor disadvantages compared to Pure Sine Wave output models (such as the Sinergex PureSine series).

CAUTION: Care must be taken when operating certain types of equipment to ensure that they are compatible with your Sinergex PureWatts Elite 150's output waveform. Such equipment includes chargers for some electrical toothbrushes, razors, and some power tool chargers. When using equipment for the first time, ensure that the charging unit doesn't become too hot. If after 5 minutes, the charger is excessively hot, the unit is not compatible with MSW - we suggest using a Sinergex PureSine model for safe operation.

Notebook computers, camcorders, PDA's, handheld VHF radios, GPS are generally compatible with the Sinergex PureWatts Elite 150.



OPERATION OF YOUR INVERTER

Your Sinergex PureWatts Elite 150 is designed for simple and easy operation!

1. ☐ Before connecting your load, please ensure
☐ that it is properly rated for your inverter. Your
☐ load should be rated at 230V 50 Hz or 110V
☐ 60 Hz, up to a maximum power consumption of
☐ 150 watts (0.65 Amps).

CAUTION: Attempting to run equipment that is far beyond the operating power of your inverter may cause damage. Operating equipment with a different AC operating voltage may cause damage to the equipment and/or the inverter.

2. ☐ Your appliance should be fitted with an approved
☐ AC plug. Plug your appliance directly into the
☐ output receptacle of your inverter.
3. ☐ Plug the cigarette light plug of the inverter into your
☐ vehicle/boat's cigarette socket*.

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CAUTION: The Sinergex PureWatts Elite 150 is designed for use with standard auto/marine 12V negative ground systems. If in doubt contact your local Sinergex dealer for further instructions.

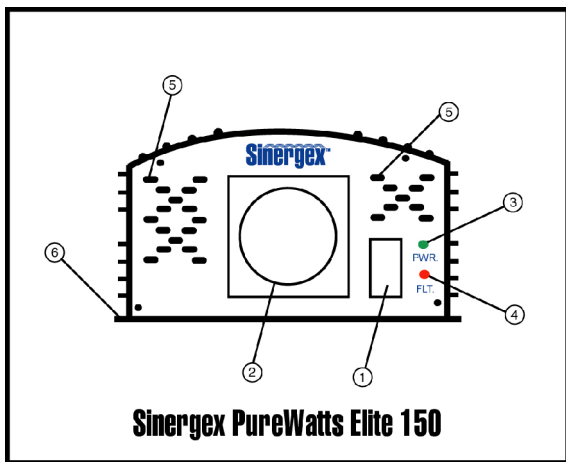
4. ☐ Switch the inverter ON using the power ON/OFF ☐ switch on the front panel of the inverter.

*Some users may wish to hard wire the DC input of their inverter to the vehicle/boat's electrical system. This is possible, however, extreme care should be taken in ensuring that A) correct cable sizes are used, B) that the DC cabling is fused according to local regulations, C) DC cables are correctly connected. Reverse polarity will damage the unit - damage caused by reverse polarity is not covered under warranty.

CAUTION: Reverse DC Polarity (through using the inverter on a positive ground system, reversing DC cables or faulty wiring) will cause damage to the inverter. This is detectable through damage to certain internal components and NOT covered under warranty. Do not hard wire the AC output of the inverter to your vehicle/boat's ring main.



INVERTER FEATURES



1. Power ON/OFF Switch. This switch turns the inverter ON or OFF for operation. When in the ON position the inverter will deliver power to the AC outlet.

(cont'd)



2. AC Outlet. The AC outlet design will vary from country to country. This is where you plug in your appliance or equipment for operation. Be sure to treat with extreme care just like you would at your home or office.
3. Power LED. The power LED (Green) will illuminate when the inverter is powered ON. The power LED will not be illuminated when the inverter is switched OFF.
4. Fault LED. The fault LED (RED) will illuminate when the inverter has a fault such as overloading, over-heating, short circuit etc. Please read the instructions on the following pages if your inverter has a fault.
5. Air Vents. These vents allow cool air to flow through the inverter to ensure the inverter operates at the optimum temperature for maximum performance. Do not obstruct these or allow dust or liquid to penetrate.
6. Mounting Brackets. The mounting brackets allow you to permanently install the inverter where you please. Be sure to install in a well-ventilated and clean location free from dust and liquid.



PROTECTION FEATURES

Overload Protection

The Sinergex PureWatts Elite 150 is protected against reasonable overloading. This means that you can, within reason, attempt to run loads that are oversized for the inverter (up to double the inverter's maximum continuous output) without damage. In the event of overload, the unit will sound an audible warning and shut down. Once the oversized load is removed, the unit will automatically re-start.

CAUTION: Continual repeat overloads or excessive overloading may damage your inverter and void warranty.

Low/High Battery Voltage Protection

In the event of battery voltage going outside of the normal operating voltage range of the inverter (11 - 15 VDC or 20 - 30 VDC) an audible alarm will sound and the unit will shut down. This protects internal circuitry of the inverter and the battery from excessive discharge.

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Once battery voltage returns to the inverter's normal voltage operating range, it will automatically restart.

CAUTION: Do not connect your 12 VDC input PureWatts Elite inverter to 24 VDC systems. Damage will result and void warranty.

Overheat Protection

Inverters heat up during operation - this is normal. However, if the inverter's internal temperature reaches excessive levels, a protection systems will shut down the inverter. Once the inverter cools to within its operating limits, it will automatically restart.

