



500 W INTELLIGENT POWER INVERTER



model no. 011-1947-6

SAVE THESE INSTRUCTIONS!

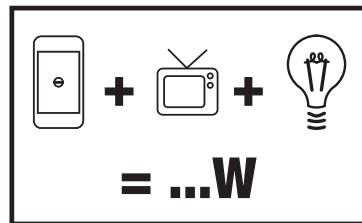
This manual contains important safety and operating instructions.
Read all instructions and follow them with use of this product.
Questions? Call Customer Service Hotline: 1-877-466-8191

**INSTRUCTION
MANUAL**

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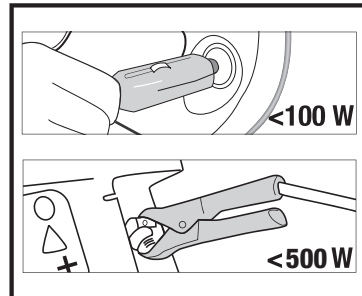
STEP 1

Calculate the wattage of the AC devices that you want to connect to the power inverter.



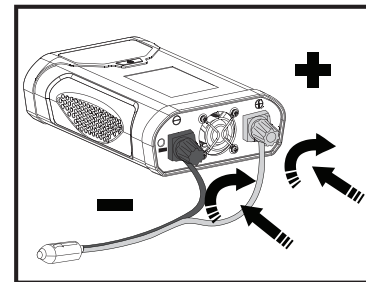
STEP 2

Decide which DC power source you will connect the power inverter to.



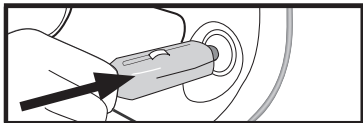
STEP 3

Connect the correct connector cable to the power inverter. Make sure to connect the RED CABLE TO THE POSITIVE PORT (+) and the BLACK CABLE TO THE NEGATIVE PORT (-). Insert the connectors into the correct cabling terminals until fully inserted. Turn the connectors until the security latches snap into the locking position.



STEP 4

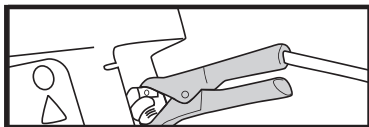
Plug the connector cable with the 12 V outlet plug into the 12 V outlet in the vehicle:



or:

Connect the connector cable to a 12 V battery for direct connection to batteries.

+ / RED → **+**
- / BLACK → **-**

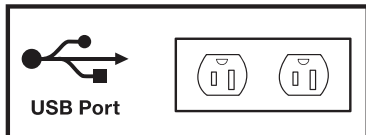


CAUTION!

Power connections from a 12 V DC battery to the power inverter must be **POSITIVE/+ (RED) TO POSITIVE AND NEGATIVE/- (BLACK) TO NEGATIVE.**

STEP 5

Connect up to two electrical devices to the outlets and/or use the USB port (cable not included).



STEP 6

Switch on the power inverter by pressing the on/off button until the digital display turns on.

STEP 7

Switch on the devices ONE BY ONE.

AC POWER

AC output voltage (nominal)	115 V, 60 Hz
Maximum continuous AC output power	500 W
Peak power	1000 W
Rated frequency	60 ± 1 Hz
AC output waveform	Modified sine wave

DC POWER

USB output	5 V / 2.1 A max
No load current draw (at 12 V input)	< 0.35 A
Efficiency (maximum)	85%
Low-voltage alarm	10.5 – 11.0 V
Low-voltage shutdown	10.0 – 11.0 V
High-voltage shutdown	15.0 – 16.3 V

PHYSICAL SPECIFICATIONS

Ambient operating temperature range	0–40°C (32–104°F)
Dimensions (L x W x H)	7 x 4 11/16 x 2 3/16" (17.7 x 12 x 5.7 cm)
Weight	1 lb 5 oz (600 g)

This manual contains information that relates to PROTECTING PERSONAL SAFETY and PREVENTING EQUIPMENT PROBLEMS. It is very important to read this manual carefully and understand it thoroughly before using the product. The symbols listed below are used to indicate this information.

DANGER!

Potential hazard that will result in serious injury or loss of life.

WARNING!

Potential hazard that could result in serious injury or loss of life.

