

Elite 400W

DC to AC Pure Sine Inverter



User's Manual

Introduction

Thank you for purchasing this Wagan Tech® 400 Watt Pure Sine Wave DC to AC Power Inverter. It delivers a true sine wave AC identical to that of commercial power. Use this inverter to power AC appliances in your vehicle. Pure Sine Wave AC means that your sensitive electronics such as audio/video systems, computers and communications equipment will operate properly. Furthermore, appliances with motors operate cooler, quieter and more efficiently when they are powered by sine wave AC.

This inverter is powered from 12 volts DC and it will continuously deliver 400 watts (800 watts momentary peak) AC power at 120 volts, 60 Hz. Superior surge capability of 800 watts allows the inverter to start most difficult motorized appliances. Advanced microprocessor-controlled circuits run cooler and are more reliable than competing units.

It also operates at high efficiency (up to 90%) that results in long run time and extended battery life compared to other inverters with this level of power output.

A USB Power Port provides a convenient way to power USB appliances or charge cell phones, PDAs and personal audio-video devices.

This Inverter is supplied with two power adapters cords that connect the inverter to a DC power supply. One cord has a DC plug and the other has Battery Terminal Clips.

This Wagan 400 watt Pure Sine Wave Inverter is an indispensable addition to your compliment of mobile power equipment. With minimal care and proper treatment it will provide years of reliable service.

Read and understand this manual before installing and operating this inverter. Keep this manual for future use.

General Instructions

- Keep the inverter away from any direct heat source or combustible materials.
- Keep well ventilated—this device generates heat.
- Keep the inverter away from combustible gases.
- Do not continuously operate any equipment over 400 watts.
- This inverter is designed to operate from a 12 volt DC power source only.
- Do not attempt to connect the inverter to any other power source, including any AC power source.
- Incorrect battery polarity will damage the inverter and void the warranty.
- Keep this inverter in a dry environment.
- Do not open the inverter; there are no user serviceable parts inside.
- This inverter has two supplied power adapter cords. One has a DC plug for up to 140 watts through an accessory socket. The second adapter cord has battery clips for up to 400 watts.

WARNING

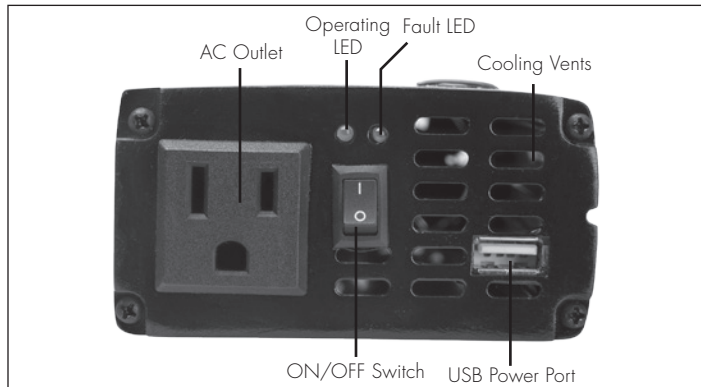
INVERTER OUTPUT CAN BE LETHAL. IMPROPER USE OF THIS INVERTER MAY RESULT IN PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

Front Panel

- ON/OFF Switch — This switch controls AC output of the inverter.
- Operating LED (Green) — When this green LED is lit, the inverter is operating normally.
- FAULT LED (Red) — This indicator turns RED as the inverter shuts down because of: Excessive Temperature, Overload, Under Voltage or Over voltage.

Immediately turn off all AC appliances if the FAULT LED is lit. Allow the inverter to cool before continuing. Make sure that the ventilation vents are not blocked.

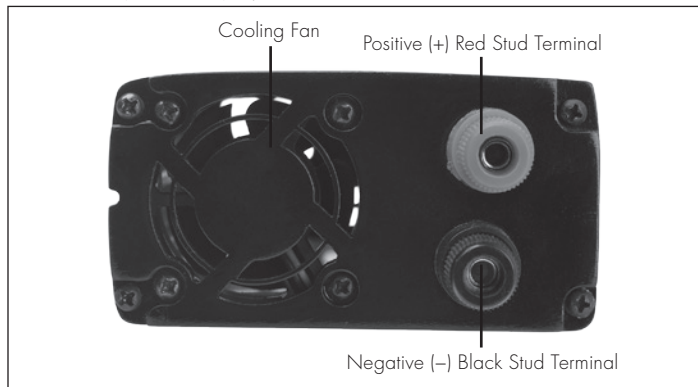
If an inverter "shutdown" was preceded by a buzzing sound, there may be excessive load, in combination with a low voltage or cable problem.



