

**TWO YEAR LIMITED WARRANTY PROGRAM**

This limited warranty program is the only one that applies to this product, and it sets forth all the responsibilities of Vector Manufacturing, regarding this product. There is no other warranty, other than those described herein. Any implied warranty of merchantability or fitness for a particular purpose on this product is limited in duration to the duration of this warranty.

This Vector Manufacturing product is warranted, to the original purchaser only, to be free of defects in materials and workmanship for two years from the date of purchase without additional charge. The warranty does not extend to subsequent purchasers or users. Manufacturer will not be responsible for any amount of damage in excess of the retail purchase price of the product under any circumstances. Incidental and consequential damages are specifically excluded from coverage under this warranty.

This product is not intended for commercial use. This warranty does not apply to damage to units from misuse or incorrect installation/connection. Misuse includes wiring or connecting to improper polarity power sources.

**RETURN/REPAIR POLICY:** Defective products may be returned to manufacturer. Any defective product that is returned to manufacturer within 30 days of the date of purchase will be replaced free of charge. If such a product is returned more than 30 days but less than two years from the purchase date, manufacturer will repair the unit or, at its option, replace it, free of charge.

If the unit is repaired, new or reconditioned replacement parts may be used, at manufacturer's option. A unit may be replaced with a new or reconditioned unit of the same or comparable design. The repaired or replaced unit will then be warranted under the terms of the remainder of the warranty period. The customer is responsible for the shipping charges on all returned items. During the warranty period, manufacturer will be responsible for the return shipping charges to the customer in the United States.

**LIMITATIONS:** This warranty does not cover accessories, such as charging adapters, bulbs, fuses and batteries, damage or defects resulting from normal wear and tear (including chips, scratches, abrasions, discoloration or fading due to usage or exposure to sunlight), accidents, damage during shipping to our service facility, alterations, unauthorized use or repair, neglect, misuse, abuse, failure to follow instructions for care and maintenance, fire, flood and Acts of God.

If your problem is not covered by this warranty, call our Technical Support Department toll free at (866) 584-5504 for general repair information and charges if applicable. You may also contact us through our website at [www.vectormfg.com](http://www.vectormfg.com).

**STATE LAW RIGHTS:** This warranty gives you specific legal rights. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the exclusions or limitations stated herein may not apply. This warranty gives the purchaser specific legal rights; other rights, which vary from state to state, may apply.

**TO REQUEST WARRANTY SERVICE FOR THIS PRODUCT:** Contact Technical Support by telephone, fax or mail (see below). We suggest that you keep the original packaging in case you need to ship the unit. When returning a product, include your name, address, phone number, dated sales receipt (or copy) and a description of the reason for return and product serial number. After repairing or replacing the unit, we will make every effort to return it to you within four weeks.

**WARRANTY ACTIVATION:** Please complete Warranty Activation Card and mail to Vector Manufacturing. Enter "VEC415" as Model and "100 Watt Slim Power Inverter" as Product Type. All Vector products must be registered within 30 days of purchase to activate this warranty. Mail the completed registration form, along with a copy of the original sales receipt, to:

ATTN.: CUSTOMER SERVICE  
4140 SW 30th Ave., Ft. Lauderdale, FL 33312  
• TOLL FREE: (866) 584-5504 • FAX: (954) 584-5556 •

WARRANTY IS NON-TRANSFERABLE.

BD032806

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MADE IN CHINA

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**VECTOR**  
**iMobile™**

**100 Watt**  
**Slim Power Inverter**  
**with USB Charging Port**



**USER'S MANUAL**  
**& WARRANTY INFORMATION**

**IMPORTANT SAFETY INFORMATION, SAVE THESE INSTRUCTIONS**

TO REDUCE THE RISK OF INJURY, USER MUST READ AND UNDERSTAND THIS INSTRUCTIONAL MANUAL. THIS MANUAL CONTAINS IMPORTANT INFORMATION REGARDING THE OPERATION AND WARRANTY OF THIS PRODUCT. PLEASE RETAIN FOR FUTURE REFERENCE.

