

GENERAL SAFETY RULES

WARNING: Read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury.

SAVE THESE INSTRUCTIONS

- **Avoid dangerous environments.** Don't use appliances in damp or wet locations. Don't use appliances in the rain.
- **Keep away from children.**
- **Store the inverter carefully when not in use.** When not in use, appliances should be stored indoors in a high and dry or locked up place – out of reach of children.
- **Use the inverter for its intended purpose ONLY.** Do not overload the inverter. Trying to power an appliance that draws wattage larger than inverter's capability will result in damage to the inverter.
- **Use right appliance.** Do not use the appliance for any job except that for which it is intended.
- **Disconnect appliances.** Disconnect the appliance from inverter when not in use.
- **Proper cooling is essential when operating the inverter.** Do not place the unit near the vehicle's heat vent or in direct sunlight.
- **Use of accessories and attachments.** Do not use any accessories or attachments that are not recommended to use with your appliance. The result could be hazardous and damage the unit.

SAFETY GUIDELINES: DEFINITIONS

DANGER: Indicates an imminently hazardous situation, if not avoided, will result in death or serious injury.

WARNING: Indicates a potentially hazardous situation, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation, if you don't follow the guidances on the manual or ignore the safety alert symbol and keep in use, may result in injury or property damage.

WARNING: Keep away from WATER, FIRE and SMOKE!

CAUTION: The inverter has protection functions such as over input voltage shut off, low input voltage shut off, over heating self-lock, overload self-lock and short circuit protection, the LED fault indicator will light up when any protection function are activated.

IMPORTANT SAFETY INFORMATION

WARNING: To reduce the risk of electric shock.

- Do not connect to AC distribution wiring.
- Do not make any electrical connections or disconnections in areas designated as ignition protected. This includes 12V/DC cigarette lighter type plug connection. This unit is NOT approved for ignition protected areas.
- Never immerse the unit in water or any other liquids, or use when wet.
- Do not insert foreign objects into the AC/110V outlet or the USB port.

WARNING: To reduce the risk of fire.

- Do not operate near flammable materials, fumes or gases.
- Do not expose to extreme heat or flames.

CAUTION: To reduce the risk of injury or property damage.

- Do not attempt to connect or set-up the unit or its components while operating your vehicle. Not paying attention to the road may result in a serious accident.
- Always use the inverter where there is adequate ventilation. Do not block ventilation areas.
- Always turn the inverter off before disconnecting the inverter from the vehicle battery.
- Make sure the nominal input voltage is 12V DC.
- Do not use with positive ground electrical systems*. Reverse polarity connection will result in a blown fuse and may cause permanent damage to the inverter and will void warranty.
*The majority of modern automobiles, RVs and trucks are negative ground.
- Keep in mind that this inverter is unable to power the appliances or equipment that produce heat, such as hair dryers, microwave ovens and toasters.
- **Do not open the inverter:** there are no user-serviceable parts inside.
- Do not use this inverter with medical devices. It is not tested for medical applications.
- Keep away from children. **This is not a toy!** Install and operate unit only as described in this instruction manual.
- Please be careful when you use this inverter in a boat. It is not qualified for marine applications.

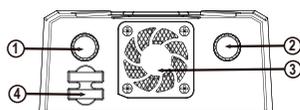
- Check unit periodically for wear and tear. Take to a qualified technician for replacement of worn or defective parts immediately.
- Do not connect the unit to any utility power distribution, systems or branch circuits.
- Do not use the inverter in temperatures over 104°F (40°C) or under 32°F (0°C).
- **Failure to follow these safety guidelines could result in personal injury and/or the damage to the unit. It may also be void of the warranty.**
- Follow the instruction from the manufacturer of your vehicle battery and AC/110V appliance before connecting the inverter to battery. Please pay more attention to the cautionary marking on your vehicle battery.

PRODUCT INTRODUCTION

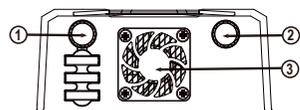
Thank you for purchasing the Powerdrive® inverter. Your inverter can be used to operate personal electronics as shown below:

		PD400	PD750
50W	Game console	X	X
50W-80W	Tablet	X	X
60W-100W	Laptop	X	X
200W	Stereo	X	X
250W	Computer	X	X
350W	3/8" drill		X
400W	Laser printer		X
500W-700W	Portable vacuum		X
600W	Reciprocating saw		X
700W	8-cup coffee maker		X

*Some digital appliances are not compatible with modified sine wave inverters. Check appliance manufacturer for compatibility.

