



***PROwatt*[™] 150**

DC to AC Power Inverter

Owner's Guide

XANTREX
Smart Choice For Power

About Xantrex

Xantrex Technology Inc. is a world-leading supplier of advanced power electronics and controls with products from 50 watts mobile units to 1 MW utility-scale systems for wind, solar, batteries, fuel cells, microturbines and backup power applications in both grid-connected and stand-alone systems. Xantrex products include inverters, battery chargers, programmable power supplies, and variable speed drives that convert, supply, control, clean and distribute electrical power.

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1 Introduction

Thank you for purchasing the PROwatt 150 Power Inverter. The PROwatt 150 is part of a family of advanced high-performance power inverters from Xantrex, the leader in the field of high-frequency inverter design. Connecting to the 12 volt outlet in your vehicle or boat, the PROwatt 150 efficiently and reliably powers a wide variety of household AC products, such as compact TVs and VCRs, laptops, camcorder and cell phone chargers, compact fluorescent lights, soldering irons, and other similar products. PROwatt 150 uses reliable solid state power electronics for years of safe, trouble-free operation and includes automatic safety monitoring circuitry to protect it, and your battery, from inadvertent overload conditions. Read this guide before connecting or using the PROwatt 150 and save it for future reference.

The main topics covered in this guide are:

- Important safety information
- Instructions for connecting and operating the inverter
- Warranty and service information

2 Important safety information

Incorrect connection or misuse of the PROwatt 150 may result in danger to or hazardous conditions for the user. Read these safety instructions and pay special attention to all Caution and Warning statements throughout the guide.

Warning statements are those which identify conditions that may result in personal injury or loss of life.

Caution statements are those which identify conditions or practices that may result in damage to the PROwatt 150 or to other equipment.

Warnings and cautions



Warning ! Shock hazard. Keep away from children.

The PROwatt 150 generates the same potentially lethal AC power as a normal household wall outlet. Treat the outlet with respect!



Warning ! Heated surface.

The PROwatt 150 housing may become uncomfortably warm, reaching 140° F (60° C) under extended high power operation. Ensure that at least two inches (5 cm) of air surround the unit. During operation, keep it away from materials that may be affected by high temperatures.



Caution! Do not connect the PROwatt 150 to any AC wiring or product in which the AC neutral is connected to the AC ground.



Caution! Do not use the PROwatt 150 with the following appliances:

- Small battery-operated appliances such as rechargeable flashlights, some rechargeable shavers and night lights that are plugged directly into an AC receptacle to recharge.
- Battery chargers used with certain power tool battery packs. These chargers will have a warning label stating that dangerous voltages are present at the charger's battery terminals.

Additional guidelines

- Do not insert foreign objects into the inverter's outlet.
- Do not, under any circumstances, connect the PROwatt 150 to power utility AC distribution wiring.
- Do not use the PROwatt 150 in temperatures over 100° F (40° C).
- Do not expose the PROwatt 150 to water, rain, snow or spray.

Failure to follow the above safety instructions may result in personal injury and/or damage to the PROwatt 150 and other equipment. It may also void the warranty.

3 Connecting and Operating the PROwatt 150

This section describes the PROwatt 150 inverter and provides procedures for connecting it and using it safely.

PROwatt 150 Features

Figure 1 shows the main features of the PROwatt 150 inverter.

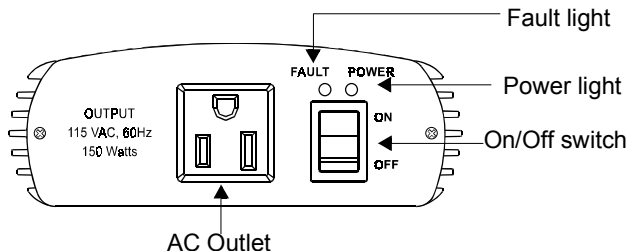


Figure 1 PROwatt 150 AC panel

AC Outlet An AC outlet is provided on one end of the PROwatt 150. It will accept a 115 volt AC product with a power consumption of 150 watts or less.

On/Off switch The On/Off switch enables output AC power at the AC outlets when switched on. It also acts as a manual reset for overload, low battery voltage, and over-temperature fault conditions. The inverter can be reset by turning the switch off for five seconds, then on again.

Power light The green power light indicates AC power is present at the outlet and the PROwatt 150 is operating normally.

Fault light The red fault light indicates the inverter has shutdown because of low or high battery voltage, AC overload or excessively high temperatures.

Connecting the PROwatt 150

Location

For the best performance results place the inverter in a location that is:

- Dry — do not expose the unit to water drip or spray.
- Cool — operate the unit in ambient temperatures between 32° F (0° C) and 100° F (40° C). Keep it away from heating vents.
- Well ventilated — allow at least two inches (5 cm) of clearance around the unit for proper cooling.

Connecting

Follow these steps to install the unit:

1. Place the unit in a flat dry location such as the dashboard of your vehicle. Use the floor only if it is dry and free of any debris which could get into the inverter.