4140 S.W. 30th Ave., Ft. Lauderdale, FL 33312  
Toll Free: (866) 584-5504

[www.vectormfg.com](http://www.vectormfg.com)

## **IMPORTANT SAFETY INSTRUCTIONS**

### **WARNINGS**

**TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, EXPLOSION OR INJURY:**

- Do not connect to AC distribution wiring.
- Remove appliance plug from outlet strip or turn off inverter before working on the appliance. Multiple outlet power strips with switches and circuit breakers only interrupt power to the "hot" receptacle terminals. The "neutral" terminals remain powered with respect to the "ground" terminals.
- NOT approved for ignition protected areas. Do not make any electrical connections or disconnections in areas designated as IGNITION PROTECTED. This includes DC cigarette lighter type plug connection or airplane adapter.
- Do not operate the VEC415 near flammable materials, fumes or gases.
- Provide adequate ventilation and refrain from placing items on or around the inverter during operation.
- Proper cooling is essential when operating the inverter. Do not place the unit near the vehicle's heat vent or in direct sunlight.
- NEVER immerse the unit in water or any other liquid, or use when wet.
- DO NOT insert foreign objects into the AC outlet or the USB charging port.
- DO NOT attempt to connect or set up the unit or its components while operating your vehicle. Inattention to the road may result in a serious accident.
- This is not a toy — keep away from children.
- **INSTALL AND OPERATE UNIT ONLY AS DESCRIBED IN THIS USER'S MANUAL.**

### **CAUTIONS**

1. Always use the inverter where there is adequate ventilation. Do not block ventilation slots.
2. DO NOT use the inverter near flammable materials or in locations that may accumulate flammable fumes or gases.
3. ALWAYS turn the inverter OFF by disconnecting it from the DC accessory outlet when not in use.
4. DO NOT expose to extreme heat or flames.
5. Make sure the nominal powering voltage is 12 volts DC, center connection positive (+).
6. Do not use with positive ground electrical systems\*. Reverse polarity connection will result in a blown fuse and may cause permanent damage to the inverter and will void warranty.  
*\*The majority of modern automobiles, RVs, trucks and boats are negative ground.*
7. This inverter will not operate high wattage appliances or equipment that produce heat, such as hair dryers, microwave ovens and toasters.
8. This inverter is not tested for use with medical device.
9. Do not open the Inverter — there are no user-serviceable parts inside.

**Read This User's Manual Before Using This Unit.**

**SAVE THESE INSTRUCTIONS**

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### **INTRODUCTION**

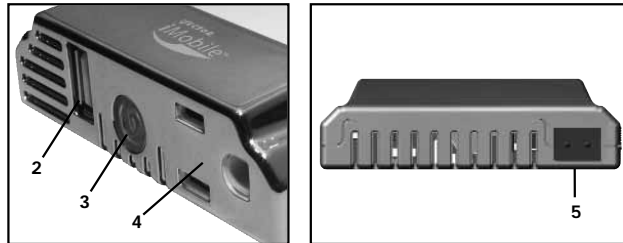
Thank you for purchasing the **VEC 415 100 Watt Slim Power Inverter with USB Charging Port**. This inverter can be used to operate personal electronics and mobile office equipment, such as: laptop computers, digital/video cameras, MP3 players, cell phones, PDAs, and more. It can also be used to recharge 110/120 volt AC devices that have an appropriate recharging adapter with a standard North American two- or three-prong plug.

Please read this User's Manual carefully before use to ensure optimum performance and to avoid damage to this product.

