AD Series

150W / 300W /600W / 1200W

Pure Sine Wave Inverter

Fabulous housing design!!

Anytime, Anywhere

Power it up when necessary!!

CONTENTS

A. General Safety Precautions

1. Do not expose the Inverter to rain, snow, spray, bilge or dust. To reduce risk of hazard, do not cover or obstruct the ventilation openings.
   Do not install the Inverter in a zero-clearance compartment. Overheating may result.
2. To avoid a risk of fire and electronic shock, make sure that existing wiring is in good electrical condition, and that wire size is not undersized. Do not operate the Inverter with damaged or substandard wiring.

B. Explosive Gas Precautions

This equipment contains components, which can produce arcs or sparks. To prevent fire or explosion, do not install in compartments containing batteries or flammable materials or in locations which require ignition protected equipment. This includes any space containing gasoline-powered machinery, fuel tanks, or joints, fittings, or other connection between components of the fuel system.

C. Precautions When Working With Batteries

If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 20 minutes and get medical attention immediately.

1. NEVER smoke or allow a spark or flame in vicinity of battery or engine.
2. Do not drop a metal tool on the battery. The resulting spark or short-circuit on the battery or other electrical part may cause an explosion.
3. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery produces a short-circuited current high enough to weld a ring or similar to metal, causing a severe burn.

D. Features

1. Pure sine wave output.
2. Output over load protection.
3. Output short circuit protection.
4. Soft start function.
5. Low battery alarm and protection.
6. High battery protection.
7. High temperature alarm and protection.
8. Reverse polarity protection.

E. Introduction

If we discuss the high C/P value of power inverters, we must also include this AD Series power inverter. Despite of its light weight design, it is operated on pure sine wave system. Not to mention its affordable price, the stability has make AD Series so unique.

To get the most out of the power inverter, it must be installed and used properly.

Please read the instructions in this manual before installing and using this model.

F. Front View & Main Functions

150W	300W
	
600W	1200W
	

1. ON / OFF switch:
   Power ON/OFF switch, leave in the OFF position during installation.

   Light:

   In Green: Normal

   In Red: Fault (Overload, Over Temp.)

2. AC outlet (Outlet sockets available)：
   North America (GFCI)

   North America

   Continental European (Schuko)

   Australia / New Zealand

   United Kingdom

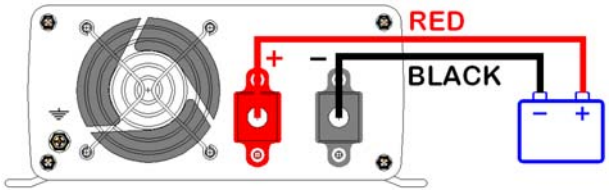
Universal Socket

G. Rear View & Main Functions

150W	300W
	
600W	1200W
	

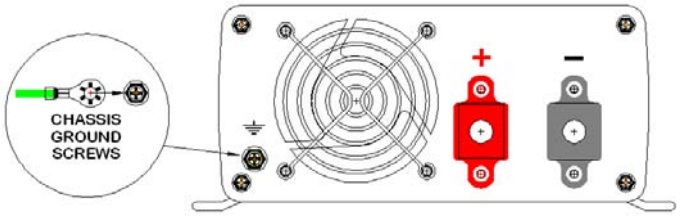
1. Ventilation window：
   Do not obstruct; allow at least 1 inch for air flow.
2. Battery terminals：

Caution: Do not reverse input. Use Red battery cord to connect Battery (+) to Red Terminal (+). And then, use Black battery cord to connect Battery (-) to Black Terminal (-).



3. Chassis Earth:

The chassis earth lug should be connected to an earth point. Which will very depending on where the inverter is installed.



4.

WARNING!
Operation of the inverter without a proper ground connection may result in an electrical safety hazard.

WARNING!
Shock Hazard. Before proceeding further, ensure that the Inverter is NOT connected to any Batteries, and that all wiring is Disconnected from any electrical Sources. Do not connect the output terminals of the Inverter to an incoming AC sources.

H. Quick hook – up and testing

If you would like to quick hook-up the power inverter and check its performance before going ahead with your installation, please follow these guidelines:

1. Unpack and inspect the power inverter and make sure the power switch in the OFF position.
2. Connect the DC NEGATIVE cable to the Negative (NEG-) terminal of the battery, next connect the cable to the negative terminal of the inverter.
   The connection to the negative terminal of the Inverter should be the last connection made.
   **A spark when making this final connection is normal.

