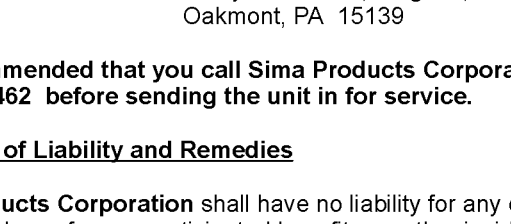
User Instructions for the STP-150
150 watt Power Inverter



Sima Products Corporation
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Bldg. #5
Oakmont, PA 15139

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P/N 21683 03.5

Limited Warranty

Sima Products Corporation ("Company") warrants that if the accompanying product proves to be defective to the original purchaser in material or workmanship within 90 days from the original retail purchase, the Company will, at the Company's option, either repair or replace same without charge (but no cash refund will be made). If the product is returned within three (3) years from the original date of purchase, the Company will repair the unit, however, a labor-only fee will be charged. The Company will not charge a fee for any parts used in the repair. The Company will notify you of any fees to be assessed prior to servicing the unit.

What you must do to enforce Warranty.You must deliver, mail or ship the product, together with the original bill of sale and this limited Warranty statement as proof of warranty coverage to :

Sima Products Corporation
Attn: Customer Service
140 Pennsylvania Ave., Bldg. #5,
Oakmont, PA 15139

It is recommended that you call Sima Products Corporation at 800-345-7462 before sending the unit in for service.

Limitation of Liability and Remedies

Sima Products Corporation shall have no liability for any damages due to lost profits, loss of use or anticipated benefits, or other incidental, consequential, special or punitive damages arising from the use of, or the inability to use, this product, whether arising out of contract, negligence, tort or under any warranty, even if Sima Products Corporation has been advised of the possibility of such damages. Sima Products Corporation's liability for damages in no event shall exceed the amount paid for this product. Sima Products Corporation neither assumes nor authorizes anyone to assume for it any other liabilities.

Introduction

Congratulations on your purchase of the STP-150 Power Inverter. It lets you provide two outlets for 115 Volts AC anywhere you have 12 volts DC; in your car, truck, RV or boat. It is designed to be easy to use and provide years of dependable service.

IMPORTANT SAFETY NOTE

Read all the Cautions and Warnings before installing and using the power inverter. The inverter must be properly installed. If you are not familiar with 12 volt, high-current wiring, it is recommended that you have a professional automotive installer install the inverter.

Cautions

- **The STP-150 generates 115 Volts AC power from your 12 volt car battery. Treat the 115 Volt AC output just like you treat the 115 Volt AC in your house. It is just as dangerous.**
- **With heavy use, the unit will become warm and possibly hot. Keep away from children.**
- **Keep it away from any heat sensitive materials.**
- Do not connect the unit to AC distribution wiring.
- Keep the unit away from water. Do not allow water to drip or splash on the STP-150
- Keep the unit in cool environments. Ambient air temperature should be between 40° and 80° F. Do not block vent holes.
- Keep out of direct sunlight and away from heating vents.
- Keep the unit away from flammable material or in any location which may accumulate flammable fumes or gases, such as the battery compartment of your car, boat, RV or truck.

Health Advisory
Sima Products does not authorize the use of the STP-150 with any products to be used in life support devices or systems.

Model No. _____
Date Purchased _____

Parts supplied with STP-150
STP-150 Power Inverter with cigarette plug
User Instructions (This document)

Key Features

The STP-150 is designed for high-efficiency operation to provide the most output with the least battery power usage.

Advanced protection

- **Thermal Protection** shuts the unit off to guard against the unit getting too hot
- **Overload Protection** protects the unit from excessive loads
- **Under Voltage Protection** turns the unit off to protect the battery from being over discharged

This Sima power inverter produces a modified sine wave output which is suitable for most AC loads. This includes lights, appliances, motors, TVs and most electronics.

CAUTION: There are a few battery chargers that are not compatible with modified sine wave operation. These are typically small rechargeable, battery-operated devices like razors and flashlights that can be plugged directly into an AC receptacle to recharge.