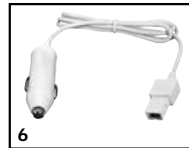
### **FEATURES**

- 100 watts output
- MAXX SST® Soft Start Technology®
- Plug and play
- Electronic circuit protection prevents damage due to overload/insufficient ventilation (overheat condition)
- Low-battery protection — unit automatically shuts down when battery discharges below 10.7 volts
- Automotive and airplane 12 volt DC adapters
- 5 volt DC USB power port
- Manual ON/OFF Pushbutton with Bi-color Power/Fault LED
- Audible fault warning
- Compact size, efficient and quiet
- Convenient carrying case
- Airplane Adapter

## Controls and Functions



1. INVERTER CARRY CASE
2. USB POWER PORT
3. ON/OFF PUSHBUTTON/  
BI-COLOR POWER/FAULT LED
4. STANDARD NORTH AMERICAN  
115 VOLT AC OUTLET
5. 12 VOLT DC/AIRPLANE ADAPTER  
CORD PORT
6. DETACHABLE 2-PRONG 12 VOLT DC  
ADAPTER CORD
7. 12 VOLT DC VEHICLE ACCESSORY  
ADAPTER
8. AIRPLANE ADAPTER CORD



## HOW THIS INVERTER WORKS

This inverter is an electronic device that converts low voltage DC (direct current) electricity from a battery to 115 volt AC (alternating current) household power. In designing this inverter, Vector has incorporated design techniques previously employed in computer power supplies. The result of these design innovations is a smaller, lighter and easier-to-use power inverter.

The Slim Power Inverter converts power in two stages. The first stage is a DC-to-DC conversion process that raises the low voltage DC at the inverter input to 145 volts

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DC. The second stage is a MOSFET bridge stage that converts the high voltage DC into 115 volts, 60 Hz AC.

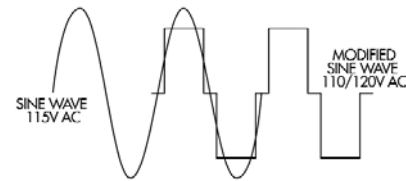
The DC-to-DC converter stage uses creative, high frequency, zero voltage switching power conversion techniques that replace the bulky transformers found in less technologically advanced models. The inverter stage uses advanced power MOSFET transistors in a full bridge configuration.

### **Slim Power Inverter Output Waveform**

The AC output waveform of this inverter is known as a modified sine wave. It is a stepped waveform that has characteristics similar to the sine wave shape of utility power. This type of waveform is suitable for most AC loads, including linear and switching power supplies used in electronic equipment, transformers, and small motors.

The modified sine wave produced by this inverter has an RMS (root mean square) voltage of 115 volts. Most AC voltmeters (both digital and analog) are sensitive to the average value of the waveform rather than the RMS value. They are calibrated for RMS voltage under the assumption that the waveform measured will be a pure sine wave. These meters will not correctly read the RMS voltage of a modified sine wave. Non-TRUE RMS meters will read about 20 to 30 volts low when measuring the output of this inverter. For accurate measurement of the output voltage of this unit, use a TRUE RMS reading voltmeter such as a Fluke 87, Fluke 8080A, Beckman 4410 or Triplet 4200.

### **115 volt AC Output**



### **CAUTION**

#### **Rechargeable Devices**

- Certain rechargeable devices are designed to be charged by plugging them directly into an AC receptacle. These devices may damage the inverter or the charging circuit.
- When using a rechargeable device, monitor its temperature for the initial ten minutes of use to determine if it produces excessive heat.
- If excessive heat is produced, this indicates the device should not be used with this inverter.
- This problem does not occur with most of the battery-operated equipment. Most of these devices use a separate charger or transformer that is plugged into an AC receptacle.

### **MAXX SST® Soft Start Technology®**

Vector's Soft Start Technology gradually "ramps up" the inverter's power to slowly start appliances that require a surge to get started. This gradual ramp up protects the inverter and the appliance, as well as the power source, from damage and failure.

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## OPERATING INSTRUCTIONS

Once properly connected to a 12 volt DC power source, the ON/OFF switch controls power to the unit. The bi-color LED indicator lights blue when the inverter is connected to DC power and the power pushbutton is set to ON. (If the bi-color LED indicator lights red, refer to the "Troubleshooting" section on page 7 of this manual.)