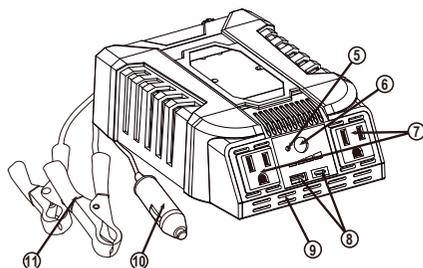


PD1400



PD750

*Only connect with cables – Do not use the DC plug with cable (PD750 only)



*Only use one set of cables at a time

FEATURES

1. Positive DC terminal: Connect the red end of the DC power cord to it.
2. Negative DC terminal: Connect the black end of the DC power cord to it.
3. Cooling Fan and Ventilation Openings: The high speed cooling fan protects the inverter from over-heating.
4. Replaceable blade fuse
5. LED fault indicator
6. Inverter on/off switch
7. AC socket
8. USB and USB-C™ ports
9. Ventilation hole
10. 12V DC plug with cable (PD1400 only)
11. Battery clamps

OPERATING TIPS

The inverter should only be operated in locations that are:

- a. Dry:** Do not allow water or other liquids to come into contact with the inverter.
- b. Cool:** Surrounding air temperature should ideally be between 32°F and 104°F. Keep the inverter away from direct sunlight, when possible.
- c. Well-Ventilated:** 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. The inverter will auto-reset after it cools down.

- d. Safe:** Do not use the inverter near flammable materials or in any locations that may accumulate flammable fumes or gases. This is an electrical appliance that can briefly spark when electrical connections are made or broken.

Please find the "continuous output" and "surge" power of your inverter as below.

PD1400: Continuous output 400W/Surge power 800W
PD750: Continuous output 750W/Surge power 1500W

HELPFUL FORMULAS

To convert AMPS to WATTS: AMPS x VOLTS=WATTS
To convert WATTS to AMPS: WATTS÷VOLTS=AMPS

When you turn on an appliance or a tool that operates using a motor or tubes, it requires an initial surge of power to start up. This surge of power is referred to as the "starting load" or "peak load". Once started, the tool or appliance requires less power to continue to operate. This is referred to as the "continuous load" in terms of power requirements. You will need to determine how much power of your tool or appliance requires to start up and its continued running power requirements.

We recommend that the equipment or appliance switch be in the "OFF" position prior to plugging into the AC receptacle of the inverter. The green LED light will confirm that AC power is on.

1. Attach the ring type connector marked with **red** to the **POSITIVE (+)** DC terminal on the power inverter, and attach the ring connector marked with **black** to the **NEGATIVE (-)** DC terminal.

CAUTION: Reversing the polarity will cause the fuse to be damaged, which can easily be replaced with a new one the back of the inverter.

2. Tighten the nut on each DC terminal by hand until it is snug. Do not over-tighten.
3. Attach the **NEGATIVE (black)** clip to the **NEGATIVE (-)** battery terminal.
4. Attach the **POSITIVE (red)** clip to the **POSITIVE (+)** battery terminal. Make sure both clips are securely connected to the battery terminals, as a loose connection will cause the voltage to drop and may cause the cables to overheat, resulting in equipment damage or fire.
5. Turn on the inverter.
6. When the power inverter is not in use, disconnect the DC cable clips from the battery to prevent slight discharge from the battery.

OPERATING THE INVERTER

1. When properly connected to a 12V battery, turning on the inverter will illuminate the **green** LED light and deliver AC power to the outlet(s).
2. Plug the AC product(s) you wish to operate into the AC outlet(s) and switch them on, one at a time.

CAUTION: If there is more than one AC product connected to the inverter, turn on the higher powered product first.

Through its AC outlet, the inverter is capable of powering most 110V products at its rated power. The inverter will work under input voltage from 11V to 15V DC.

As the battery is used, its voltage will begin to fall. When the inverter senses that the voltage at its DC input has dropped to the range of 10.2V to 10.8V DC.

The red LED indicator illuminates, indicating a fault. This protects the battery from being over-discharged.

Turn off any devices that the inverter is powering. When input voltage rises to 11.7V to 12.3V DC, inverter restores to normal.

CAUTION: Most vehicle batteries are designed to provide short period of very high current for starting the engine. They are not designed for a constant “**deep discharge**”. Constantly operating the unit from a vehicle battery until the low voltage shut off will affect the life of the battery. If you are going to power a appliance for long time, please consider connecting the unit to a separate “**deep discharge**” battery.

Should a defective battery charging system cause the battery voltage to rise to the range of 15V to 16V DC, the inverter automatically shuts down; and the **red** LED lights.

CAUTION: Although the inverter incorporates protection against over-voltage, it may still be damaged if the input voltage exceeds 16V.

If the actual output is higher than rated power of inverter, The inverter will shut down. The **red** LED will light.

The unit will shut down automatically if the inverter exceeds a safe operating temperature due to insufficient ventilation or a high-temperature environment; and the red LED indicator lights.

The cooling fan is designed to operate automatically when the inverter is turned on.

