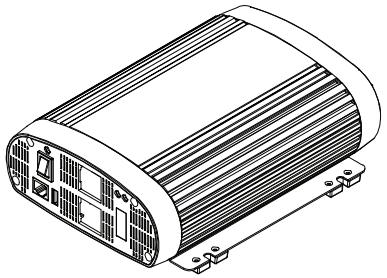
CyberPower®

CPS1000AI Power Inverter User Guide



This guide contains important information regarding the safety, operation, maintenance, and storage of this product. Failure to read this guide and follow the directions could result in injury and/or property damage.

Important Safety Information

Before installing and using the *CyberPower AI series power inverter* please read the manual. Misusing or incorrectly connecting the Inverter may damage the equipment or create hazardous conditions for users. Read the following safety instructions and pay special attention to all ***CAUTION*** and ***WARNING*** statements in the manual.

- Do not operate the inverter near flammable materials, fumes, or gases.
- Always use the inverter where there is adequate ventilation. Do not obstruct the ventilation slots.
- Never immerse the unit in water or other liquids.
- Proper cooling is essential when operating the inverter. Refrain from placing the inverter near the vehicle's heat vent or in direct sunlight.
- Always turn the inverter off by removing it from the DC accessory socket or remove the battery terminals when not in use.
- Check the warning labels on battery chargers or adapters before connecting them to the inverter. Do not connect the battery chargers or adapters with warnings about using with inverters.

Introduction

Thank you for choosing the *CyberPower AI series power Inverter*. To enjoy all the features and benefits of the inverter, please read and follow all instructions completely.

The *CyberPower AI series power inverter* is a portable source of 110/120 volt AC power. The AC Power converts DC battery power from your vehicle into standard 110/120 volt AC power, allowing you to power most notebook computers, cell phone chargers, camcorders, and other electronic products drawing AC power.

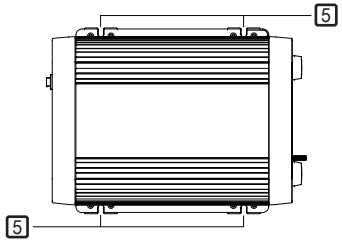
Package Contents

This product package includes:

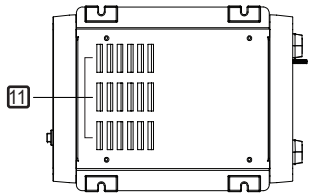
- AC Power Inverter
- Warranty Registration Card
- User Guide

Product Overview

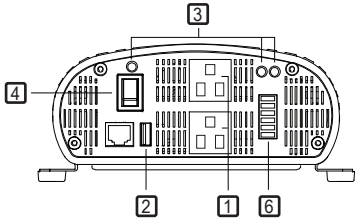
Top View



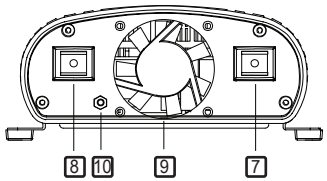
Bottom View



Front View



Back View



Product Features

1. 110/120 volt AC outlet
2. USB charging port
3. LED indicator light
   [Power LED(Green), Input Fault (Yellow), Output Fault (Red)]
4. ON/OFF power switch
5. Mounting screw hole
6. Load meter
7. DC Input positive terminal
8. DC Input negative terminal
9. Cooling Fan
10. Grounding terminal
11. Ventilation slots

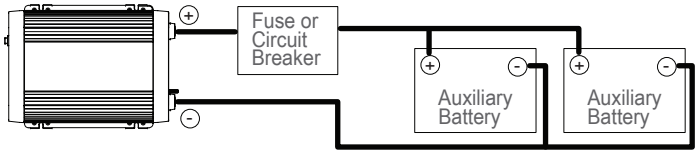
Installation Directions

This section provides information on cables and fuses to help you plan for your installation and provide procedures for installing the CPS1000AI inverter.

To properly install you will need:

- Wiring configuration drawing
- Choose an appropriate location
- Calculate your battery requirements
- Calculate the cable size for your inverter
- Select the correct fuses or circuit breakers

Wiring configuration drawing



**** Note: Cable, fuse and battery are not included and must be supplied by user.***

CAUTION A reverse polarity connection (positive to negative) will blow a fuse in the inverter and may permanently damage the unit. Damage caused by a reverse polarity connection is not covered by your warranty.

WARNING Batteries contain corrosive materials and present an electrical shock hazard. To prevent irritation and burns, wear protective eyewear and clothing when you install the inverter or work with the batteries.Take special care to ensure that metal tools and personal metal objects like rings and bracelets do not contact the battery terminals.

Choose an appropriate location

The inverter must be installed in a location that is:
Dry -- Do not allow water or other liquids to contact the unit.

Cool -- Ambient temperature should be between 32ºF and 105ºF (0ºC and 40ºC).

