

Technical Note**PROwatt 150/200**

512-0038-01-01 Rev 1

PROwatt Frequently Asked Questions**FAQ**

1. **Q: I connected my PW150/250 to my cigarette lighter socket in the dash board, but I can't get even a 100 W light bulb to light up. What's happening?**

A: The PROwatt 250 is capable of providing up to 350 watts of power into a resistive load (such as ordinary light bulbs) as well as a surge large enough to start most TVs and many electric-motor-based tools. The PW250 can only generate high power provided the DC supply can support the high 12 V battery current demanded by the inverter. The PW250 comes with a standard "lighter plug connector" for you to easily operate loads up to 100 W such as cell phones, notebook computers, soldering irons, even 13" TVs, using a simple lighter plug connection to DC. However, the typical cigarette lighter socket and under dash wiring in most vehicles is only capable of supporting up to 8 DC amps (100 W) of current while maintaining at least 10 V at the inverter end of the DC cable. In some vehicles even a 60 W light bulb cannot be operated due to thin wiring in the dash. Starting the engine will raise the system voltage at least 1.5 V and may just allow your appliance to operate (when it would not operate with engine off). If you find this unacceptable, or you intend to use the higher power of the inverter, you will need to hard wire the inverter directly to the battery (see "TechNote #100001- High Power Installation").

2. **Q: I left my inverter in the car overnight and the inverter did not provide AC power in the morning.**

A: The inverter is designed to operate down to 0 °C. If the inverter becomes much colder than -10 °C (overnight in the car during winter) the crystal will not oscillate, and no AC will be generated until the inverter's electronics warm up to at least zero degrees; then it should operate normally.

3. **Q: My inverter works fine with the engine off, but shuts down when I start the engine.**

A: Most vehicle alternator/regulator electrical systems are set to allow no higher than 14.8 V when the engine is running. With the engine off, the battery quickly settles to approximately 12.7 V nominal. The inverter is set to detect an overvoltage if the inverter input exceeds 15.0 V. Some newer vehicles may allow the electrical system to reach 15.3 V, which will shut the inverter down. Xantrex is aware of the growing trend towards higher electrical system voltages, and will be increasing the upper maximum operating voltage of new inverter products.

B: What about low battery shutdown?

4. Q: I want to run my oxygen concentrator in my car. Which inverter should I use?

A: Some oxygen concentrators will not accept a modified sine wave power signal, due to input capacitance which causes the inverter to shut down or results in an error indicator on the concentrator. The following models have been reported as incompatible with modified sine wave inverters such as the PROwatt : “Mobile Air” by InvaCare, “Freedom AC” by LifeCare, “Companion 590” by Puritan Bennet, and “ForLife/NewLife” by AIRSEP. The solution is to operate the oxygen concentrator using a true sine wave inverter such as PROsine series inverters from Xantrex.

5. Q: Does the cooling fan on the PROwatt 800/1500 run all the time?

A: The fan is thermally controlled, and will turn on if the inverter’s internal components exceed approximately 40 °C (100 °F). The larger the load the greater the heat inside the inverter. Once the inverter cools down below 30 °C, the fan will automatically turn off.

6. Q: Why does my dashboard 10 A fuse blow when I try to start my TV in the car?

A: A typical 13" TV although rated at only 70 W upon startup can momentarily draw well in excess of 300 W (or 20–30 amps) to cold start the TV. This surge can last long enough to open the smaller dash fuse. Do not install a larger fuse than is marked on the fuse panel (see “TechNote: High power installation”).

7. Q: I tried to run my computer from my PROwatt but I get a thin line on the screen when running from the inverter.

A: The PROwatt modified sine wave inverter does emit some EMI. Although most computers show no screen interference, electronic noise is especially noticeable when the inverter is placed within 6 ft (2 m) of the computer. Try moving the items apart to minimize any interference. Ensure any excess AC power cord is a distance away from the computer. You may consider trying a filter (see “TechNote TV/Radio Electromagnetic Interference”). If still unacceptable you may try a different model computer, or use a true sine wave inverter such as the PROsine series.

8. Q: Can I mount my PROwatt in the engine compartment ?

A: The PROwatt should not be installed in the engine compartment due to water/oil/acid contamination concerns which can damage the inverter’s electronics. Excessive heat in an engine compartment will also degrade inverter performance. It is best to run battery cables into a dry, cool inverter mounting location.

9. Q: How many amps will the inverter draw? How long will it run?

A: The PROwatt inverters are approximately 90% efficient, therefore a 50-watt load will draw 5 ADC, 100 W will draw 10 ADC, 500 W /50 ADC, and 1000 W 100 ADC and so on. The run time depends on the battery draw, and battery capacity, eg: 100 amp hour battery/10 A load (100 W light bulb) will last approximately 10 hrs until the battery is 100% discharged.

10. Q: What are some difficult loads that may push the limits of a PROwatt inverter?

A: Electric motors often have a start surge 5–10 times the continuous rating. This higher start surge may approach or exceed the inverter's overload shut down point. Fridge or air conditioning compressors and hydraulic or pneumatic pumps, often have very high start surge characteristic (see "TechNote #100002: Air Conditioner/Fridge Compressors").

11. Q: My inverter gets quite hot when I turn on my appliance. Is this okay?

A: The inverter will remain relatively cool at low powers but will tend to warm up with greater power output. The inverter chassis is a heatsink for internal components and can reach up to 60 °C or 140 °F before shutting down into over temp, therefore sufficient air circulation is important at higher powers.

12. Q: I measured the output of my new PROwatt, but it reads low at 102 VAC.

A: The PROwatt inverters produce a modified sinewave signal that tricks most typical voltmeters into reading low due to the waveshape. Most voltmeters are only calibrated to read correctly when reading true sinewave, even if it says "rms voltmeter". There are some more expensive meters such as the Fluke 87 and 8060A which are "true reading RMS voltmeters" and will provide the correct voltage of 115 V nominal regardless of the wave shape of the inverter.

13. Q: My 600-watt microwave won't run from my 800-watt inverter.

A: Microwaves are usually rated at cooking power vs. actual power consumption. The "advertised" rating of 600 watts usually corresponds to almost 1100 W power actual consumption. Although the smallest microwaves will work from a PW800 a "600 W" microwave may overload the PROwatt 800. In such a case a PROwatt 1500 would be a better choice of inverter.

Note:

Magic Chef microwave model DM-46K-15B is rated for approximately 1500 W (a full sized microwave oven) and demands a true sine wave, ie. it will not operate normally from a modified sine wave inverter such as the PROwatt. The best solution is to move up to the PROsine true sine wave inverter series.

14. Q: I can only get a few 11 W low-energy fluorescent lights to work with my PROwatt.

A: The low energy fluorescent light uses an input ballast which results in a very high current pulse on each power cycle when operating from modified sine wave power. The high surge of this light accumulates when using several lights; this can exceed the inverter's overload trip point. A filter as described in TechNote #100002 will allow you to operate more lights, as it tends to reduce the peak currents to less than the trip point through the filter/inductor.

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