Some chargers for battery packs used in power tools also should not be used with an inverter. These chargers typically have a warning label indicating that dangerous voltages are present at the battery terminals. Only a true sine wave inverter should be used with these types of appliances. Damage to the device could result if you attempt to use them with any type of modified sine wave inverter.

Warning: Do not use the Sima power inverter with the devices mentioned above!

Installation

Needed for Installation (not included)

Mounting hardware for the inverter
Tools for mounting and electrical wiring

Mounting

Step #1: The STP-150 should be mounted on a solid flat surface capable of handling the weight of the unit, with space around the unit for ventilation. It is very important that the unit be secured using the proper sized mounting hardware (not included) to keep the unit from moving around or becoming loose in emergency situations.

> **CAUTION:** The power inverter must be mounted securely in any type of moving vehicle. In an emergency situation, if the power inverter is not securely mounted, it could cause bodily injury

Connection to Power Source

The STP-150 requires connection to a standard 12 volt DC power source as found in most cars, trucks, RVs and boats. The power source must provide between 11 and 15 volts DC. The power source must be able to provide sufficient current to power the load. At full power, the STP-150 will draw about 15 amps. The STP-150 comes with a cigarette lighter plug for easy connection to the power source. The tip of the plug is positive and the side contacts are negative. Insert the plug into a cigarette socket by pushing firmly for a good connection. A red indicator light on the adapter will light up. **Do not use a 12V extension cord with this unit.**

Testing the Power Inverter

Make sure the 12 volt power source is wired properly to the power inverter. With nothing plugged into the 115 VAC outlets, turn on the power switch of the STP-150.

If the green power light does not come on, turn the power switch off and check your wiring and external fuse.

With the inverter turned off, plug the appliance you want to use into the 115 VAC power outlet on the unit. Turn on the power switch of the STP-150. The appliance should now be operational.

Operation

Equipment Power Usage

It is important to use only products that draw less than 150 watts with the STP-150. Use of products greater than 150 watts may either cause the protection circuitry of the STP-150 to shut down or the fuse to blow. Repeated use of excessive power draw can cause failure of the STP-150.

How to calculate power usage.

Most products have a power rating on them such as 45 watts. Others may be marked with their current draw, such as .9 amps. To convert the current to watts multiply the current by 115. Thus .9 amps x 115 = 104 watts.

Turn the unit on

Plug the appliance you want to use into the 115 VAC power outlet on the STP-150 (see Fig. 1 below). Turn on the power switch of the STP-150 so the green power light is illuminated. Turn on the appliance. The appliance should now be operational.*

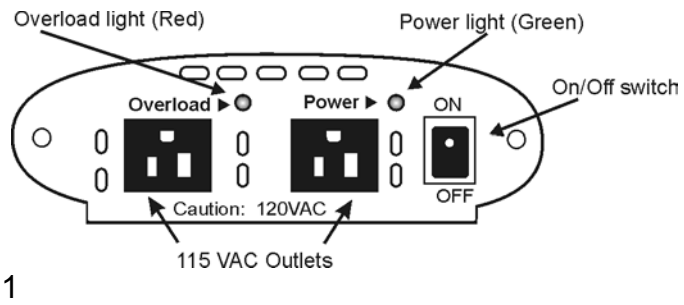

Fig. 1

* **Note :** Some products, such as televisions, draw a high surge current to start up. If the appliance does not operate and the inverter turns off, you may need a larger inverter. Check that the battery and the 12V wiring to the inverter is large enough to handle the current draw. Be sure the battery is fully charged. You may need to turn the power switch on and off a few times to get the appliance "started". Some motors and televisions may require this technique to get them operational.

Typical Power Usage Chart

Typical Appliance	Typical Appliance Current Draw
Cellular phone charger	20 watts
Camcorder	23 watts
VCR	40 watts
Soldering iron	45 watts
Laptop computer	75 watts
13" TV	80 watts
100 watt work light	100 watts
Small stereo system	150 watts

Important: The STP-150 will not operate most appliances designed to produce heat such as hair dryers, heaters, toasters, and coffee makers.