Ventilation -- Allow at least 2 inches (5 cm) of clearance around the inverter for air flow.

Safe -- Do not install the inverter in the same compartment as batteries or in any compartment capable of storing flammable liquids like gasoline.

Close to battery -- Do not use excessive DC cable lengths: they increase wire resistance and reduce input power. Longer AC wires are preferable to longer DC wires: wire resistance, and therefore voltage drop is less and the cost is lower.

Protected from battery gases -- Do not mount the inverter where it will be exposed to gases produced by batteries. Battery gases are corrosive, and prolonged exposure to battery gases will damage the inverter.

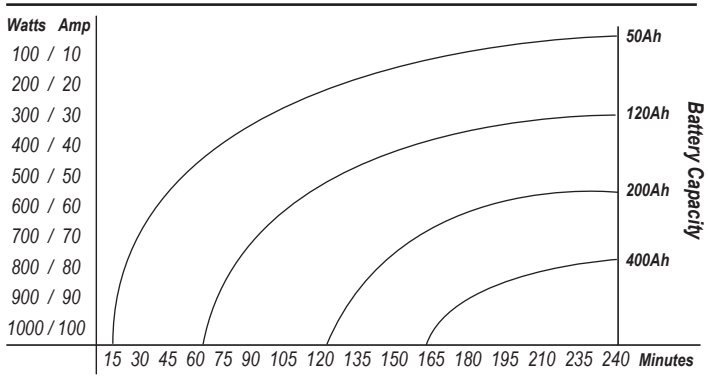
Calculating Battery Requirements

Battery type and battery capacity strongly affect the performance of the inverter. Therefore, you need to identify the device loads of your inverter will be powering. Once you know how much power you will be using, you can determine how much battery capacity you need.

**** CyberPower recommends that you have as much battery capacity as possible.***

Consult "Battery Discharger Table" for a detailed explanation of how to determine the appropriate capacity of batteries for your needs.

Battery Discharge Table



For example, as show in the above graph, using a 50Ah battery (batteries), if the average power usage will be 500 watts, the operating time will be about 50 minutes.

**** Amp-hour (Ah) Capacity***
Amp-hour capacity is a measure of how many amps a battery can deliver for a specified length of time-usually 20 hours. For example, a typical marine or RV battery rated for 50 Ah can deliver 2.5 amps for 20 hours (2.5 A x 20 hours = 50 Ah).

CAUTION The inverter must only be connected to a 12 volt battery system. It will not operate on other voltages.

Calculate the cable size for your inverter

To operate safely, the inverter needs proper cable. Because the inverter has low-voltage and high-current input, it is essential that you use low-resistance wiring between the battery and the inverter.

For safe and efficient operation, you will need to calculate the necessary lenth and gauge of cable for your installation:

1. DC input cables from the battery to inverter
   - Keep all cables as short as possible, and ensure that each cable between the inverter and the battery is no longer than 5 feet (1.5 m).
   - Do not use aluminum cable. It has about 1/3 more resistance than copper cable of the same size, and it is difficult to make good, low resistance connections to aluminum wire.
   - Recommended DC Input Wire Sizes & Lengths:
     Cable length: Battery to inverter (Less than 5 feet (1.5 m))
     Cable size: @ 3 feet / No. 6AWG or @ 5 feet / No. 3 AWG

2. Ground cable from the inverter grounding point to the chassis ground screw.
   - Recommended Chassis Ground Cable sizes at least No.12AWG

> ⚠ ***WARNING Fire hazard*** Never use a cable longer than 5 feet (1.5 meters). A cable longer than 5 feet (1.5 meters) can potentially generate enough heat to start a fire or result in poor inverter performance.

Select the correct fuses or circuit breakers

Because your batteries can provide hundred of amps of short-circuit current, you need fuses or circuit breakers that can safely withstand the short-circuit.
Pick the fuse or circuit breaker's current rating based on the product used:150Adc

- Fuses can be bought at any marine supply store, RV supply store, or electrical products store.

Installation Tools & Materials

Tools :
- Drill
- Wrench for DC terminals
- Screwdrivers
- Wire stripper

Materials :
- Four corrosion-resistant screws for mounting the inverter
- Copper DC input cable
- Copper chassis ground cable
- Ring terminal (sized to match the copper cable gauge)
- DC fuse and fuse holder or circuit breaker

Installation Steps overview

1. Mount the inverter
2. Connect the chassis ground
3. Connect the DC cables

1. Mounting the Inverter

a. Select an appropriate mounting location and orientation.
b. Hold the inverter against the mounting surface, mark the positions of the mounting hole, and then remove the inverter.
c. Drill pilot holes for the four mounting screws.
d. Fasten the inverter to the mounting surface using corrosion-resistant screws.

