

Prue/Modified wave Power inverter Manual

⚠️ Note: The modified power inverter is not compatible with the inductive product which contain the motor or transformer (such like the air conditioner, power transformer, compressor). Or it will damage the motor and other electronic board when power supplied by the modified wave inverter. Modified inverter will supply the stable power to the LCD TV ,Led lamp etc.
Please use the **Pure sine wave inverter** to supply the stable power for these inductive product.

POWE INVERTER DAMAGE OVERLOAD IS NOT COVERED UNDER WARRANTY.

Some appliances, especially microwave ovens ,air conditioners or power tools with large electric motors draw a surge of power when first turned on – a “Surge Current”. The “Surge Current” may be around 5-10 times the rated power consumption shown on the appliance label.
Items that draw a large “Surge Current” or Switch-One Surge” require an inverter with a continuous rating of around at least 5 TIMES the Power shown on the appliance label.
DO NOT connect an appliance that will overload the inverter or cause damage due to “Surge Current”.
When the overload protection is activated. Please disconnected the appliance and check the eligibility of the power requirement.

⚠️ WARNING!
Read and understand all safety warnings and instructions carefully before using this machine. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save this manual for future reference.

⚠️ ATTENTION!
Products covered by this manual will vary in appearance, assembly, inclusions, description and packaging.

⚠️ NOTE!
This manual covers multiple styles of product as well as options / accessories that may not be suitable for the machine you have purchased.

⚠️ ⚠️ It is important you read and understand the instruction manual before use and keep the manual in a safe place for future reference. Safety precautions must be observed to reduce the risk of personal injury when operating this machine. If you are not familiar with the safe operation/handling of this equipment, or are in any way unsure of any object of this products suitability or correct use for your application you should complete training conducted by a person or organisation qualified in safe use and training related to this product. This includes fuel / electrical handling and safety if applicable to this product or your application.

General safety
⚠️ IMPORTANT! Like all equipment this unit must be handled carefully.
WARNING!
Do not expose yourself or others to danger. Do not permit others to use the equipment unless they have read this manual and are trained in its operation.
WARNING!
Do not operate if the equipment is damaged or is in an excessively worn state.
WARNING!
The term “equipment” in all of the warnings refers to your product be that mains, battery or fuel powered products refers to any part of the product(s) / device(s) both directly and indirectly related to its function and use.
Work area safety
Keep work area clean and well lit. Cluttered or dark areas invite accidents. Do not operate equipment in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Keep children and bystanders away while operating equipment. Never allow children to access the equipment. Avoid operating while people, especially children or pets are nearby.

Personal safety
Stay alert, watch what you are doing and use common sense when operating equipment. Do not use equipment while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating equipment may result in serious personal injury. Use personal protective equipment; protective equipment used for appropriate conditions will reduce personal injuries. Ensure the equipment is switched off before connecting a te power source, picking up or carrying the equipment. Never touch the mains plug and the socket with wet hands. This (appliance / equipment / product) is not intended for use by persons with reduced physical, sensory or mental capabilities. Keep packaging film away from children - risk of suffocation! The operator must use the appliance correctly. When working with the appliance; consider the local conditions and pay due care and attention to other persons, in particular children, who are nearby.

Electrical safety
DANGER!
Electric Shock can kill.Power plugs must match the outlet. Never modify a plug in any way. Do not use any adapter plugs with earthed (grounded) equipment. Unmodified plugs and matching outlets will reduce risk of electric shock. There is an increased risk of electric shock if your body is earthed or grounded. Do not expose equipment to rain or wet conditions. Water entering equipment will increase the risk of electric shock. Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the equipment. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock. When operating any equipment outdoors, use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.
Equipment use and care
Use the correct equipment for your application. The correct equipment will do the job better and safer at the rate for which it was designed. Do not use the equipment if the On/Off switch does