CAUTION!

Potential hazard that may result in moderate injury or damage to equipment.

IMPORTANT!

Installation, operation, or maintenance information that is important but not hazard related.

WARNING!

- **HEATED SURFACE.** The power inverter housing may become uncomfortably warm, and can reach up to 60°C (140°F) under extended high power operation.
- Do not operate the power inverter if it has been dropped or damaged in any way.
- Always disconnect the device by pulling on the plug itself, not the power cable.
- The device must be fastened so that it does not cause a safety hazard in case of collision or hard braking.
- Route the power cable so that it does not interfere with the driver of the vehicle when plugged into the vehicle's 12 V outlet.
- Prevent the power supply cable from hanging over sharp edges.
- Using improper voltage may result in damage to the device and possible injury to the user. The correct voltage is listed on the rating plate.
- Never leave the device unattended during operation.

CAUTION!

- Do not connect live AC power to the power inverter's AC outlets. The power inverter will be damaged even if it is switched off.
- Avoid placing the power inverter on or near heating vents, radiators or other sources of heat. Do not place the power inverter in direct sunlight (e.g. on the vehicle's dashboard) in order to prevent an overheat shutdown caused by high temperatures. Do not use the power inverter in temperatures over 40°C (104°F).
- Do not insert foreign objects into the power inverter's outlets or ventilation openings.

CAUTION!

- **DO NOT USE** the power inverter with the following equipment:

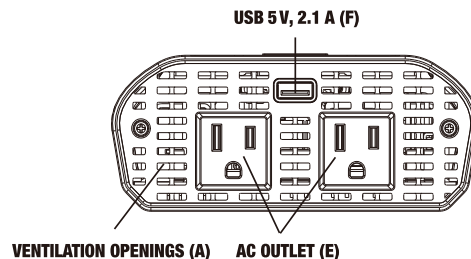
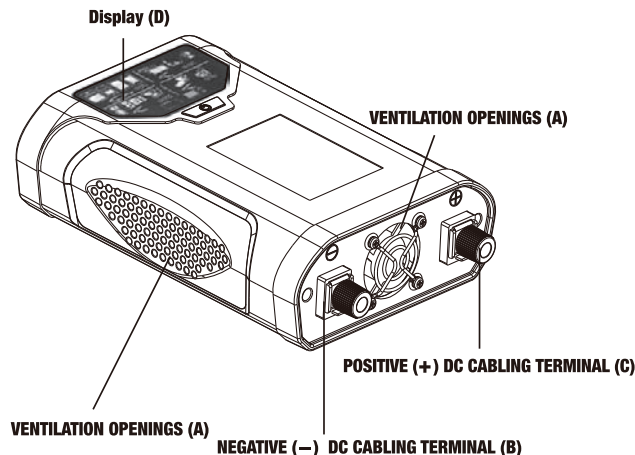


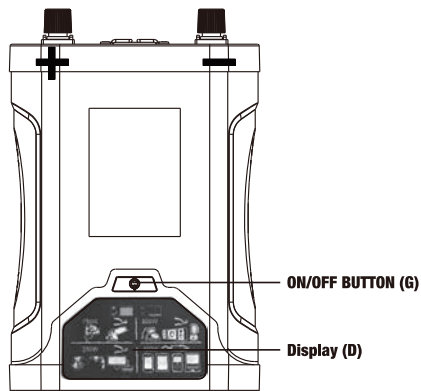
Small battery-operated devices such as rechargeable flashlights, some rechargeable shavers, and night lights that are plugged directly into an AC receptacle to recharge. The device can be damaged if connected to the power inverter. Always recharge batteries using a separate battery charger.



Battery chargers used in power tools. These chargers display a **WARNING LABEL** stating that there are dangerous voltages at the charger's battery terminals.

- Disconnect the power cable whenever the engine is switched off for extended periods of time. In some vehicles, the power does not turn off after the engine has been switched off. If the plug is left connected, the vehicle battery might become discharged or damaged.
- Using the device for extended periods of time can completely discharge the vehicle battery.
- When using a power inverter continuously inside a vehicle that is not running, the engine should be started at least once an hour for 10–15 minutes to keep the battery from discharging. Do not start a vehicle in a closed garage, as the carbon monoxide in the exhaust is fatal.
- Power inverters work best with a battery that is in good condition and fully charged. A weak battery will be drained easily if demands are too high. This could leave you stranded so be sure to check the battery's condition before using a power inverter in a stationary vehicle.





