

DC to AC Power Inverter User's Guide

Placement Guidelines

For optimum operation, Inverter should be Placed on a flat surface such as the floor of a car. THE LOCATION SHOULD BE:

- Dry. Do not expose to water drip or spray
- Cool. Operate only in ambient temperatures between 32° F (0°C) and 104° F (40°C) Keep away from heat vents.
- Well ventilated. Allow at least 2 inches (5 cm) clearance above and on all sides of the Inverter for proper cooling.

Using the Power Inverter

The 100P/150P/300P/500P is capable of continuously powering most 220-volt AC products that use 80w/120w/240w/400w or less. Its AC output waveform, called "modified-sine wave", is designed to function similarly to the sine wave shape of utility power. Most AC products rated for 80w/120w/240w/400w or less will operate normally with the 100P/150P/300P/500P.

The power or "wattage" rating of AC products is the average power they use. When many AC Products are first switched on, they initially consume more power than their power rating. TVs, monitors, and electric motors are examples of products that have high "surge" requirements at start up. Although the 100P/150P/300P/500P can supply momentary surge power as high as 200w/300w/600w, 1000w, occasionally some products rated less than 80w/120w/240w/400w may exceed its surge capabilities and trigger its safety overload shutdown feature.

Indicators Controls and Connectors

- An AC outlet is provided on one end of the Inverter. A 220-volt AC product with a continuous power consumption of 80w/120w/240w/400w or less, may be plugged in.
- The Inverter receives its operating power through its DC Plug that fits standard vehicle cigarette lighter sockets and 12-volt power outlets.

■ Thank you buying the SAD series power source converter, that series product volume is deft, sets up the inside having the various protection function, life time having effect extension converter and storage battery, may be to use electrical equipment to provide the safe reliable power source.

- Hint mild and fragrant: Ask you to read the usage guide before using a product.

- The ON/OFF switch enables output AC power at the AC outlet when switched ON.
- The green POWER light indicates AC power is present at the AC outlet and the Inverter is operating normally.
- The red FAULT light indicates inverter shutdown caused by low or high battery voltage, overload or excessive temperature.
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Inverter Operation

- Plug the Inverter DC Plug into a vehicle's cigarette lighter or 12-volt outlet.
- Turn the AC product you wish to operate into the AC outlet and switch it on. As the battery charge is used up, battery voltage begins to fall. When the Inverter senses the voltage at its DC input has dropped to 10.7 volts, an audio warning is provided. When input voltage drops to 10.0 volts, the Inverter will automatically shut down to prevent battery damage. The red FAULT light illuminates.
- If the Inverter exceeds a safe operation temperature, due to insufficient ventilation or a high temperature environment, it will automatically shut down. Then red FAULT light will turn on.



CAUTION! Although the Inverter incorporates protection against over-voltage, it may still be damaged if the input voltage exceeds 16 volts.

- In the event of an overload, low battery voltage or overheating, the inverter will automatically shut down. (See Section 4.)
Interference with Electronics Equipment

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

Buzzing Sound in Audio Systems

Some inexpensive stereo systems and "boom boxes" have inadequate internal power supply filtering and "buzz" slightly when powered by the inverter. Generally, the only solution is an audio

Television Interference

The Inverter is shielded to minimize interference with TV signals. However, with weak TV signals interference may be visible in the form of lines scrolling across the screen. The following should minimize or eliminate the problem.

- Use an extension cord to increase the distance between the Inverter and the TV antenna and cables.
- Adjust the orientation of the Inverter, 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.


Battery Operating Time


When using the Inverter, 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 and a 50-watt load (such as a portable stereo/CD player), an operating time of 5-6 hours or more can be expected.


When using a vehicle battery as a power source, it is strongly recommended to start the vehicle every hour or two 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 may trigger the inverter's low voltage shutdown feature. Because the inverter draws less than 0.15 amps with the ON/OFF switch in the ON position and with no AC products connected, it has minimal impact on battery operating times.


WARNING & CAUTION

Incorrect installation or misuse of the inverter may result in danger to the user or hazardous conditions. We urge you to pay special attention to all CAUTION and WARNING statements. CAUTION statements identify conditions or practices that may result in damage to the inverter or to other equipment. WARNING statements identify conditions that may result in personal injury or loss of life.