not turn it on and off. Any equipment that cannot be controlled with the On/Off switch is dangerous and must be repaired. If applicable, disconnect the any plugs from a power source and/or the battery pack from the equipment before making any adjustments, changing accessories, or storing equipment. Such preventive safety measures reduce the risk of starting the equipment accidentally. Do not allow persons unfamiliar with the equipment or these instructions to operate the equipment. Equipment is dangerous in the hands of un-trained users. Maintain equipment. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the equipment's operation. If damaged, have the equipment repaired before use. Many accidents are caused by poorly maintained equipment. Use the equipment and accessories etc. in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation. Always clean dust and dirt off the equipment - do not use any grease solvents. Always keep the equipment clean. After use, the equipment and components may still be hot. Never place the equipment in any places where there are flammable materials such as dry grass, combustible gases or combustible liquids etc. Let the equipment cool before storing indoors.
Service
Have your equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any maintenance or repair work not described in this instruction manual. Have all other work performed by an authorised service person. We recommend that you have servicing and repair work carried out exclusively by an authorised service person. Before proceeding to adjust or repair the equipment; be sure to detach any power source. Never attempt to make adjustments while the equipment is running. Always make adjustments with the equipment resting on a flat, clear surface. Replace any worn, damaged or removed warning labels immediately.

⚠️ BEFORE USE!
If you are not familiar with the safe operation / handling of this equipment, or are in any way unsure of any object of this products suitability or correct use for your application you should complete training conducted by a person or organization qualified in safe use and training related to this product. This includes fuel / electrical handling and safety if applicable to this product or your application.

⚠️ WARNING!
Only a fully licensed electrician should perform installation or maintenance where terminals/wiring/circuit boards that may at any time be live with 240V AC electricity are accessed.

WARNING!

Please note the following points to reduce chances of fire or electrocution.
HIGH VOLTAGE:
Internal voltages reach in excess of 300V. This is not a toy. Keep dry, well-ventilated and prevent access by persons unfamiliar with inverters.

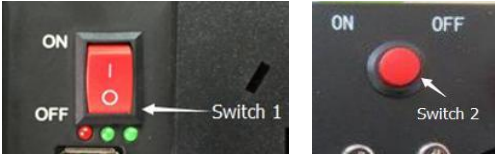
INSTALLATION
Permanent or vehicle installation requirements vary depending on jurisdiction, vehicle and application, hence only general guidance is supplied below. Consult vehicle manufacturer and local regulations to ensure your installation complies with both the vehicle it is installed into and the states/areas the inverter system will be operated in.

INSTALLERS:
If installing the inverter or associated wiring into a permanent location, or into a vehicle, caravan or boat, a licensed electrician must be used for earthing and 240V wiring requirements. A qualified auto electrician may be required for 12V (12 Volt) wiring, fuses and circuitry.

12V WIRE GAUGE (THICKNESS):
Use of wiring with inadequate rated capacity (commonly too thin) will result in the wire heating up or burning when a large amount of power is drawn from the system. Burning wire will cause fire! 12V wiring for a 3000W inverter must be capable of handling hundreds of amps - this is very thick wire. Consult a qualified Auto - Electrician when selecting suitable12V wire.
PLEASE USE THE POWER SUPPLY CABLE COME WITH THE PRODUCT.

FUSES:
A separate fuse or circuit breaking device should be placed "at the battery" to protect 12V wiring in the case of overload or short - circuit.

*For the Remote model(If product come with):



Switch 1: Switch 2:

REMOTE MODE: Step1: ON, OFF;
Step 2: Remote: ON/OFF
MANUAL MODE: Step1: OFF; Step 2: ON/OFF

(The remote distance will be shorter when the battery power is low. Please replace 2pcs of 3V cell button battery inside)

*Note: The Auto smart Fan system wont work until the temperature reach 45℃ to save the power consumption.(600W is not included with the smart Fan system).
The output power will be low if the battery voltage is low .Please recharge the battery power.

KEEP 12V SUPPLY CABLES AS SHORT AS POSSIBLE:
When under load, due to high currents drawn through the 12V wiring, the voltage present at the 12V terminals on the inverter may be less than at the battery. This may result in incorrect inverter operation. Shorter supply cables will reduce voltage drop.
PLEASE USE THE POWER SUPPLY CABLE COME WITH THE PRODUCT.

1.Introduction
Thank you for purchasing our Power Inverter. It is a compact and highly portable power inverter, is the leader in the field of high frequency inverter . From the 12V/24V/48V DC outlet in your vehicle or boat, or directly from a dedicated 12V/24V/48V DC battery, the inverter will efficiently and reliably power a wide variety of household AC products, such as TVs, computers, VCRs, etc. The inverter is designed to provided years of trouble-free operation and includes automatic safety monitoring circuit to protect the inverter, and your battery, and loads from inadvertent overload conditions.
Read this guide before installing or using the Inverter and save it for future reference.