Accessories



DC CABLE WITH CLAMPS FOR DIRECT CONNECTION TO 12 V VEHICLE BATTERY (I)

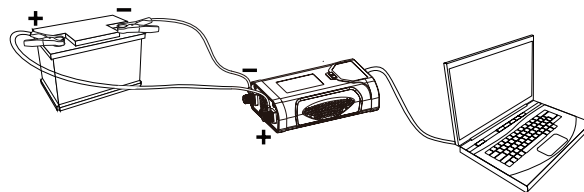


DC CABLE WITH 12 V OUTLET PLUG (J)

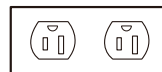
CAUTION!

Only use products provided by the 12 V outlet plug.

This power inverter is an electronic device that converts the low-voltage 12 V (direct current) of a battery, such as can be found in cars, motor homes, boats or other similar power sources, to the conventional 115 V (alternating current) like you have in your home. This conversion process allows you to run standard household devices such as TVs, VCRs, portable stereos, laptop computers, and other similar devices in automobiles, boats, tractors, trucks and virtually anywhere else.

**Options for connecting devices to the power inverter**

According to the wattage of the devices and its features, you can choose to connect the device to the:



POWER OUTLET (E)

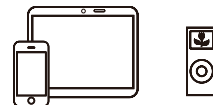


or



USB Port

USB PORT (F)



Determining the maximum load of connected devices

WARNING!

DO NOT overload your power inverter! Overloading the power inverter, even for a short time, could result in serious damage to the power inverter and/or to the connected device.

A few simple steps are necessary to avoid overloading the power inverter:

- Identify all devices that you would like to power.
- Add up the total wattage of devices that will be powered. The wattage can be found on the individual device's rating plate, as well as in the instruction manual.

IMPORTANT!

In some cases, the wattage might not be listed on the devices you want to connect to the power inverter. In that case, calculate the wattage using the following equation:

$$\text{VOLTS} \times \text{AMPERE} = \text{WATTS}$$

Formula: 115 Volts x X Amperes = XXXX Watts

Example: 115 Volts x 5 Amperes = 575 Watts

CAUTION!

Understand the difference between rated (running) wattage and surge (starting) wattage.

The **RATED (RUNNING) WATTAGE** is the average amount of power that a device consumes continuously.

The **SURGE (STARTING) WATTAGE** is the amount of power that a device consumes at start-up for a limited period of time (2–3 seconds). Some devices (e.g. induction motors of air conditioners and refrigerators) may have a start-up surge of 3 to 7 times the rated wattage.

IMPORTANT!

The power inverter can supply momentary surge power that is higher (1000 W) than its maximum power rating (500 W). Some products with a rated wattage lower than the maximum power rating for your power inverter may still exceed the power inverter's surge capability and trigger an overload shutdown.

Products rated with the following power and surge ratings or less can be connected to the power inverter.

POWER RATING	MAXIMUM WATTAGE
Continuous power rating (RATED WATTAGE)	500 W
Surge rating max. (SURGE WATTAGE)	1000 W

Wattage of commonly used devices

IMPORTANT!

The wattages given below are estimates. The actual wattage required for your devices may differ from those listed. Be sure to check the specific wattage requirements on the rating label and in the operating instructions of devices to be used.

PRODUCTS	WATTS REQUIRED	PRODUCTS	WATTS REQUIRED
Portable music	10 W	13" television	100 W
MP3 player	10 W	Handheld gaming device	130 W
Digital camera	10 W	27" television	280 W
Smartphone/Tablet	20–30 W	Food processor	350 W
Laptop computer	60 W	Small appliance	450 W

NOTE: Power requirements for product examples are estimates only. To calculate the wattage of a product, use the following equation: amperage x 115.

IMPORTANT!

Add up the total wattage of devices to be powered.

TAKE INTO CONSIDERATION THE SURGE WATTAGE REQUIRED BY ELECTRICAL MOTORS AS WELL AS THE RATED WATTAGE.