If using the inverter in hotter climates, keep it out of direct sunlight and do not cover - otherwise internal heat levels will rise - triggering the overheat protection.

Soft Start

Upon switching ON, the inverter will gradually ramp up power over a few seconds - this allows the unit to cope with heavier than normal loads that wouldn't normally be started by a small inverter.



SPECIFICATIONS

Model	PWE-150-12	PWE-150-24
AC Output (Continuous)	150 Watts	
AC Output (Surge)	300 Watts	
AC Output Voltage	110 or 230 Volts	
AC Output Frequency	50 or 60 Hz.	
AC Output Waveform	Regulated MSW	
DC Input Voltage	10 - 15 VDC	20 - 30 VDC
Peak Efficiency	>90%	>93%
No Load Current Draw	<0.25 Amps	<0.25 Amps
Low Battery Alarm	10.7 VDC	21.4 VDC
Low Battery Shutdown	10 VDC	20 VDC
Overload Protection	Yes, Automatic Reset	
Overheat Protection	Yes, Automatic Reset	
Short Circuit Protection	Yes, Automatic Reset	
Dimensions	14.8 x 9.5 x 6.3 cm	
Weight	0.60 Kgs. / 1.32 Lbs.	

Specifications may change without notice.



TROUBLE SHOOTING GUIDE

No Output

Has the Cigarette lighter socket fuse blown?

Many cigarette lighter sockets have small fuses to protect against accidental short-circuits. Also, Sinergex inverters have an in line fuse within their cigarette lighter plug - check that either fuse had not blown.

Is the cigarette lighter socket clean?

If you are a smoker and use use your cigarette lighter socket, ash and dust can build up in the socket. Clear any dust or debris to ensure clean contact.

Alarm Sounds Continuously

Has one of the inverter's protection features activated?

Your inverter is fitted with a variety of protection features:

Overload: remove the load. (If alarms stops it is likely the inverter was overloaded.)

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Overheat: if the inverter is warm/hot to touch and was functioning normally, it likely the that the inverter the overheat protection has activated.

Allow the inverter to cool. (The inverter can be either left connected or disconnected to the DC supply during this period. Once within temperature operating range the inverter will automatically restart.

Low Battery: The battery may be flat. Remember that the inverter measures battery voltage at the input connection of the inverter - if you have undersized cabling to the cigarette lighter socket or battery, voltage drop may cause your inverter to prematurely to shut down. Also, ash/dust inside the cigarette lighter socket may create high resistance causing low voltage. Accidentally connecting a 24 volt inverter to a 12 volt system will result in a continuous alarm - make sure that your inverter is the right voltage for your electrical system.

Unit gets excessively hot.

Your inverter will operate at or beyond its continuous power rating for (sometimes) lengthy periods of time - the limiting factor is heat build up within the inverter.

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If your load exceeds 150 watts - the overload or overheat protection will eventually activate.

Your inverter is rated for use in normal ambient temperatures. If using in hot climates (or within a hot car etc.), continuous power rating may be slightly lower.

Inverter providing power - Appliance won't operate.

Some equipment is not compatible with modified sine wave output (for example some audio visual equipment, some variable speed power tools etc.).

There is no option but to change your appliance for one that will accept MSW or swap the inverter for one that provides pure sine wave power. Providing that your inverter is in "as new" condition, your local Sinergex dealer will normally part exchange your inverter for Sinergex PureSine model.

Battery runs flat quickly

Your battery should operate for a reasonable amount of time (generally several hours). As batteries age, they lose capacity. If the battery continuously runs flat, you should consider having it tested. If replacement is recommended try to acquire a deep cycle battery that is happier being used with an inverter. (cont'd)



For further trouble shooting/technical information, please contact your local Sinergex dealer or Sinergex direct. If in doubt as to the suitability for use, application or as to how to wire your inverter, contact your Sinergex dealer or a qualified electrical engineer before use.



WARRANTY

Installation, operation, technical support, warranty and service issues should, in the first case be directed towards the outlet at which you purchased your Sinergex inverter.

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Sinergex warrants, to the original purchaser only, for a period of 24 months from the date of purchase, that the Sinergex PureWatts Elite inverter will be in good working order when properly installed and operated as described in this manual.

If the inverter fails within this time period under normal use, Sinergex will, without charge, at the place of Sinergex's choosing, repair or replace the inverter - with new or reconditioned parts or a new or reconditioned inverter as Sinergex deems necessary. (*cont'd*)



This warranty is void and will not be applied if:

- ☐ 1. The inverter has been used against the recommendations of this manual.
- ☐ 2. The inverter has been used in an application outside of general automotive, solar, industrial or marine applications without the agreement of Sinergex Technologies.
- ☐ 3. The inverter has been modified or repaired without written authorization of Sinergex Technologies.
- ☐ 4. Reverse polarity, excessive overloading, general abuse, neglect, wear & tear, ingress of liquids (water, oil, acid, or otherwise), foreign objects, lightening strikes, over or under voltage, RFI/EMI, etc.

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Obtaining Warranty Service

To obtain warranty service, please contact the outlet at which you purchased your inverter. Do not contact Sinergex Technologies directly. For warranty service you will require the following:

- ☐ 1. Proof of purchase
- ☐ 2. Model number
- ☐ 3. Serial number
- ☐ 4. Brief description of application and problem

Telephone your Sinergex dealer for an authorization number prior to dispatch - do not send without authorization. Once this number has been obtained, please carefully package your inverter and send (freight paid) to the Sinergex dealer.



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