ALWAYS TURN THE INVERTER ON BEFORE THE CONNECTED DEVICE.

The standard North American 115 volt AC and USB outlets allow the user to operate multiple devices simultaneously. Simply plug the equipment into the unit and operate normally.

**Note:** *Ensure wattage of all equipment simultaneously plugged into the VEC415 does not exceed 100 watts continuous.*

### Rated Versus Actual Current Draw of Equipment

Most electrical tools, appliances, electronic devices and audio/visual equipment have labels that indicate the power consumption in amps or watts. Be sure that the power consumption of the item to be operated is below 100 watts. If the power consumption is rated in amps AC, simply multiply by the AC volts (115) to determine the power.

Resistive loads are the easiest for the inverter to run; however, it will not run larger resistive loads (such as electric stoves and heaters), which require far more wattage than the inverter can deliver. Inductive loads (such as TVs and stereos) require more current to operate than do resistive loads of the same wattage rating.

For safety reasons, the unit will simply shut down if it is overloaded. To restart the unit, simply remove the load and press the ON/OFF pushbutton to reset.

### Operation of the 115 Volt AC Outlet

1. Connect the Power Cord to the inverter.
2. Connect either the 12 Volt DC Vehicle Accessory Adapter or the 12 Volt DC Airplane Adapter to the end of the 12 Volt Power Cord.
3. Insert the selected adapter Plug into a vehicle's (or other 12 volt DC power source's) DC accessory outlet or airplane DC power outlet.
4. Rotate the vehicle accessory plug slightly to make sure there is good contact.
5. Push the ON/OFF Pushbutton to turn the Inverter ON.
6. The LED in the ON/OFF Pushbutton will light blue, indicating a proper connection.
7. If the Inverter does not work, make sure the ignition/accessory switch is actually powering the accessory outlet. Some vehicles require the ignition switch to be turned on.
8. Plug the (110/120 volt AC) appliance into the Inverter's three-prong AC outlet and operate normally.

**Note:** *The Inverter will not operate appliances and equipment that generate heat, such as hair dryers, electric blankets, microwave ovens and toasters.*

### Operation of the USB Power Port

1. Connect the Power Cord to the inverter.
2. Connect either the 12 Volt DC Vehicle Accessory Adapter or the 12 Volt DC Airplane Adapter to the end of the 12 Volt Power Cord.
3. Insert the selected adapter Plug into a vehicle's (or jump-starter's) DC accessory outlet or airplane DC power outlet.

4. Rotate the plug slightly to make sure there is good contact.
5. Push the ON/OFF pushbutton to turn the unit ON.
6. The LED in the ON/OFF Pushbutton will light blue, indicating a proper connection.
7. If the inverter does not work, make sure the ignition/accessory switch is actually powering the accessory outlet. Some vehicles require the ignition switch to be turned on.
8. Plug the USB-powered device into the inverter's USB Power Port and operate normally.

**Notes:** *This inverter's USB Power Port does not support data communication. It only provides 5 volts/500mA DC maximum power to an external USB-powered device.*

*USB power output is not controlled by the ON/OFF Power pushbutton. USB power is always on when the Power Cord is connected to a 12 volt DC power source. Remember to disconnect the Power Cord from any power source when the unit is not in use.*

### Protective Features

The inverter monitors the following conditions:

**Low Battery Voltage** — This condition is not harmful to the inverter, but could damage the power source, so the inverter will automatically shut down when input voltage drops below 10.7 volts DC.

**Input Voltage Too High** — The inverter will automatically shut down when DC input voltage exceeds 15.0 volts, as this can harm the unit.