Operating Instructions
This product was developed carefully and designed for permanent use. Please read these instructions carefully and keep them for subsequent reference. Please read the PRECAUTIONS section carefully to avoid any damage to the power inverter or the other units that are used.

2.Safety First
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 as you use any other AC outlet.
 - Do not insert foreign objects into the inverter's AC outlet,fan or vent openings.
 - Do not expose the inverter to water,rain,snow or spray.
 - Do not,under any circumstance,connect the inverter to AC Power.
- ⚠️ WARNING! Heated surface.**
 - The inverters housing may become uncomfortably warm,reaching 140 F(60℃)under extended high power operation.Ensure at least 2 inches(5 cm)of air space is maintained on all sides of the inverter.During operation,keep away from materials that may be affected by high temperature.
- ⚠️ WARNING! Explosion hazard.**
 - Do not use the inverter in the presence of flammable fumes or gases ,such as in the bilge of a gasoline powered boat, or near an propane tanks. Do not use the inverter in a enclosure containing automotive-type,lead-acid batteries . These batteries ,unlike sealed batteries, vent explosive hydrogen gas which can be ignited by sparks from electrical connection.
 - When working on electrical equipment always ensure someone is nearby to help you in an emergency.

Note: The remote is compatible for all model with remote function. Please keep each inverter at least 15m away to avoid the interference.

CAUTION!

- Do not connect live AC power to the inverter's AC outlets. The inverter will be damaged even if it is switched OFF.
- Do not expose the inverter to temperatures exceeding 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 nightlights that are plugged directly into an AC receptacle to 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.
- Note DC voltage of battery should be connected with input DC voltage of power inverter (for example, DC12V of battery connect with input voltage 12V of the inverter)

Don't disassemble or modify the inverter by yourself.

3. Safety Features

- Input protections: Polarity reverse (Fuse broken)/Over and under voltage/Low battery Alarm and shut Down
- Output protections: Short circuit / Overload / Over temperature
- With power ON/OFF switch and LED indicator
- Input and output fully isolation
- Low power consumption(standby)
- LVD meet EN60950 and e8 mark
- FMC meet EN61000-6-3, EN55022

4. Install (Using) Environment

For safe and optimum performance, install the inverter in a location that is ...

- Dry. Do not expose to water drip or spray.
- Cool. Operate only in ambient temperatures between 32F (0 °C) and 104F (40 °C). Keep away from surface heating vents or other heat producing equipment.
- Well ventilated. Allow at least 2 inches (5 cm) clearance above and on all sides of the unit for proper cooling.
- Safe. Do not install inverter in a compartment with batteries or flammable liquids, such as gasoline, or explosive vapors.
- Clean and free of dust and dirt. This is especially important if the Jazz Inverter is used in a working environment.

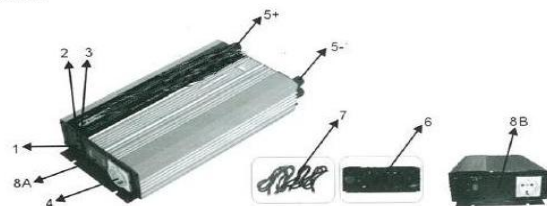
Selecting a Suitable Location

5. Working Principle

The inverters work in two stages. During the first stage, the DC to DC converter increases the DC input voltage from the power source (eg. a 12 volt battery) to 300 DC volts. In the

second stage, the high voltage DC is converted to the watts you need (AC) using advanced power MOSFET transistors or IGBT technology in a full bridge configuration. The result is excellent overload capability and the capacity to operate difficult reactive loads.

6. Sketch



(This picture just for reference, the product subject to the real model)

7. The instruction of controllers

(1) ON/OFF power switch

This switch turns ON/OFF the inverter

(2) Power indicator

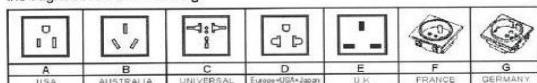
When lit, it indicates the inverter has been turned on, and is ready for use

(3) Overload (Fault) indicator

If the LED overload on, it indicates that the inverter is in the state of warning or protection, please stop to use it soon.

(4) AC outlets

Output AC power, Please see the following Photos. Different countries can select the Right socket as following.