Type	Possible cause	How do you know if the protection is activated?	Solution	Remarks
Over temperature	The PCB temperature is around 230F.	Red LED indicator will light up and the inverter will automatically shut off.	Remove all appliances and turn off the unit by the ON/OFF switch. Cool down for 15 minutes before turning on again.	Please ensure there is ventilation in the surrounding environment.
Input high voltage	Input voltage higher than 15V.	Red LED indicator will light up and the inverter will automatically shut off.	Remove all appliances and turn off the unit by the ON/OFF switch. Check the battery voltage, make sure it is within 11-15V.	Although the inverter has protection against over-voltage, it may still damage the inverter if the input voltage exceeds 16V.
Input low voltage	Input voltage lower than 10.5V.	Red LED indicator will light up and the inverter will automatically shut off.	Remove all appliances and turn off the unit by the ON/OFF switch. Recharge the battery.	
Current overload	If the output power exceeds the rated output power 10 to 15%.	Red LED indicator will light up and the inverter will automatically shut off.	Remove all appliances and turn off the unit by the ON/OFF switch. Then turn on the unit again. Use smaller power consumption appliances.	

THE SELF PROTECTION OF YOUR INVERTER

The following should minimize or eliminate the problem:

- Increase the distance between the inverter and the TV, antenna and cables.
- Adjust the orientation of the inverter, TV, television, antenna and cables.
- Maximize TV signal strength by using a better antenna and use shielded antenna cable where possible.

SPECIFICATIONS

Model	PDI400	PD750
Input	11-15V DC	11-15V DC
Output	115V AC	115V AC
Output Frequency	58-62Hz	58-62Hz
Output Waveform	Modified Sine Wave (MSW)	Modified Sine Wave (MSW)
Continuous Power	400W	750W
Surge Power	800W	1500W
Efficiency	85% Max	85% Max
No Load Draw	<0.6A	<0.6A
Low Battery Shutdown	10.5±0.3V DC	10.5±0.3V DC
USB Output Port	2.4A	2.4A
USB-C Output Port	3.0A (15W)	3.0A (15W)
AC Output Socket	2 Standard North American Sockets	2 Standard North American Sockets
Internal Fuse/ Replacement Fuse	2-35A blade fuse (replaceable)	2-35A blade fuse (replaceable)
Operating Temp	Ideally 32°F-104°F	Ideally 32°F-104°F
Battery Low Alarm	NA	NA
Power Cable Length	2'	2'
Dimensions	7.87" x 5.15" x 2.24"	9.17" x 5.78" x 2.54"
Net Weight	1.2 lbs.	2.0 lbs.

*If using the 2 USB ports simultaneously, the total output will be 4.8A max.

TROUBLESHOOTING

Problem	Cause	Solution
No power, no indicator	Battery is defective.	Replace battery.
	Blown fuse.	Check and replace fuse.
	Lose cable connections.	Check the connection to the battery. Tighten as required.
The red LED indicator illuminates unit is shut off	The actual output is higher than rated power of inverter, Overload protection has occurred.	Reduce load to have the actual output lower than rated power of inverter.
	The actual output is less than rated power, but high starting surge has caused overload shutdown.	Use a product with starting surge power within the inverter's capability.
	The voltage input is too low.	Charge the battery.
Inverter is overheated due to poor ventilation and has shut down.		Disconnect the inverter from battery or DC socket and allow to be cooled for 15 minutes. Please ensure to remove objects covering the unit.

BATTERY OPERATING TIME

Operating time will vary depending on the charge level of the battery, its capacity and the power level drawn by the particular AC load. With a typical vehicle battery load, an operating time of 1 hour or more can be expected.

When using a vehicle battery as a power source, it is strongly recommended to start the vehicle every hour to recharge the battery before its capacity drops too low. The inverter can operate while the engine is running, but the normal voltage drop that occurs during starting of the engine may trigger the inverter's low voltage shutdown feature.

Because the power inverter draws less than 0.5A with it turned on and no AC product connected, it has minimal impact on battery operating times.

INTERFERENCE WITH ELECTRONIC EQUIPMENT

Generally, AC products operate with the inverter just as they would with household 110V/AC power. Below is the information concerning two possible exceptions.

BUZZING AND IN AUDIO SYSTEMS AND RADIOS

Some stereo systems and AM/FM radios have inadequate internal power supply filtering and “**buzz**” slightly when powered by the inverter. Generally, the only solution is an audio product with a higher quality filter.

TELEVISION INTERFERENCE

The inverter is shielded to minimize its interference with TV signals. However, with weak TV signals interference may be visible in the form of lines scrolling across the screen.



**OWNER'S GUIDE
PDI400/PD750**

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Problem	Cause	Solution
Inverter runs small loads but not large loads	Low voltage battery.	Charge the battery.
	Water entered the unit.	Disconnect the inverter and wipe immediately with a dry cloth, or permanent damage can occur from the liquid.
Water entered	Standard “average-reading” AC voltmeter used to measure output voltage, resulting in an apparent reading 5 to 15V too low.	Inverter's “modified sine wave” output requires “true RMS” voltmeter for accurate measurements.
	Battery voltage is too low.	Recharge battery.
Measured inverter output is too low	AC product power consumption is higher than rated.	Use a larger battery to make up for increased power requirement.
	Battery is old or properly defective.	Replace battery.
Battery run time is less than expected	Battery is not being properly charged.	Some chargers are not able to fully recharge a battery. Make sure you use a powerful charger.
	Power dissipation in DC cables.	Use shorter/heavier DC cables.