- AC Outlet — This outlet can supply up to 3.3 amps at 120V AC 60 Hz
- USB Power Port — This power port can supply 5 volts at 500 mA for charging or powering cell phones, PDA's, GPS and other small electronic devices.
- Audible Alarm (internal to the inverter) — When the Audible Alarm makes a buzzing sound, the inverter senses a low battery condition. The user should reduce the AC load, charge the battery, and check the DC cable for excessive losses.

Rear Panel

- Positive Stud Terminal — Positive (+) DC Input (Red)
- Negative Stud Terminal — Negative (-) DC Input (Black)
- Cooling Fan — High-speed and load controlled



Load Considerations

The startup load of an appliance is a major factor of whether this inverter can power it.

Startup load is momentary. With many appliances, it is approximately twice the continuous load, but some appliance startup loads can be as high as eight times the continuous load.

To determine if an appliance or tool will operate with this inverter, run a test. This inverter will automatically shut down in the event of an output overload, so there is no danger of damaging either the inverter or the equipment. When lit, a red LED indicator signals a fault.

Maximum Power from Vehicular Accessory Sockets

Most vehicular accessory sockets that are controlled through a vehicle's ignition switch are fused at 15 amps. This limits inverter output to approximately 140 watts. A user has some options to power appliances to 400 watts.

1. For temporary use, connect the battery clip adapter cord to the inverter and follow the procedure located under the "Connecting the Inverter" section.
2. Install a separate fused DC accessory socket wired to the vehicle's battery. Fuse this circuit at 50 amps.

There is no danger in leaving the inverter directly wired to the battery if the inverter is turned OFF after use. Further, all inverters will shut off when the battery discharges to 9.5 volts. This lower battery voltage still allows the vehicle to start.

Determining Maximum Appliance Wattage

Do not exceed the 400 watt maximum AC load or the inverter will shut down.

Most other electrical tools, appliances, and audio/video equipment have labels that list the unit's power requirements in watts. If the tool or device is rated in amps,

multiply the amps by 120 (120V AC) to determine the watts. For example, an appliance rated at 0.5 amps will draw 60 watts.

WATTS = VOLTS × AMPS

Remember to consider the startup surge that motorized appliances will cause. Do not exceed the 800 watt momentary surge rating of this inverter. This can cause immediate overload shut down and/or blow a fuse. A fuse protects the Accessory or Lighter Socket.

Connecting the Inverter

DC Plug Adapter Cord – Up to 140 Watts Output

1. Connect the red and black spade terminals of the supplied DC Plug Adapter Cord to the red (+) and black (–) stud terminals on the rear of the inverter.
Be sure to connect them into the correct polarity terminals on the rear of the inverter. Reverse polarity connection will blow the fuse in the inverter and can permanently damage to the inverter. Damage caused by reverse polarity will void the warranty.
2. Connect the Plug end of the DC Adapter Cable into your vehicle's 12V DC accessory outlet. You may need to place the ignition switch to Accessory Position if the vehicle engine is not operating.
3. Plug the AC appliance cord into the inverter's AC receptacle, and/or your USB appliance into the USB Power Port.
4. Place the ON/OFF power switch in the ON position. The green LED should turn on, indicating the inverter is powered and operating normally.
5. While the Inverter is not in use, place the inverter's ON/OFF Power Switch to the OFF position and, optionally, unplug the DC Adapter cable from the vehicle's DC outlet.

Battery Clip Adapter Cord – Up to 400 Watts Output

1. Connect just the red spade terminal of the supplied DC Battery Clip Adapter Cord to the red stud terminal (+) on the rear of the inverter.
2. Connect the two battery clips to the battery.

Be sure to connect the clips to the correct polarity battery terminals. Reverse polarity connection will blow the fuse in the inverter and can permanently damage to the inverter. Damage caused by reverse polarity will void the warranty.

3. Connect the Negative black (–) spade connector to the stud connector on the rear of the inverter. There may be a momentary spark and the low voltage buzzer may briefly sound.
4. Plug the AC appliance cord into the inverter's AC receptacle, and/or your USB appliance into the USB Power Port.
5. Place the ON/OFF power switch in the ON position. The green LED should turn on, indicating the inverter is powered and operating normally.
6. While the Inverter is not in use, place the inverter's ON/OFF Power Switch to the OFF position.

**Operating Issues: Television and Audio Equipment Suggestions.**

Although all inverters are shielded and filtered to minimize signal interference, some interference with your television picture may be unavoidable, especially with weak signals. However, here are some suggestions that may improve reception.

- Make sure that the television antenna produces a clear signal under normal operating conditions (i.e. at home plugged into a standard 110/120V AC wall outlet). Also ensure that the antenna cable is properly shielded and of good quality.
- Sometimes vehicle alternators produce some electrical noise. There are filters available to mount on the alternator to reduce noise.
- Change the positions of the inverter, antenna cables and television power cord.
- Isolate the television, its power cord and antenna cables from the 12 volt power source by running an extension cord from the inverter to the television set.