Example:

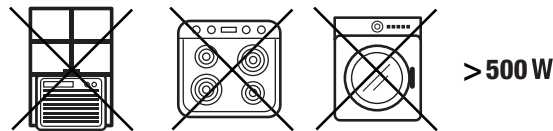
These devices can be operated simultaneously.

DEVICE	SURGE (STARTING) WATTAGE MAX. 1000 W	RATED (RUNNING) WATTAGE MAX. 500 W
Light bulb	60	60
Table fan	400	200
Radio	200	100
Total wattage used	660	360

These devices usually **CAN** be connected to the power inverter:



These devices **CANNOT** be connected to the power inverter, as they usually have too high a start-up surge or continuous rating.

**IMPORTANT!**

The device is not suitable for professional or industrial use.

Before you start

Unpack the power inverter. Inspect the unit for damage. If the unit has been damaged, contact the retailer immediately.

The carton should contain:

- Power inverter
- Cable with 12 V outlet plug (CAUTION! Only use products provided by the 12 V outlet plug.)
- Cable for direct connection to 12 V battery
- Owner's manual
- Check the power inverter's identification label to ensure that you have purchased the intended model and that it has the required specifications for its intended use.
- **Positioning of the power inverter:**

Position the power inverter on a flat and stable surface in a location that is:

DRY	Do not expose to water, rain, moisture, snow or spray.
COOL	Operate the power inverter in ambient temperatures between 0°C and 40°C (32°F and 104°F). Keep it away from heating vents and direct sunlight. We recommend using the power inverter in environments not exceeding 25°C (77°F).
WELL-VENTILATED	For proper cooling, allow at least 2" (5 cm) of clearance around the power inverter.
CLEAN	Choose a location that is free of any debris that could get into the power inverter.
SAFE	Do not install the power inverter in a compartment with batteries or flammable liquids, such as gasoline, or explosive vapours.

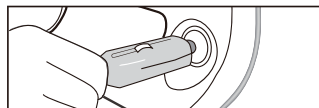
Connecting the power inverter

CAUTION!

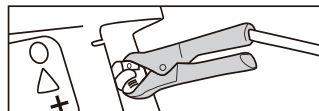
Prior to connecting to the power source:

Make sure that the total wattage of the devices you are planning to connect to the power inverter does not exceed the maximum load of the respective power outlet:

LOAD CONNECTED (W)	CONNECTION WITH 12 V OUTLET PLUG	CONNECTION WITH CAR BATTERY
Continuous load under 100 W	Yes	Yes
Continuous load between 100 and 500 W	No	Yes



< 100 W



< 500W

Connecting the connector cables to the power inverter

- Make sure that the power inverter is switched off by verifying the digital display (D) is off.
- If the power source can be switched off, switch it off as well.
- Choose the cable (I/J) suitable for connecting the AC products that you want to operate.

CAUTION!

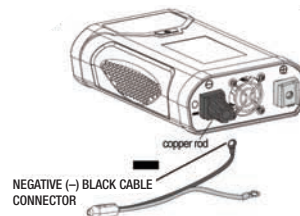
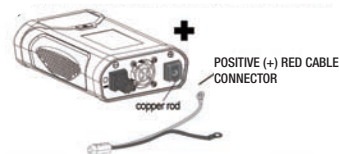
Only use the cables provided with your power inverter.

- Connect the cable with the DC cabling terminals (B/C) on the back of the power inverter.

CAUTION!

Only use products provided by the 12 V outlet plug. Make sure to connect the **RED CABLE TO POSITIVE PORT (+)** and the **BLACK CABLE TO NEGATIVE PORT (-)**

- Place the red cable connector on the positive DC cabling terminal (+/red). Make sure that the respective holes are matching. Screw the red cap back on the cabling terminal until the cable connector is tightly fixed.
- Place the black cable connector on the negative DC cabling terminal (-/black). Make sure that the respective holes are matching. Screw the black cap back on the cabling terminal until the cable connector is tightly fixed.