WARNING!
Make sure all the DC connections are tight. Loose connections will overheat and could result in a potential hazard.

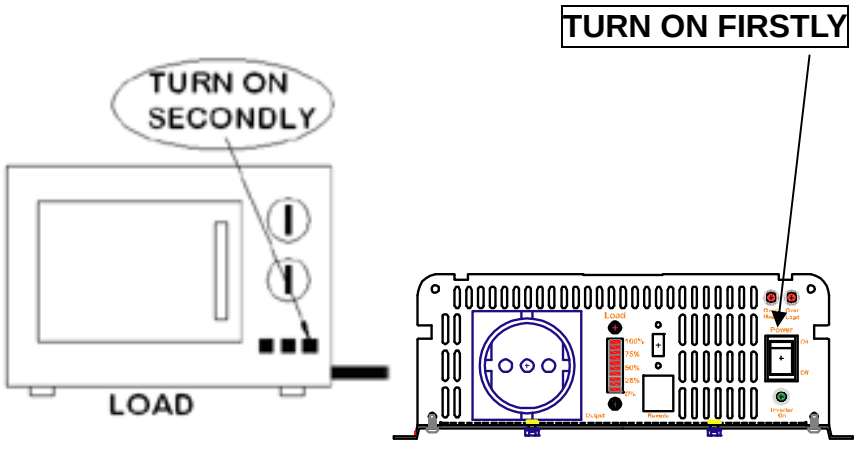
3. Before proceeding further, carefully check that cable you just connected from the negative terminal of inverter to the negative output terminal of power source.

CAUTION!
Reverse polarity connection will blow a fuse in Inverter and may permanently damage the inverter.
Damage caused by reverse polarity connection is not covered by our warranty.

4. Connect the cable from the positive terminal of inverter to the positive terminal of the power source. Make secure connection.

WARNING !
You may observe a spark when you make this connection since current may flow to charge capacitors in the power inverter.
Do not make this connection in the presence of flammable fumes, explosion or fire may result.

5. Set the power switch to the ON position.
When connect to any appliance. Be sure to turn on inverter first and then turn on the power switch of the appliance.



6. Set power inverter switch to the OFF position, the indicator lights may blink and the internal alarm may sound momentarily, which is normal.
Plug the test load into the AC receptacle on the front panel of the inverter. Leave the test load switch off.
7. Set power inverter switch to the ON position and turn the test

load on, the inverter should supply power to the load. If you plan to measure the true output r.m.s. Voltage of inverter, the meter such as FLUKE 45 BACKMAN 4410 or TRIPLETT 4200 must be used.

I. Installation

1. Place the Inverter at a desire location.

   With the following requirement

   (a) Dry – Do not allow water to drip or splash on the inverter.

   (b) Col – Ambient air temperature should be between 0℃ and 40℃, the cooler the better.

   (c) Safe – Do not install in a battery compartment or other areas where flammable fumes may exist, such as fuel storage are as or engine compartments.

   (d) Ventilated – Allow at least one inch of clearance around the inverter for air flow. Ensure the ventilation openings on the rear and bottom of the unit are not obstructed.

   (e) Dust-free – Do not install the Inverter in a dusty environment where either dust, wood particles or other filings/shavings are present. These can be pulled into the unit when the cooling fan is operating.

   (f) Close to battery/batteries –

   Avoid excessive cable lengths but do not install the Inverter in the same compartment as batteries. Use the recommended wire lengths and sizes (see section 7.3). Also do not mount the Inverter where it will be exposed to the gases produced by the battery. These gases are very corrosive and prolonged exposure will damage the Inverter.

2. Connect the Inverter DC input terminals directly to battery with the attached wires.

   Your cables should be as short as possible (ideally, less than 10 feet / 3 meters) and large enough to handle the required current, in accordance with the electrical codes or regulations applicable to your installation.

3. Connect product to the inverter.

   During the AC wiring installation, AC input and output ground wires are connected to the inverter. The AC input

ground wire must connect to the incoming ground from your AC utility source. The AC output ground wire should go to the grounding point for your loads

J. Operation

To operate the power inverter, turn it on using the ON/OFF switch on the front panel. The power inverter is now ready to deliver AC power to your loads. If you are operating several loads from the power inverter, turn them on separately after the inverter has been turned on. This will ensure that the power inverter does not have to deliver the starting currents for all the loads at once.