2. Plug the PROwatt 150 DC lighter plug into the vehicle cigarette lighter socket or a 12 volt outlet.
3. Turn the PROwatt 150 On/Off switch on. The power light indicates AC power is available at the outlet.
4. Plug in the AC product you wish to operate.
In the event of an overload, low battery voltage or overheating, the PROwatt 150 automatically shuts down.

Operating the PROwatt 150

Operating guidelines

The following notes contain hints and describe conditions to be aware of when you're using the PROwatt 150.

1. When you connect the unit to the vehicle's 12 volt outlet and turn the On/Off switch on, the power light illuminates and AC power is available at the outlets.
2. As the battery charge is discharged, battery voltage begins to decrease.

When the PROwatt 150 senses the voltage at its DC input has dropped to 10.0 volts, it automatically shuts down to prevent battery damage. The power light goes out, and the fault light illuminates.

3. If you connect an AC product that is rated higher than 150 watts, 1.25 amps or it draws excessive surge power, the PROwatt 150 will shut down. The power light goes out and the fault light illuminates.

4. If the PROwatt 150 exceeds its safe operating temperature, because of insufficient ventilation or a high temperature environment, it automatically shuts down. The power light goes out and the fault light illuminates.
5. If a defective battery charging system causes the battery voltage to rise to dangerously high levels, the PROwatt 150 automatically shuts down. The power light goes out and the fault light illuminates.
6. To reset the PROwatt 150 after an automatic shutdown, turn the Off/On switch off for 5 seconds, then on again. This manual reset feature prevents unexpected or hazardous restarting of connected AC loads.

Surges The power, or “wattage” rating of AC products is the average amount of power they use. When many AC products are first turned on, they initially consume more power than their continuous power rating. TVs, monitors, and electric motors are examples of products that have high surge requirements at start up. Although the PROwatt 150 can supply momentary surge power to 400 watts, some products rated less than 150 watts may exceed its surge capabilities and trigger its safety overload shutdown feature.

Interference with Electronic Equipment

Generally, most AC products operate with the PROwatt 150 as they would with household AC power with the following exceptions.

Buzzing Sound Some inexpensive stereo systems and “boom boxes” have inadequate internal power supply filtering and “buzz” slightly when powered by the PROwatt 150. The best solution is to have an audio system with a good quality filter.

Television Interference. The PROwatt 150 is shielded to minimize its interference with TV signals. If TV signals are weak, you may see the interference in the form of lines scrolling across the screen. Try one of these suggestions to minimize or eliminate the problem:

- Use an extension cord to increase the distance between the PROwatt 150 and the TV, antenna, and cables.
- Adjust the orientation of the PROwatt 150, television, antenna, and cables.
- Maximize TV signal strength by using a better antenna and use shielded antenna cable where possible.
- Try a different TV. Different models of televisions vary considerably in their susceptibility to interference.

4 Battery Operating Time

The battery operating time of the PROwatt 150 depends upon the charge level of the battery, battery capacity, and the amount of power drawn by the particular AC load. With a typical vehicle battery and a 150 watt load (such as a small TV), you can expect two to three hours of operating time.

Other hints to preserve your battery:

- When using a vehicle battery as a power source, start the vehicle every hour or two to recharge the battery as vehicle batteries are not designed to be deeply discharged. Constantly recharging a vehicle battery will shorten its life.

The PROwatt 150 will operate while the engine is running, but the normal voltage drop that occurs during engine start may trigger the low voltage shutdown feature.

- Don't leave the PROwatt 150 on for extended periods if you do not have an AC product connected.

It draws less than 0.1 amps with the On/Off switch on and no load connected, but that will eventually discharge the battery.

5 Troubleshooting

This section describes problems you may encounter. It describes the symptoms of each problem and its possible causes, then suggests various remedies.

AC product will not operate, red fault light is on.

Symptom An AC product is plugged in or turned on and operates for one to ten seconds.

Possible cause	Suggested Remedy
The AC product connected is rated at more than 150 watts; overload shutdown has occurred.	Use product with a power rating less than 150 watts (or 120 volts/ 1.25 amps).
The AC Product is rated at less than 150 watts; high starting surge has caused overload shutdown.	The product exceeds the inverter's surge capability. Use a product with starting surge power within its capability.

Symptom The AC product will not operate, the fault light illuminates when inverter is turned on, or the load is turned on/plugged in.

Possible cause	Suggested Remedy
Battery is discharged.	Recharge battery.
Excessive battery voltage.	Check charging system.

Symptom The AC product runs for more than one minute, then the fault light turns on. The inverter is warm or hot to touch.

Possible cause	Suggested Remedy
The PROwatt 150 has overheated due to poor ventilation.	Ensure the ventilation is not restricted around the inverter and allow it to cool for ten minutes. Turn the inverter off. Turn it on again in five seconds.

AC product will not operate, no inverter lights are on.

Symptom Lighter in lighter socket works, but the inverter does not.

Possible cause	Suggested remedy
Poor contact with lighter socket or 12 volt outlet.	Press plug firmly into socket. Clean plug or socket if necessary.
Inverter has been connected with reverse DC input polarity.	Probable inverter damage has occurred. Have unit repaired.

Symptom Lighter in lighter socket does not work.