2. Connect the chassis ground

a. Remove inverter grounding terminal screw and vehicle's chassis ground screw.
b. Use copper chassis ground cable to connect the inverters grounding terminal and vehicle's chassis ground. (use a ring terminal)
c. Tighten the inverter grounding terminal screw and vehicle's chassis ground screw.

3. Connect the DC cables

a. Make sure the inverter's On/Off switch is in the Off position.
b. Ensure that fuse is removed from it's holder or the circuit breakers is off.
c. Cut one cable length to connect the negative (–) battery terminal and the inverter's negative terminal. (Use a ring terminal on both cable ends.)
d. Cut another cable to connect the positive (+) battery terminal to one side of fuse holder or circuit breakers. (Use a ring terminal on both cable ends.)
e. Cut the final cable to connect the other side of fuse holder or circuit breakers to the inverter's positive (+) Terminal. (Use a ring terminal on both cable ends.)
f. Ensure that all electrical connections have been tightened.
g. Check that the inverter's on/of switch is in the OFF position and fuse is removed from it's holder or circuit.
h. Ensure that all electrical connections have been tightened.
i. Insert the fuse into the fuse holder. There may be some sparking. (or turn on circuit breakers).
k. Turn the inverter on and apply a test load to the 120 Volt AC outlets.

- If you have any installation issue, please contact CyberPowerTechnical Support, toll-free, at 877-297-6937

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> ⚠ ***WARNING*** Batteries contain corrosive materials and present an electrical shock hazard. To prevent irritation and burns, wear protective eyewear and clothing when you install the inverter or work with the batteries.Take special care to ensure that metal tools and personal metal objects like rings and bracelets do not contact the battery terminals.

Operating and Storage Tips

The inverter should only be operated under the following conditions:

Operating Tips
- Dry - Do not allow water or other liquids to come into contact with the inverter.
- Temperature - Ambient air temperature should be between 32°F - 105°F (0°C - 40°C). Keep the inverter out of direct sunlight.
- Air Circulation - Keep the inverter's ventilation slots clear to ensure free air flow to the unit. Do not place any items on or over the inverter during operation. The unit will shut down if it overheats.

Storage Tips
- Proper storage temperature range is 50°F - 85°F (10°C - 28°C)
- Please store and use the inverter in a cool and dry place.
- Avoid exposing the inverter to heating elements, direct sunlight or high humidity.

Specifications

Model	CPS1000AI
Output Power (continuous)	1000W
Output Power (Surge	2000W
Peak)	120 Volts +/- 10%
Output Voltage	60 Hz
Output Frequency	Simulated Sine Wave
Output Waveform	> 85%
Efficiency	10.5 ~ 15.5 Vdc
Input Voltage	10.5 Vdc
Low Voltage Alarm	10.5 Vdc
Low Voltage Shutdown	35Amp x 4
Input Fuse (Internal)	Overload, Overvoltage, Overheating,
Additional Protection	Short-circuit
Dimensions (L x W x H)	9.61 x 7.17 x 3.11 inch
Weight	5.28 lb

Troubleshooting

Problem	*Possible Cause*	*Suggested Solutions*
No AC output - Yellow LED lit	DC input is below 10.5Vdc	Recharge or replace the battery.
No AC output - Red & Green LED lit.	1. Short circuit. 2. Overload 3. Overheat.	1. Disconnect the load. 2. Reduce the load. 3. Disconnect the load and operate the inverter for a few minutes.
No AC output - Green LED not lit.	Bad connection or wiring	Tighten all DC connections.
Buzzer Alarm	Low battery or Hi battery voltage	Recharge battery or check your battery voltage.
Motorized power tool will not operate	Excessive startup load. If the start up load exceeds the inverters peak load capability it will not work.	Disconnect the load until the inverter operates normally and connect the load again.

Product Limited Warranty

CyberPower warrants the AI series Power Inverter to be free from defect in material or manufacture for two years. If a defect results in product failure during its normal use, CyberPower's sole responsibility is, at its option, to repair or replace the inverter.
The foregoing Limited Warranty is the consumer's sole and exclusive remedy and excludes any incidental or consequential damages. Some States do not allow the exclusion or limitation of incidental and consequential damages, so certain of the above limitations or exclusions may not apply to you (the Consumer). This limited warranty gives the Consumer specific legal rights and the Consumer may have other rights, which vary from State to State.

To make a Limited Warranty claim:

1. Pack and ship the Inverter to CyberPower at 4241 12th Avenue East, Suite 400, Shakopee, MN 55379.
2. Clearly indicate on the outside of the packaging that this is a "WARRANTY RETURN"
3. Clearly include your name and address (a) on the outside packaging and (b) on a sheet of paper enclosed in the box with the Inverter that is being returned.
4. You MUST prepay all shipping costs and you are responsible for packaging and shipment for the return of the defective product.

CyberPower®

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