

LOAD PERFORMANCE CHART FOR THE 1000W PURE SINE WAVE DIGITAL POWER INVERTER

This power inverter is pure sine wave inverter, it will perform good for most of the appliances. Please refer to below table for applications performance rating comparison of modified sine wave inverter and pure sine wave inverter.

PERFORMANCE RATINGS

	Modified Sine Wave	Pure Sine Wave
LCD/Plasma TV	—	***
Standard TV	**	***
Audio Equipment	*	***
Laptop	***	***
Desktop Computer	**	***
Microwave	**	***
Table saw/Air Compressor	**	***
Hand Power Tool	**	***
Coffeemaker, Toaster, Hair Dryer	***	***
Blender, Mixer, Coffee Grinder	**	***
Laser Printer	—	***
Photo Copier	—	***
Bubblejet Printer	**	***
Fax Machine	**	***
Air Conditioner	*	***
Light (incandescent)	***	***
Light (others)	**	***

— Not Recommended * Adequate Performance ** Good Performance *** Ideal Performance

Test inverter using the enclosed test cables.

Voltage drop should be no more than 0.5 volts using the highest reated appliance(s).

If voltage drop is higher than 0.5 volts, increase cable gauge size.

WARNINGS, CAUTIONS AND NOTES

It's very important that any operator and installer of this inverter read and follow all WARNINGS, CAUTIONS AND NOTES and all installation and operation instructions. In particular, comply with **WARNINGS** (possibility of serious injury or death), **CAUTIONS** (possibility of damage to the inverter and/or other equipment), and **NOTES** (included to assist you in achieving the maximum performance and longest working life from this advanced-design inverter).

WARNINGS: INVERTER OUTPUT

This heavy-duty device produces voltages similar to commercial AC power.

- Danger of shock or electrocution – treat inverter output the same as commercial AC power.
- Do not use the inverter near flammable materials or in any locations that may accumulate flammable fumes or gases. This is an electrical device that can briefly spark when electrical connections are made or broken.
- Do not allow water or other liquids to contact the inverter.
- Do not use appliances with damaged or wet cords. Surrounding air temperature should be between -4°F and 104°F – ideally between 32°F-104°F. Keep the inverter away from direct sunlight, if at all possible.
- Keep the area surrounding the inverter clear to ensure free air circulation around the unit. Do not place items on or over the inverter during operation. The unit will shut down if the internal temperature gets too hot. Restart the inverter after it cools.
- Your inverter will only operate from a 12V power source. Do not attempt to connect the inverter to any other power source, including any AC power source. Do not reverse the DC input polarity – this will void the warranty.
- Do not connect to transfer switch.
- Do not connect to household outlets.

APPLIANCE CAUTIONS

- DO NOT plug in battery chargers for cordless power tools if the charger carries a warning that dangerous voltages are present at the battery terminals.
- Certain chargers for small nickel-cadmium or nickel-metal-hydride batteries can be damaged if powered by this inverter. Two types of appliances are susceptible to damage: Small, battery-operated appliances such as flashlights, cordless razors and toothbrushes that plug directly into an AC receptacle.
- Some fans with synchronous motors may slightly increase in speed (RPM) when powered by the inverter. This is not harmful to the fan or to the inverter.
- Use safety approved extension cords rated at 15 Amps or higher.
- GFCI devices may not work with modified sine wave (MSW) power.
- This inverter is not tested for use with medical equipment.
- This inverter is not tested for use in marine applications.
- In the event of a continuous audible alarm or automatic shut down, turn the inverter OFF immediately. Do not restart the inverter until the source of the problem has been identified and corrected.
- When using your PowerDrive inverter to power lead acid battery chargers (Like those used for a car,boat or motorcycle) with modified sine wave, check the temperature of the battery charger after 10 minutes. If the battery charger becomes hot, immediately disconnect it from the inverter and allow it to cool before resuming the charging operation.
- Do not use power strips woth surge protection.

WARNING: DANGER OF BATTERY EXPLOSION – INSTALL A FUSE

Battery Banks can deliver very high levels of current that can vaporize metal, start fires and cause explosions.

FEATURES

1. Positive Power Input Terminal.
2. Negative Power Input Terminal.
3. High-Speed Cooling Fans. When the temperature inside the inverter exceeds a preset limit, the cooling fan automatically turns on to cool the inverter. When the temperature reduces, the fan turns off.
4. Ground Terminal.
5. Green LED: Battery voltage indicator.
6. Yellow LED: Output power indicator (KW), which will be activated when actual output power larger than 1000W.
7. RED LED: Output power indicator (W), which will be activated when actual output power lower than 1000W.
8. Two screws to attach removable control panel.
9. Four (4) standard North American AC outlets, each rated at 15 Amps.
10. ON/OFF Switch. Turns the inverter ON and OFF.
11. Digital display which can display battery voltage, power watts and error code.
12. Standard USB output 2.4A and USB-C™ output 3.0A
13. Ventilation hole.
14. Voice alarm speaker.

Determining the DC Power Requirements

Your inverter requires the input of a 12-volt battery. To calculate the approximate power in Amps a 12-volt battery bank to you need to know the current, or Amps required for powering the continuous AC load. A shortcut method is to divide the continuous AC load wattage by 10. For example, the continuous AC load is 3000 watts. The current (Amps) is: 3000/10 or 300 Amps at 12 VDC. Add to the load any DC appliances that may be powered by the battery bank.