Important: The STP-150 can draw up to 15 amps from your car's battery when operating. If you are using it for extended periods of time, you will want to operate your car occasionally to maintain the charge in your car's battery. The STP-150 will also draw a small current when not operating, so it should be disconnected from your car's battery if your vehicle will not be used for a few days.

Lights and Alarms

Power Indicator (Green light)

The green light is illuminated when the inverter is turned on and is operating normally. If this light goes out, either the 12 volt power supply is missing (possible blown fuse) or some fault condition has occurred. These fault conditions include: output overload, output short circuit, low input voltage and over-temperature of the unit. This can happen if a device has a large start-up surge, if an appliance (like a drill or saw) is stalled or if the inverter does not have a circulating supply of cool air.

Overload Fault (Red light)

The red light is illuminated when a current overload fault is detected.

An overload fault occurs when the power draw exceeds the inverter's maximum capability.

An under-voltage fault (beep)

An under-voltage fault can occur when the input voltage reaches about 10.2 volts. The STP-150 will sound a continuous alarm and shut off when the input voltage drops to 9.6v to protect your battery from being completely discharged.

An over-temperature fault

An over-temperature fault occurs when the STP-150 internal circuitry gets too hot due to overload or improper air circulation. The STP-150 will turn off the green power light and the unit will turn off.

Fuse Replacement (see figure 2)

If you overload the STP-150, it is possible that the fuse in the cigarette plug might blow. If this happens, unplug the cigarette plug from the power source, wait for the tip to cool and unscrew the metal tip on the plug. Remove the tip. Remove the fuse and install a new fuse rated at 15 amps. **Never use a fuse greater than 15 amps**. Replace the tip and screw firmly but do not over tighten. Always determine why the fuse blew and remedy the problem before using the STP-150 again.

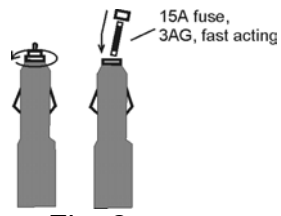

Fig. 2

Troubleshooting Guide

Problem	Possible cause	Solution
• Unit does not operate.	• Input voltage is below 10 volts.	• Attach to proper power supply.
	• Fuse is blown.	• Determine cause for fuse blowing and then replace the fuse feeding the inverter.
• Unit operates for a short time and turns off.	• Load is trying to draw too much current.	• Be sure the load is less than the rated watts of inverter. Remove excessive load. Turn the inverter off and back on.
• Unit operates for a while and gets hot and shuts off.	• Inverter is in thermal shutdown mode.	• Allow inverter to cool down. Turn the inverter off and on to reset.
• Low battery alarm is on.	• Input voltage is below 10.2 volts.	• Make sure car engine is running. • Check condition of wiring. • Battery may be low and needs recharged.
• Television and stereo interference.	• RF interference from power inverter	• Position the power inverter and wiring as far as possible from electronic equipment, antennas and cables. Re-orient as necessary.
• 115 VAC Output voltage reads incorrectly.	• Modified sine wave output can cause an incorrect reading on a typical multimeter.	• Use a true RMS meter like a Fluke 8060A or Triplett 4200 to measure correct voltage.

Product Specifications

Max. continuous power output	150 watts
Surge (peak) power output	300 watts
Input voltage range	11 to 15 vdc
No load current draw	< 0.2 amp
Full load current draw	15 amps DC
Low battery alarm/shut-down	10.2 V / 9.6V, +/- 0.5 V
Efficiency	90%
Output	115VAC, 60 Hz, Modified sine wave
Weight	1.2 lbs.
Size	5.7" x 4.3" x 2"

Battery Life Chart

Power Usage	Approx 12v current	Typical operation time with 50 amp-hr. car battery	Typical operation time with 100 amp-hr. car battery
100 watt	9 amps	5.5 hours	11 hours