Troubleshooting

PROBLEM: Low or No Output Voltage – Fault LED Lit

Reason	Solution
Poor contact with battery, inverter terminals or DC socket.	Clean terminals thoroughly. Reinstall and tighten. Clean DC socket with non-metallic abrasive emery stick.

PROBLEM: No Output Voltage – No LEDs Lit

Reason	Solution
Fuse blown	Check vehicle's Accessory Socket Fuse and if blown, replace with the same type and rating fuse.

PROBLEM: Inverter is Shut Down – Fault LED Lit

Reason	Solution
Battery voltage below 10 volts	Charge or replace battery.
Inverter is too hot (thermal shut down mode).	<ul style="list-style-type: none"> • Allow inverter to cool. • Check for adequate ventilation. • Reduce the load on the inverter to rated continuous power output.

PROBLEM: Inverter Shut Down – Fault LED Lit

Reason	Solution
Equipment being operated draws too much power.	Use a higher wattage inverter or do not use this equipment.

PROBLEM: Continuous Buzzing Sound

Reason	Solution
Input voltage below 10.5 volts	Keep input voltage above 10.5 volts
Poor or weak battery condition.	Recharge or replace battery.
Poor or loose cable connection	Inspect terminals and tighten all connections.
Inadequate power being delivered to the inverter or excessive voltage drop.	<ul style="list-style-type: none"> • Use heavier gauge DC cable. • Keep cable length as short as possible.

Disposal/Recycling of Inverter

Electronic products are known to contain materials that are toxic if improperly disposed. Contact local authorities for disposal and recycling information.

Specifications*

- Output Waveform: True Sine Waveform
- Input: 10–15V DC
- Output: 120V AC
- TrueRated™ Power: 400 watts
- Peak Surge: 800 watts
- Efficiency: > 90%
- Frequency: 60Hz
- Total Harmonic Distortion (THD): < 3%
- No load current draw: < 0.5A
- Battery low alarm: 10.5V ± 0.3V DC
- Battery low shutdown: 9.5V ± 0.3V DC
- Over voltage shutdown: 15.5V ± 0.5V DC
- Cooling fan is thermally controlled
- AC output sockets: 1 US standard
- USB Power Port: 500 mA, 5V ± 0.25V
- Power switch AC Output ON/OFF control
- Dimensions: 7.8 in × 3.6 in × 1.9 in (19.7 cm × 9.1 cm × 4.8 cm)
- Net Weight (approximate): 1.6 lb (0.73 kg)

*All specifications are typical at nominal line, half load, and 77°F (25°C) unless otherwise noted. Specifications are subject to change without notice.



WAGAN Corp. Limited Warranty

The WAGAN Corp. warranty is limited to products sold only in the United States.

All Wagan Tech products must be registered within (30) days of purchase to activate its warranty. To register your product, please visit <http://tinyurl.com/waganwarranty>. Be sure to keep the original receipt as it will be required when returning a product under the warranty.

Warranty Duration: This product is warranted to the original purchaser for a period of two (2) years from the original purchase date, to be free of defects in material and workmanship. WAGAN Corporation disclaims any liability for consequential damages. In no event will WAGAN Corporation be responsible for any amount of damages beyond the amount paid for the product at retail.

Warranty Performance: During the above two (2) year warranty period, a product with a defect will be replaced with a comparable model when the product is returned to WAGAN Corporation with an original store receipt. The replacement product will be in warranty for the balance of the original two (2) year warranty period.

To return a defective item, please contact WAGAN Corporation at (800) 231-5806 to obtain a Returned Merchandise Authorization number (RMA#), and return instructions. Each item returned will require a separate RMA#. After you have received the RMA# and the return instructions from WAGAN Corporation, please follow the instructions and send the item with PREPAID SHIPPING, along with all of the required documentation, a complete explanation of the problem, your name, address and daytime phone number. WAGAN Corporation will, at its option, replace or repair the defective part.

A Returned Merchandise Authorization number (RMA#) is REQUIRED when sending in any defective item. WAGAN Corporation is not responsible for any item(s) returned without an official Returned Merchandise Authorization number. The item(s) must be returned with prepaid shipping. WAGAN Corporation is not responsible for any shipping charges incurred in returning the item(s) back to the company for repair or replacement. This warranty is void if the product has been damaged by accident, in shipment, unreasonable use, misuse, neglect, improper service, commercial use, repairs by unauthorized personnel or other causes not arising out of defects in materials or workmanship. This warranty does not extend to any units which have been used in violation of written instructions furnished.

Warranty Disclaimers: This warranty is in lieu of all warranties expressed or implied and no representative or person is authorized to assume any other liability in connection with the sale of our products. There shall be no claims for defects or failure of performance or product failure under any theory of tort, contract or commercial law including, but not limited to negligence, gross negligence, strict liability, breach of warranty and breach of contract.

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