(5+) 5- Battery connections posts

Please connect the inverter to the battery, using the included connecting wire Pay (10) attention to polarity when plug the alligators to the battery. Red terminal is positive (5+) and black terminal is negative (5-).

(6) High speed cooling fan

The fans cool the internal circuits automatically, while the inverter is in working

(7) Connecting wire

For Connecting batteries with the inverter

(8) A or B is available for select

LED display to show the input voltage and the output power

8. Power supply

The power supply source needs to guarantee at least 10.5 Volt to max. 15.0 Volt DC and enough permanent output to operate the unit.
The power supply source can be a battery or a similar DC power supply.
To establish the estimated necessary power supply (in amperes), divide the respective output (in Watt) of the operated unit by the incoming voltage. (12 Volt in the case of a car battery)

9. Connection to the power supply

- Unpack the power inverter and ensure that the switch is at the OFF position.
- Insert the cigarette lighter plug into the cigarette lighter socket.

Caution:

May only be operated with 12 Volt batteries. It cannot be operated at 6 Volt and at 24 Volt it will be damaged.

10. Connection of the consumer

- The output of the consumer needs to lie within the specifications of the power inverter.
- Insert the plug into the socket of the power inverter.
- Press the "On" switch - the green LED lights up, the unit is operational.
- The LED will turn off if the voltage drops below 10 V and the power inverter switches off - switch off the consumer and disconnect the plug.

Caution: Never draw power from the power inverter with a cable.

11. Rechargeable units

Caution: Some rechargeable units can be directly connected to standard sockets. These units can damage the power inverter.

When a rechargeable unit is used for the first time, observe the temperature for approx. 10 minutes. If it becomes relatively hot, the unit cannot be operated using the power inverter.
Rechargeable units can be easily operated using a separate charger or transformer.

12. Fuse

The power inverter is fitted with a 30 amp fuse. Defective fuses should be exchanged with new fuses.

13. Position of the power inverter

The unit was designed so that it can be placed in a drinks holder.

- No liquid may be allowed to enter the unit.
- The ambient temperature should lie between 10° and 27° C - do not place on or directly adjacent to a heat source.
- Do not expose to direct sunlight.
- Leave a space of 2 - 4 cm to allow adequate air circulation.
- Do not place any objects on top.
- Do not use close to inflammable materials or in places where inflammable vapours or smoke can occur.

14. Connection via the vehicle's battery

- It is recommended running the vehicle's motor for approx. 15 minutes every hour to avoid the battery from discharging.
- The power inverter can be operated when the motor is running or when the motor is at a standstill.
- It is possible that the power inverter may not work due to the voltage drop during the starting process.
- If not used, remove the unit from the battery.

15. Alarm in case of voltage drop of the battery

The power inverter switches off automatically when the voltage drops below 10 Volt.

16. Malfunctions

(Protective features of the power inverter)

Low voltage of the battery - may damage the battery but not the power inverter as it switches off. Once the normal operating status is reinstated, the unit can be operated again.

Overload protection - If the incoming voltage exceeds 15 Volt DC, or if the permanent output is exceeded, the unit switches off automatically.

Short-circuit - If the wires are crossed or the consumer has short-circuited, this usually causes the 15 amp fuse to blow. Disconnect the consumer immediately from the power inverter and exchange the fuse.

Overheating protection - If the internal temperature of 85°C is exceeded, the unit switches off automatically. After a cool-down phase of approx. 15 minutes, the unit can be switched on again.

17. General problems

The unit is started but no permanent operation is possible

Some inductive motors may require 2 - 5 start-up attempts. If the consumer only runs at the moment in which the power is supplied, switch the power inverter on and off quickly and repeatedly.

Humming in music systems

The loudspeakers of cheaper stereo systems may hum as they cannot filter the modified sinus waves that the power inverter generates.

Malfunctions when operating a TV

The power inverter is already screened, although there may be visible interference, especially if the TV signal is weak. Try one of the following actions:

- Position the power inverter as far away as possible from the unit, the aerial and the aerial cable.
- Look for the best possible position for the aerial cable, the power cable, the TV and the power inverter.
- Use good quality aerial cables.

18. Troubleshooting

Problem: Low outgoing voltage

Cause

- The power inverter is overloaded.
- Incoming voltage is below 10.5 Volt

Recommendation

- Reduce the outgoing output.
- Ensure adequate incoming voltage of over 10.5 Volt.