**Thermal Shutdown Protection** — The inverter will automatically shut down when the unit becomes overheated.

**Overload/Short Circuit Protection** — The inverter will automatically shut down when a short circuit occurs.

**AC Ground Leakage** — The inverter will automatically shut down when leakage current exceeds safety level.

**Notes:** *The LED in the ON/OFF Pushbutton will light red to indicate a Fault condition before automatic shutdown occurs.*

*If unit shuts down, turn it OFF, remove the load, wait a few minutes, then turn it back ON.*

### Operating Tips

The **100 Watt Slim Inverter** should only be operated in locations that are:

**DRY** — Do not allow water or other liquids to come into contact with the inverter.

**COOL** — Surrounding air temperature should ideally be 0-40°C (32-104°F). Keep the inverter away from direct sunlight, when possible.

**WELL-VENTILATED** — Keep the area surrounding the inverter clear to ensure free air circulation around the unit. Do not place items on or over the inverter during operation. The unit will shut down if the internal temperature gets too hot. The inverter can be reset after it cools down.

**SAFE** — Do not use the inverter near flammable materials or in any locations that may accumulate flammable fumes or gases. This is an electrical appliance that can briefly spark when electrical connections are made or broken.

## **CARE AND MAINTENANCE**

### **Storage**

1. Ideal storage temperature range is 0-40°C (32-104°F).
2. Store and use the **100 Watt Slim Power Inverter** in a cool, dry place with adequate ventilation for all-around air circulation.
3. Avoid locations that are exposed to heating units, radiators, direct sunlight, or excessive humidity or dampness.

### **Fuse Replacement (12 Volt DC Accessory Cord)**

1. Unscrew the cap of the barrel end of the 12 Volt DC Cord (turning counter-clockwise) and lift off.
2. Pull the fuse straight out.
3. Replace with a new 10 amp fuse.
4. Screw the cap back onto the plug (turning clockwise).

## **TROUBLESHOOTING**

### **Common Audio/Visual Problems**

Problem: Buzzing Sound in Audio Systems

Some inexpensive stereo systems and boom boxes make a buzzing sound when operated from the inverter, because the power supply in the electronic device does not properly filter the modified sine wave produced by the inverter. The only solution to this problem is to use a sound system that has a higher quality power supply.

Problem: Television Interference

The **100 Watt Slim Power Inverter** is shielded to minimize interference with TV signals. However, in some instances, some interference may still be visible, especially when the TV signal is weak. Try the following to improve the picture:

1. Move the 100 Watt Inverter as far away as possible from the TV set, the antenna, and the antenna cables. Use a short AC extension cord, if necessary.
2. Adjust the orientation of the antenna cables, and the TV power cord to minimize interference.
3. Make sure that the antenna feeding the TV provides an adequate (snow-free) signal and that high quality, shielded antenna cable is used.

### **Fault LED Lights/Alert Buzzer Sounds**

When the Power/Fault LED turns from blue (indicating the unit is powered) to red and the alert buzzer sounds, a fault condition is present and the unit will automatically shut down shortly. See "Protective Features" on page 5 and "Common Power Output Problems" below.

## **Common Power Output Problems**

### **Possible Causes**

Battery voltage below 10.7 volts

Equipment being operated draws too much power

Inverter in thermal shutdown condition

AC output is shorted

### **Recommendations**

Recharge battery or check DC power supply.

Reduce load to maximum 100 watts.

Allow inverter to cool down. Ensure there is adequate ventilation around the unit, and the load is no more than 100 watts for continuous operation.

Disconnect the AC appliance. Press the inverter ON/OFF Power pushbutton to turn the unit OFF. Wait a few seconds, then press the pushbutton again to turn it back ON.

## **SPECIFICATIONS**

Output Power:	100 watts continuous
Output Voltage (RMS):	115 volts AC $\pm$ 10%
Output Frequency:	60Hz $\pm$ 3Hz
Output Waveform:	Modified Sine Wave (MSW)
DC Input :	13.8VDC, 8 Amps
Efficiency:	>85%
Low Voltage Audible Alarm:	<11 Volts Input Voltage
Low Voltage Shutdown:	<10.7 Volts Input Voltage
Operating/Storage Temperature:	0-40°C (32-104°F)
Operating/Relative Humidity:	5-95% non-condensing

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