K. Operating limits

Power output

The inverter will operate most AC loads within its power rating. When deeming whether a microwave over can be operated by the inverter, remember that the power commonly advertised for microwave ovens is the cooking power (the power delivered to the food) not the power actually consumed by the microwave oven. The microwave over will consume 40% to 100% more than its advertised cooking power. Check the rating sticker on the back of the over to determine its actual power draw. The Power inverter may not be able to start some of this motor even though their rated current draw is within the power inverter. If motor refuse to start, observe the battery voltage indicator while trying to Start the motor. If the battery voltage indicator drops below 11 volts while inverter is attempting to start the motor, this may be why the motor won't start. Make sure that the battery connections are good and that the battery is fully charged. If the connections are good and the battery is charged, but the voltage still drops below 11 volts, you may need to use a larger battery.

L. Trouble shooting

If the inverter does not operate correctly, please attempt to solve the problem using the methods below.

1. **Poor Contact**
   *Clean contact parts thoroughly.
2. **Output receptacle has no power**
   *Check car fuses, replace damaged fuses. (600W/1200W is located inside the PCB. Replace fuse with a fuse of equivalent value)
   *Check receptacle wiring, Repair if necessary.
3. **Overload caused AC output power not appear**
   *Reduce the wattage of your load to lower than inverter's continuous power
4. **Thermal caused AC output power not appear**
   *Under heavy loads for extended periods of time. The inverter output will shutdown to prevent damage to excess heat. If this happens, please proceed as below,
   1) Switch off the power switch of this inverter.
   2) Decrease load of this machine. i.e. disconnect some of the appliances or wait until this inverter become cool.
   3) Switch on the power switch of this inverter.
5. **Low battery shutdown**
   *Recharge your battery and resume operation.

CAUTION:

1. Keep this unit away from wet area, direct sunlight and bad ventilation enviroments
2. If you are operating the Inverter in a moving vehicle, we recommended that you secure the Inverter to prevent it from shifting around while vehicle is moving.
3. Connect to the loads under the Inverter's specifications only.
4. Risk of electric shock, don't remove the top and side covers.

M. Specifications

Model No.		150W-12 150W-24	300W-12 300W-24 300W-36 300W-48	600W-12 600W-24 600W-36 600W-48	1200W-12 1200W-24 1200W-36 1200W-48
Continuous Output Power		150W	300W	600W	1200W
Output Power Surge		300W	500W	1000W	2000W
AC Output Voltage		100/110/120V 220/230/240V			
Output Voltage Regulation		Vrms +/- 5% All models			
Output Frequency		50HZ or 60HZ			
Output Wave Form		Pure Sine Wave < 3% THD			
Efficiency (Full Load)		> 83%~85%			
Input Voltage Range		12Vdc: 10V – 16V / 24Vdc: 20V – 32V 36Vdc: 30V – 48V / 48Vdc: 40V – 64V			
Low Battery Alarm		12Vdc: 10.5 ±0.2V / 24Vdc: 21 ±0.4V 36Vdc: 31.5 ±0.6V / 48Vdc: 42 ±0.8V			
Low Battery Shutdown		12Vdc: 10 ±0.3V / 24Vdc: 20 ±0.4V 36Vdc: 30 ±0.5V / 48Vdc: 40 ±0.6V			
High Battery		15.5 ±0.5V / 31 ±1V 46.5 ±1.5V / 62 ±2V		17 ±0.5V / 34 ±1V 51 ±1.5V / 68 ±2V	
Protection	**High temperature**	>60℃ shutdown		>60℃ alarm >65℃ shutdown	
	Short circuit	YES			
	Overload	YES			
	Cooling fan on	X	>40℃	>45℃	
Environ-ment	**Temp. Coefficient**	0 ~ 40 °C			
	Storage Temp., Humidity	-40 ~ +70 / 10 ~ 95% RH			
Indicator	**Audio**	Alarm when battery low & high temperature			
	Visual	Green: Normal / Red: Fault (Overload, Over Temp.)			
Dimensions（L ×W ×H mm）		212x118x58	232x118x58	335x171x73	395x213x76
Weight (Kgs)		1.15KGS	1.2KGS	2.9KGS	4.5KGS