Note: Only use RMS voltmeters to measure the outgoing voltage.

Problem: battery power is too low

Cause

- Poor condition of the battery.
- Inadequate power supply or inappropriate voltage drops.

Recommendation

- Replace the battery.
- Check the condition of the cigarette lighter - clean or replace.

Problem: No output

Cause

- The power inverter is not at operating temperature.
- Cigarette lighter requires power.
- Battery voltage below 10 Volt.
- Power inverter has cut-off automatically due to overheating.
- The fuse has blown.

Recommendation

- Switch the power inverter off and on again. If necessary repeat the process until the operated unit starts.
- Switch the ignition on.
- Charge or exchange the battery.
- Allow the power inverter to cool down. Ensure there is enough air circulation.
- Exchange the fuse. Check that the wires are connected correctly when connecting the power inverters



1. Faulty light: Malfunction or overload.

Battery capacity is low or cannot reach the starting power of the output appliance required.

2. Working light: When connect the appliance.

3. USB light: When connect to battery.

Note: Max rated output of each socket is 10A(2300W). Please divide the input loading if over 2300W.

Specifications:

Output	*Rated power	80W, 150W, 200W, 300W, 500W, 800W, 1000W, 1200W, 1500W, 2000W, 2500W, 3000W, 4000W, 5000W											
	*Power surge	②Rated power*2											
	*Output voltage	AC 100/110/115/120V(Internal adjustable) ±10%						AC 200/220/230/240V(Internal adjustable) ±10%					
	*Output frequency	60Hz±/- 5Hz 50Hz/60Hz optional						50Hz/-/- 5Hz 50Hz/60Hz optional					
Input	*Battery voltage	12V		24V		36V		48V		60V			
	*High voltage cut off	DC15±1V		DC20±1V		DC45±2.5V		DC60±3W		DC75±3.8V			
	*Low voltage alarm	DC10.5±0.3V		DC21±0.5V		DC31±1V		DC41±1.5V		DC52±2V			
	*Low voltage cut off	DC10±0.3V		DC20±0.5V		DC30±1.5V		DC40±2V		DC51±2.5V			
	*Input voltage range	DC10V~DC15V		DC20V~DC30V		DC30V~DC45V		DC40V~DC60V		DC50V~DC75V			
	*Reverse connect protection input	Fuse piece											
	*Indicator light	Green power indicator, red fault indicator											
	*Cooling	Fan											
	*The shell maximum working temperature	< 75℃											
Note: 1. Size of the inverter is not decisive under/over/raise alarm. Under/raise protection is 0.5-0.9V.													

Note: Some of the inverter is not designing undervoltage alarm. Undervoltage protection is 9.5±0.3V

Some experts believe the incorrect or prolonged use of almost any product could cause serious injury or death. For information that may reduce your risk of serious injury or death consult the points below and additionally, the information available in manual.

- Consult all documentation, packaging and product labelling before use. Note that some products feature online documentation which should be printed and kept with the product.
- Check product for loose / broken / damaged / missing parts, wear or leaks (if applicable) before use. Never use a product with loose / broken / damaged / missing parts, wear or leaks (if applicable).
- Products must be inspected and serviced (if applicable) by a qualified specialist every 6 months assuming average residential use by a person of average weight and strength, at one average technical aptitude, on a property matching average metropolitan specification. Intended use outside these guidelines could indicate the product is not suitable for intended use or may require more regular inspection or servicing.
- Ensure all possible users of the product have completed an industry recognised training course before being given access to the product.

- The product has been supplied by a general merchandise retailer that may not be familiar with your specific application or your description of the application. Be sure to obtain third party approval for your application from a qualified specialist before use regardless of prior assurances by the retailer or its representatives.
- This product is not intended for use where fail-safe operation is required. As with any product (take an automobile, aircraft, computer or ball point pen for example) there is always a small chance of a technical issue that needs to be repaired or may require replacement of the product or a part. If the possibility of such failure and the associated time it takes to rectify could in any situation inconvenience the user, business or employee or could financially affect the user, business or employee then the product is not suitable for your requirements. This product is not for use where incorrect operation or a failure of any kind, including but not limited to a condition requiring product return, replacement, service by a technician or replacement of parts could cause a financial loss, loss of employee time or an inconvenience requiring compensation.
- If this item has been purchased in error considering the points above simply contact the retailer directly for details of their returns policies if required.