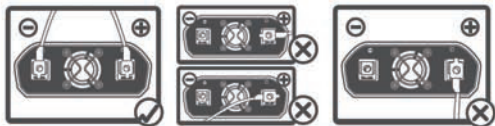
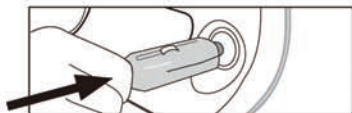
CAUTION!

Be sure to avoid the following situations:

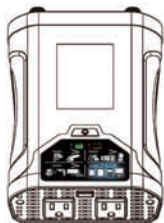
- A) The connection is not fully inserted, leaving the copper rod visible.
- B) The connection is not fixed in the locking position.

Connecting the power inverter to a 12 V outlet (loads under 100W)

- Follow the instructions in the previous section. Choose the quick connector cable with 12 V outlet plug (J) (See connecting the connector cables to the power inverter).



Faulty connection



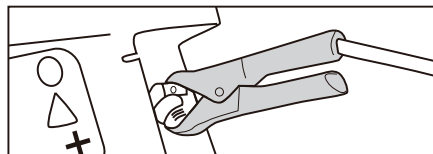
The display in the 100 W section will glow blue, which means the power inverter can provide no more than 100 W of power. In the event of overload, the power inverter will automatically shut down.

- Plug the cable's 12 volt outlet plug into the 12 V outlet of your vehicle. Make sure the plug is fully inserted.
- The power inverter is now ready for use.

CAUTION!

Always disconnect the power cable from the vehicle's 12 V outlet when you are not using the device.

Connecting the power inverter to a 12 V battery (loads up to 500 W)



Safety guidelines for handling batteries

DANGER!

A spark may be visible when making the connection to a battery because a current will flow to charge the capacitors in the power inverter. Do not make this connection in the presence of flammable fumes. Explosion or fire may result. Thoroughly ventilate the battery compartment before making this connection.

DANGER!

Take special care when working with a car battery. Batteries contain corrosive materials and present an **ELECTRIC SHOCK HAZARD**.

DANGER!

Do not use the car battery in the proximity of open flames. Do not smoke when using a car battery.

WARNING!

Remove any jewellery (watch, ring, etc.). Be careful not to short-circuit the battery with any metallic object (wrench, etc.).

WARNING!

To prevent irritation and burns, wear protective eyewear and clothing when you install the power inverter or work with a car battery. Should battery acid come into contact with skin or eyes, flush it with water and consult your physician.

CAUTION!

Power connections from a 12 V battery to the power inverter must be **POSITIVE (RED) TO POSITIVE AND NEGATIVE (BLACK) TO NEGATIVE**. A reverse polarity connection (positive to negative) will blow a fuse in the power inverter and may permanently damage the unit. Damage caused by a reverse polarity connections is not covered by your warranty.

CAUTION!

Loose connectors result in an excessive voltage drop and may result in overheated wires and melted insulation.

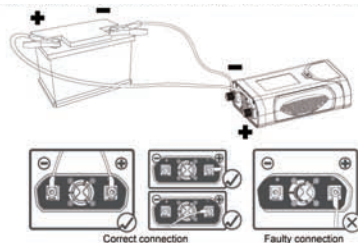
CAUTION!

Do not start the car engine during operation.

Connect

Follow the instructions in the section (See connecting the connector cables to the power inverter) to connect the cable to the power inverter.

- Fasten the POSITIVE /+ (RED) CLAMP TO THE POSITIVE /+ BATTERY POST, and then fasten the NEGATIVE /- (BLACK) CLAMP TO THE NEGATIVE/- BATTERY POST. Make a secure connection.
- The power inverter is now ready for use



CAUTION!

If you are going to disconnect the battery, switch the power inverter off first (See switching on/off).

CAUTION!

Always disconnect the power cables from the car battery when you are not using the device.

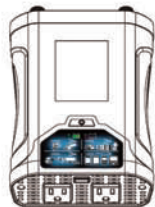
Switching on/off

- Be sure to have your power inverter properly placed and connected according to the wattage that is to be connected before attempting to turn the unit on.
- Switch the power source on in case it is turned off.
- Switch on the power inverter: Press and hold the on/off button (H) until the digital display (F) turns on. The display shows the battery voltage, indicating that the power inverter is operating normally and AC power is available at the outlet.
- Plug in the device that you want to operate to either the AC power inverter or the USB port.