-  **WARNING! Shock hazard. Keep away from children.**
- The inverter generates the same potentially lethal AC power as a normal household wall outlet. Treat it with the same respect that you would any AC outlet.
 - Do not insert foreign objects into the inverter's AC outlet or vent openings.
 - Do not expose the inverter to water, rain, snow or spray.
 - Do not, under any circumstances, connect the inverter to power utility AC distribution wiring.
 - Failure to follow the above instructions may result in personal injury or damage to the inverter.

-  **WARNING! Heated surface.**
- The inverter's housing may become uncomfortably warm, reaching 140°F (60°C) under extended high power operation.
 - Ensure at least 2 inches (5 cm) of air space is all sides of the inverter. During operation, keep away from materials that may be affected by high temperatures.

-  **CAUTION!**
- Do not connect any AC product to the inverter, whose neutral conductor is connect to ground.
 - Do not expose the inverter to temperatures in excess of 104°F (40°C)

-  **CAUTION! Do not use the inverter with the following equipment:**
- Small battery operated products such as rechargeable flashlights, some rechargeable shavers, and night-lights that are plugged directly into an AC receptacle for recharge.
 - Certain battery chargers for battery packs used in hand powered tools. These chargers will have warning labels stating that dangerous voltages are present at the charger's battery terminals.

Troubleshooting

- **Problem:** AC product will not operate, no inverter lights are on.
Possible Cause: **Suggested Remedy:**

Poor contact with lighter socket or 12-volt

Lighter socket or 12-volt outlet may require ignition to be switched on.

Cigarette lighter or 12-volt outlet fuse is blown.

Inverter has been connected with reverse DC input polarity.

- **Problem:** Measured inverter output is too low.

Possible Cause:
 Standard "average-leading" AC voltmeter used to measure output voltage. Reading 5 to 15 volts too low.

Battery voltage is too low.

- **Problem:** Battery run time is less than expected

Possible Cause:
 AC product power consumption is higher than rated.

Battery is old or defective.
 Battery is not being properly charged.

Press plug firmly into socket, clean plug or socket if necessary. Turn key to accessory position.

Check vehicle fuses and replace blown fuse with correct value.

Probable inverter damage has occurred. Have unit repaired.

Suggested Remedy:

Inverter's "modified sine wave" output requires true RMS voltmeter, such as Fluke 87 series millimeter, for accurate measurement.

Recharge battery.

Suggested Remedy:

Use a large battery to make up for increased power requirement.

Replace battery.
 Have vehicle electrical system checked by a qualified technician.

Technical Data

ITEM	MODEL	100W	150W	200W	300W	500W	800W	1000W	1200W	1500W	2000W	2500W	3000W
Continuous AC output power		80W	120W	160W	240W	400W	640W	800W	900W	1200W	1600W	2000W	2400W
Maximum AC output power		300W	300W	400W	600W	1000W	1600W	2000W	2400W	3000W	4000W	5000W	6000W
Output voltage		220V ± 10%, 50 ± 2Hz or 110V ± 10%, 60 ± 2Hz											
Waveform		Modified sine wave											
Input voltage		12V			24V				48V				
Low battery alarm		10.5 ± 0.5V			21 ± 0.5V				42 ± 0.5V				
Low battery shut-off		≤ 9.5V			≤ 19V				≤ 38V				
High battery shut-off		≥ 14.5V			≥ 28V				≥ 56V				
Peak efficiency		≥ 85%			≥ 90%				≥ 95%				
Fuse (A)		---/20/30/60/90/120			---/10/20/30/45/60/60/80/120/120/---				---/5/10/20/30/40/40/40/60/60/---				
SIZE (mm)	L	78	105	105	150	195	225	250	250	330	380	380	430
	W	62	63	70	95	95	95	165	165	190	190	190	190
	H	25	38	46.6	55	55	55	60	60	74	74	74	74
Weight (kg)		0.2	0.28	0.35	0.54	0.72	0.86	1.48	1.48	2.6	3.5	3.5	4.3