Sizing the Battery

To determine the minimum battery bank Ampere-hour rating that you will need to operate appliances from the inverter, and any DC appliances powered by the battery bank. Follow these steps:

1. List the maximum wattage that the inverter has to provide (as above).
2. Estimate the number of hours the appliances will be in use between battery recharges. This will vary depending on appliances. As an example, a typical home-use coffeemaker draws 500 Watts during its brew time of 5 minutes, it maintains the temperature of the pot at about 100 watts. Typical use of a microwave oven is only for a few minutes. Some longer operating time appliances are lamps, TV's, computers, and refrigerator/freezers.
3. Determine the total watt-hours of energy needed. Then multiply the average power consumption in watts by the number of hours of run time. For example: 2000 Watts for 10 hours = 20,000 Watts hours. Using the 2000 Watts (or 200 Amps) for 10 hours example as above, then 200 Amps is needed for 10 hours. This provides us with the basic Amp-hours (AH) of battery that is required. Ten hours at 200 Amps equals 2000 Amp Hours (AH). This answer is just a beginning because there are other conditions that determine actual run time.

These include:

- AC appliance load and time in use (Basic Amp Hour)
- Cable gauge and length
- Charge level of the batteries (between use, chargers have to be able to fully charge the batteries)
- Temperature of the batteries (colder batteries provide fewer Amps)
- Age and condition of the batteries (older batteries lose capacity AH hours)
- Compliance with turning off unnecessary AC and DC loads.

PowerDrive recommends installing ANL type fuse/holder or circuit breaker close to the positive battery bank terminal. This fuse protects the batteries from accidental DC cable shorts, which can cause batteries to explode. ANL fuses and fuse holders are available at most hardware supply stores.

PowerDrive circuit breaker accessory available.

PDISB300 - Circuit Breaker with switch.

CAUTIONS

- Loose connections can result in a severe decrease in voltage that can cause damage to cables and insulation.
- Failure to make correct polarity (Pos/Neg) connection between the inverter and the battery bank can result in blowing fuses in the inverter and can permanently damage the inverter. Damage caused by reversed polarity is not covered under the warranty.
- Making the connection to the Positive terminal may cause a spark as a result of current flowing to charge capacitors within the inverter. This is a normal occurrence.
- Because of the possibility of sparking, it is extremely important that both the inverter and the 12-volt battery be positioned far from any possible source of flammable fumes or gases. Failure to heed this warning could result in fire or explosion.
- Operating the inverter without correctly grounding the unit may result in an electrical shock.

GETTING STARTED

When some tools turn on, there is an initial surge of power to start. This surge of power is referred to as the "starting load" or "peak load." Once started, the tool or appliance requires less power to operate. This is referred to as the "continuous load" in terms of power requirements. You will need to determine how much power your tool or

appliance requires to start up (starting load) and it's continued running power requirements (continuous load).

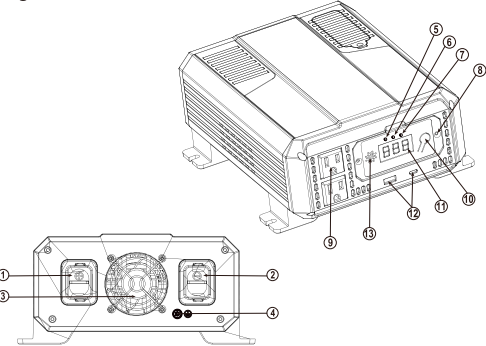
Power consumption is rated in watts, or it can be calculated from Amperes (Amps). This information is usually stamped or printed on most appliances and equipment. If this information is not indicated on the appliance or equipment, check the owner's manual. For electrically sensitive equipment, contact the manufacturer to determine if the device you are using is compatible with modified sine wave AC.

Multiply: **AC AMPS X 110 (AC voltage) = WATTS**

This formula yields a close approximation of the continuous load of your appliance.

Multiply: **WATTS X 2 = Starting Load** for most appliances.

This formula yields a close approximation of the starting load of most appliances. Exceptions are motorized appliances such as pumps, freezers and air conditioners. These appliances can have startup loads of up to eight times the rated watts.



If there is any doubt about sizing the battery bank, it is safe to over estimate the Amp hour requirements of the battery bank.

Note:

The type of batteries you use to power your high-power inverter is important. Operating a high-power inverter will routinely discharge batteries and they will require frequent recharging. Batteries used to start engines are not designed to repeatedly charge and discharge. We recommend using "deep-cycle" or "marine" rated batteries.

CABLE GAUGES

When connecting the inverter to a battery bank use the thickest stranded insulated copper wire available in the shortest length practical.

Mounting the Inverter

Your inverter should not be mounted under the hood of a vehicle. If installing in a vehicle, choose a dry, cool, ventilated area close to the battery as practical. Before drilling any mounting holes, make sure that there are no wires, fuel lines, or tanks directly behind the surface to be drilled.

To mount the inverter:

1. Inverter ON/OFF switch must be in the **OFF** position.
2. The inverter should be mounted horizontally.
3. Position the inverter against the mounting surface and mark locations of the mounting screw openings.
4. Remove the inverter and drill four (4) mounting holes.

LENGTH	PDIPS1000B
1ft	8AWG
2ft	6AWG
3ft	6AWG
4ft	4AWG
5ft	4AWG
6ft	2AWG
7ft	2AWG
8ft	2AWG
9ft	2AWG
10ft	2AWG
RECOMMENDED FUSE SIZE	
AMPERAGE	100A

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