CAUTION!

After plugging in the devices, turn them on ONE AT A TIME. This will ensure that the power inverter does not have to deliver the surge currents required for all the loads at once.

- Press the on /off button to toggle the display function.



When the power inverter is switched on and there is no load, all four quadrants of the display panel are illuminated blue, indicating 500 W are available.



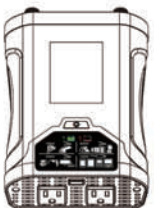
When the power inverter is connected using the 12 V outlet plug, the 100 W quadrant is illuminated blue, indicating the largest load should not exceed 100 W.

WARNING!

Use only the cables included with this inverter. Use of other cables may cause damage to the inverter.



When power inverter load is between 100 and 150 W, the blue light in the 500 W quadrant goes out, indicating the largest load should not exceed 350 W. When power inverter load is between 200 and 300 W, the blue light in the 350 W quadrant goes out, indicating the total load should not exceed 200 W.



When power inverter load is 500 W, the blue lights in all four quadrants go out, indicating the power inverter has reached maximum load.

- Switching off the power inverter: Press and hold the on/off button (G) until the digital display (D) turns off.

CAUTION!

Disconnect the power inverter from the power source and switch off when it is not in use.

IMPORTANT!

When the power inverter is switched off, it draws no current from the battery. When the power inverter is switched on without any load connected to it, the outlet draws approx. 1.5 A from the battery. This low current draw will eventually discharge the battery.

Using the USB port



Plug the USB-powered device into the power inverter's USB charging port and operate normally.

IMPORTANT!

This unit's USB charging port does not support data communication. It only provides 5 V / 2.1 A DC power to an external USB-powered device. Not all mobile phones are provided with a charging cable. Data cables are not supported by this device. Please check with your mobile phone dealer for the correct charging cable.

Automatic safety features

This power inverter includes the following automatic safety features to ensure safe and trouble free operation:

- Vehicle battery low-voltage automatic alarm and shutdown is activated when the battery voltage drops to 10–11 V, to protect the battery from being damaged.
- Vehicle battery high-voltage shutdown is activated when the battery voltage rises to a dangerously high level due to a defective battery.
- Overload protection with automatic shutdown is activated when a device rated more than 500 W is plugged into the power inverter.
- Overheat protection with automatic alarm and shutdown is activated in case the power inverter overheats due to improper ventilation or a high ambient temperature.
- Output short-circuit protection is activated in case of a short circuit in the connected device.
- Built-in fan is activated when a significant amount of power increases the internal temperature and it exceeds its ambient operating temperature.
- Replaceable 8 A fuse is used for continued protection against a risk of fire or electric shock and should be replaced manually, if necessary.

An **AUDIBLE ALARM** warns you if a low-voltage shutdown is about to occur (See troubleshooting).



WARNING!

Before cleaning make sure the power inverter is switched off and disconnected from the power source.

- The exterior of the device should be cleaned periodically with a damp cloth or sponge and a mild soap solution.
- Be sure vents and fans are free of dust or debris.
- Never immerse the device in water or any other liquid.
- For cleaning never use corrosive detergents, wire brushes, abrasive scourers, or metal or sharp objects.
- Store the device in a cool, dry, location that is protected from moisture and out of the reach of children.

Maintaining battery condition

- Vehicle batteries are designed to provide brief periods of very high current needed for engine starting. They are not intended for constant deep discharge.
- Regularly operating the power inverter from a vehicle's battery until the low-voltage alarm sounds will shorten the battery's life.

The battery operating time depends on:

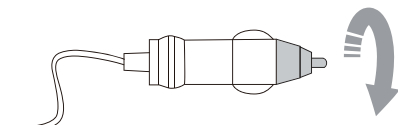
- the charge level of the battery,
- the battery capacity,
- the amount of power drawn by the devices that are connected to the power inverter.
- With an average load of about 500 W connected to the power inverter, consider that you will have to start the vehicle regularly, for example every hour or two, to recharge the vehicle's battery.
- Prior to doing so, the power inverter must be disconnected from the power source and must remain disconnected whilst charging is in progress.
- Consider connecting the intelligent power inverter to a separate deep-discharge type of suitable battery if you will be frequently running electrical products for extended periods of time.