Possible cause	Suggested Remedy
Lighter socket or 12 volt outlet may require ignition to be switched on.	Turn key to accessory position.

Possible cause	Suggested Remedy
Cigarette lighter or 12 volt outlet fuse is blown.	Check the vehicle fuses and replace blown fuse with correct value.

Measured inverter output is too low.

Symptom Volt meter reading 5 to 15 volts too low.

Possible cause	Suggested remedy
A standard “average-reading” AC voltmeter is used to measure output voltage.	The PROwatt 150 modified sine wave output requires a “true RMS” voltmeter, such as Fluke 87 series multimeter, for accurate measurement.
Battery voltage is too low.	Recharge the battery.

Battery run time is less than expected.

Symptom The inverter runs for a while, then the fault light comes on. The inverter is cool or warm to touch.

Possible Cause	Suggested Remedy
The AC product power consumption is higher than rated.	Use a larger battery to make up for increased power requirement.
Battery is old or defective.	Replace battery.
Battery is not being properly charged.	Have vehicle electrical system checked by a qualified technician.

6 Warranty Information

What Does This Warranty Cover? Xantrex manufactures its products from parts and components that are new or equivalent to new, in accordance with industry standard practices. This warranty covers any defects in workmanship or materials.

How Long Does The Coverage Last? This warranty lasts for one (1) year from the date of purchase. Implied warranties of merchantability and fitness for a particular purpose are limited to six months from date of purchase. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

What Does This Warranty Not Cover? This warranty will not apply where the product has been misused, neglected, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use or use in an unsuitable environment. Xantrex does not warrant uninterrupted operations of its products. Xantrex shall not be liable for damages, whether direct, incidental, special, or consequential, or economic loss even though caused by the negligence or fault of Xantrex. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

What Will Xantrex Do? At its option, Xantrex will repair or replace the defective product free of charge. Xantrex will, also at its option, use new and/or reconditioned parts made by various manufacturers in performing warranty repair and building replacement products. If Xantrex repairs or replaces a product, its warranty term is not extended. Xantrex owns all parts removed from repaired products.

Service During Warranty In order to qualify for the warranty, dated proof of purchase must be provided and the product must not be disassembled or modified without prior authorization by Xantrex. If your product requires warranty service, please return it to the place of purchase along with a copy of your dated proof of purchase. If you are unable to contact your merchant, or the merchant is unable to provide service, contact Xantrex directly:

Phone 1-800-670-0707

Fax: 604-420-1591

Fax: 1-800-994-7828

Email: support.prowatt@xantrex.com

Returning a product

You must obtain a Return Material Authorization (RMA) number from Xantrex before returning a product directly to Xantrex. Do not return a product to Xantrex without first obtaining an RMA number. When you contact Xantrex to obtain service, be prepared to supply the serial number of your product and its date of purchase as well as information about the installation or use of the unit.

If you are returning a product from the USA or Canada, follow this procedure:

1. Obtain an RMA number and a shipping address from Xantrex. Product(s) returned without an RMA number or shipped collect will be refused.

2. Package the unit safely, preferably using the original packing materials. Include the RMA number, a copy of your dated proof of purchase, a return address where the repaired unit can be shipped, a contact telephone number, and a brief description of the problem.
3. Ship the unit to the address provided in Step 1, freight prepaid. Obtaining proof of delivery is recommended.

How Other Laws Apply: This warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction.

For Our Canadian Customers: When used herein “implied warranties of merchantability and fitness for a particular purpose” includes all warranties and conditions, express or implied, statutory or otherwise, including without limitation implied warranties and conditions of merchantability and fitness for a particular purpose.

Out-of-warranty service

If the warranty period for your PROwatt 150 has expired, if the unit was damaged due to misuse, incorrect installation, if other conditions of the warranty have not been met, or if no dated proof of purchase is available, your unit may be serviced/replaced for a flat fee.

To return your PROwatt 150 for out of warranty service, contact Xantrex customer service for a Return Material Authorization (RMA) number and follow the other steps outlined in the section “Service During Warranty” above. Options for payment such as credit card or money order will be explained by the customer service representative.

In cases where the minimum flat fee does not apply, such as incomplete units or units with excessive damage, an additional fee will be charged. If applicable, you will be contacted by customer service once your unit is received.

7 Specifications

Specifications subject to change without notice

AC output voltage (nominal):	115 Vac RMS ± 10 Vac
DC input voltage range:	10 - 15 volts DC
Maximum Continuous AC output power	150 watts
Maximum AC output surge power	400 watts
AC output frequency	60 \pm 4 Hz
AC output waveform	Modified Sine Wave
No load current draw (at 12V input)	0.1 Amps
Efficiency (maximum)	90%
Ambient operating temperature range	32° - 100° F 0° - 40° C
Low voltage shut down	10.0 volts
High battery shut down point (nominal)	15 volts
Dimensions (L x W x H)	4.7 x 7 x 1.9 in 120 x 120 x 50 mm
Weight	600 gra 1.3 lb

ms

8 Other Products from Xantrex

To see the range of inverters and chargers offered by Xantrex, visit our web site at <http://www.xantrex.com>.

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