Fuse replacement

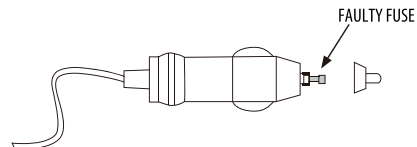
WARNING!

For continued protection against risk of fire or electric shock replace only with same type and rating of fuse (125 V, 8 A).

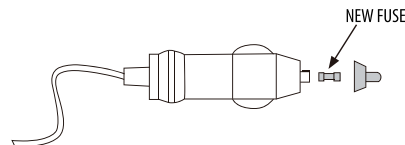
Follow the instructions to replace the fuse inside the 12 V outlet plug of your connector cable (J):



Twist off the upper cover of the 12 V outlet plug.



Remove the faulty fuse.



Insert a new fuse and twist the cover of the plug back on.

The digital display (D) shows error codes when the power inverter has shut down due to the problems as shown in the following table:

PROTECTION	POSSIBLE CAUSE	SOLUTION	ERROR CODE ON DISPLAY
Low-battery alarm	As the battery discharges, its voltage decreases. Voltage drops to: 10.5 – 11.0 V = alarm	Shut down sensitive loads such as computers and then recharge the battery.	Audible alarm red indicator
Low-voltage shutdown	Voltage drops to: 10.0 – 11.0 V = shutdown. This protects the battery from being over-discharged.	Recharge the battery.	Alarm red indicator
High-Voltage shutdown	A defective battery charging system can cause the battery voltage to rise to high levels (15.0 – 16.3 V). Although the power inverter has a protection against high voltage, it might still be damaged if the input voltage were to exceed 16 volts.	Disconnect the connected devices. Verify that the charging system is properly regulated and the battery is 12 V nominal.	Red indicator
Overload shutdown	If you connect a device that is rated too high or a load that draws excessive surge power, the power inverter shuts down.	Use a product with a power rating within the power inverter's continuous power rating (See operating instructions).	Red indicator flash
Overheating shutdown	The power inverter shuts down automatically if it exceeds its safe operating temperature.	Turn power inverter off and allow it to cool for 15 minutes. Disconnect it from the power source. Disconnect all connected devices. Use a brush to clear any blocked ventilation holes. Move the power inverter to a cooler place. Reduce load if continuous operation is required.	Audible alarm

PROBLEM	POSSIBLE CAUSE	SOLUTION
The connected device will not operate.	The battery is defective.	Check the battery and replace it if required.
	The power inverter is damaged and needs to be repaired.	Have the power inverter repaired.
	Incorrect cabling connections to the power inverter.	Check connections. Make sure you turn the connectors to the proper locking position.
The power inverter will run some small loads, but not larger ones.	The cables are either too long or not heavy enough.	Use only the cables provided with your power inverter.
	Measured power inverter output is too low.	Recharge the battery.
Battery run time is less than expected.	The AC product power consumption is higher than rated.	Use a larger battery to make up for the increase in power requirement.
	The battery is old or defective.	Replace the battery.
	The battery is not being charged properly.	Some chargers are not able to fully recharge a battery. Make sure that you use a powerful charger.
	Power dissipation in DC cables.	Use only the cables provided with your power inverter.
No power to power inverter.	Blown fuse.	Replace fuse.
Buzz in audio system.	Inadequate internal power supply filtering of stereo system.	Use an audio system with a high-quality filter.
Television interference.	TV signals are weak.	<ul style="list-style-type: none"> Adjust the orientation of the power inverter, television, antenna, and cable. Maximize TV signal strength by using a better antenna, and use shielded antenna cable where possible. Try a different TV model.

This MotoMaster® product carries a one (1) year warranty against defects in workmanship and materials. At its discretion, MotoMaster Canada agrees to have any defective part(s) repaired or replaced free of charge, within the stated warranty period, when returned by the original purchaser with proof of purchase. This product is not guaranteed against wear or breakage due to misuse and/or abuse.

Made in China

Imported by MotoMaster Canada, Toronto, Canada M4S 2B8



Intertek
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Conforms to UL Std.458
Cert. to CSA Std C22.2 No.107.1