



VANAIR®
MOBILE POWER SOLUTIONS®

EPEQ DC-DC Converter

Electrified Power Equipment.™

EPEQ® Electrified Power Equipment®
48V to 12V DC Converter (60 AMP)
Part Number: 6250000



USER GUIDE

OPERATION MANUAL AND SERVICE PARTS LIST KEEP THE MANUAL WITH THE VEHICLE

NOTE: Read this manual before installing, operating or servicing this equipment. Failure to comply with the operation and maintenance instructions in this manual will VOID THE EQUIPMENT WARRANTY.

This publication contains the latest information available at the time of preparation. Every effort has been made to ensure accuracy. Vanair® Manufacturing, Inc. reserves the right to make design change modifications or improvements without prior notification.

Making unauthorized modification to the system components WILL VOID THE WARRANTY! Always contact Vanair® before beginning any changes to the EPEQ® 48V-12V DC Converter.



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GENERAL INFORMATION

For parts, service or technical assistance, make sure you have the Serial Number and Model Number of the unit. Please record the information in the spaces below for future reference.

Serial Number:	
Model Number	



- Never connect the converter to a solar panel or wind turbine.
- The 48V-12V DC Converter provides the following built-in protections:
 - » Protects against low input voltage
 - » Protects against output over voltage
 - » Protects against overload
 - » Over temperature protection

EPEQ® 48V-12V DC CONVERTER

The EPEQ® 48V-12V DC Converter steps down the voltage from a 48V DC input to output a stable, 12V DC voltage. Primarily used to run 12V DC devices and accessories using the ELiMENT® 48V battery as a power source.

FEATURES

- The 48V-12V DC Converter is fully sealed to protect against water, dust, dirt and vibration
- Up to 95% efficiency.
- Works in a wide temperature range.
- Strong built-in protections.

SAFETY



- Some batteries may produce explosive gases. Be sure no sparks or open flames are present near battery.
- Many vehicle batteries are lead/acid based. It is recommended to wear hand and eye protection when working with these types of batteries.
- With all electrical devices, use caution when handling wires and connectors to avoid accidental electric shock and damage to equipment.
- Do not cross or touch connected positive and negative wires together. Do not touch both the positive and negative terminals with anything that will conduct electricity such as metal tools, wires or your fingers.
- CAUTION: Be aware that loose clothing, long hair, necklaces, etc. can get caught in moving and rotating parts when working around vehicles and machinery.
- Make sure polarity of the wiring is correct. Improper wiring can damage the converter.

INSTALLATION

1. Before beginning work, turn off all power and power down any attached devices
2. Ideally, mount the converter flat and face up, so the heat can naturally rise away from the unit's case.
3. When wiring the converter - it is normal to notice a spark when it is initially wired to the battery.
4. Check the polarity of the wiring connections. (EPEQ® converters and batteries will ship with power cables and connectors pre-installed.)
5. Use the DC INPUT cables and connectors pre-installed on the 48V-12V DC Converter.
6. When hardwiring this unit, use 6 AWG copper wire to connect the OUTPUT of the converter to 12V DC devices. Follow the procedure below: (See *Fig. 1* on following page.)
 - A. Positive (+) connector from the 48V battery connects to the Positive(+) INPUT terminal of the converter.
 - B. Negative (-) connector from the 48V battery connects to the (-) GND terminal of the converter.

- C. Connect the Negative (-) terminal of the output device to the (-) GND terminal of the inverter.
- D. Finally, connect the Positive (+) connector from the output device to the Positive (+) terminal of the converter's OUTPUT.
- E. The installation of a 60A fuse is recommended between the converter's Positive (+) Output terminal and the Positive (+) terminal of the Output Device for added protection. (Follow fuse manufacturer's installation procedure to install.)
- F. Wire lengths for power input and output should not exceed 2m (~6-1/2 ft.) to avoid voltage drop.

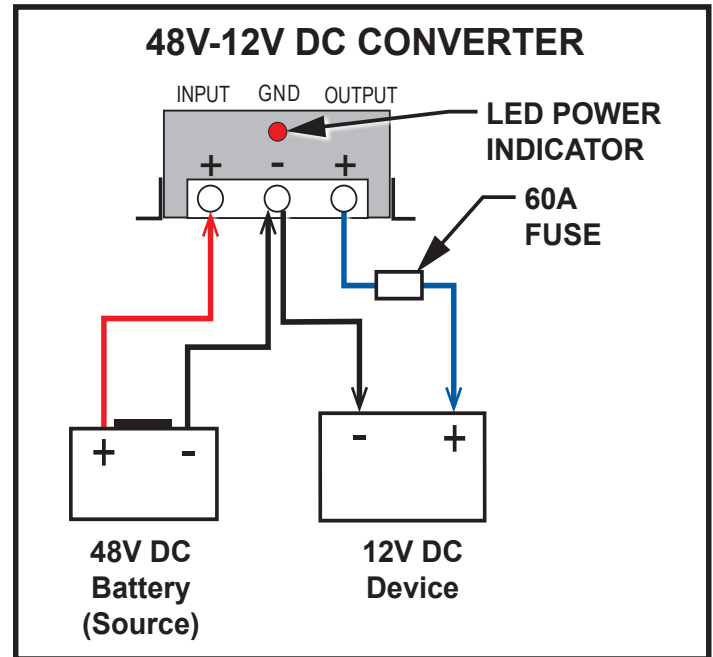


Fig. 1 - Typical Wiring

WIRING MULTIPLE LOADS

NOTE: When wiring multiple loads to the 12V DC output of this DC-DC converter, each load should have its own fuse on the positive side as close to the converter as possible, with a fuse size equal to the amperage of each load. Be sure to size wires accordingly as values can change with differing configurations.

For example: if wiring two (2) pumps that are rated at 20 amps each, there should be two (2) fuses each rated for 20A on the positive output wires as close as possible to the converter. (See example in Fig. 2 - Wiring Multiple Loads)

OPERATION

- Check to make sure the wiring and cables are in good shape, the connections are secure and properly connected, especially the polarity.
- The INPUT connector of the 48V-12V DC Converter should be connected to one of the orange connectors of the ELiMENT® Battery.

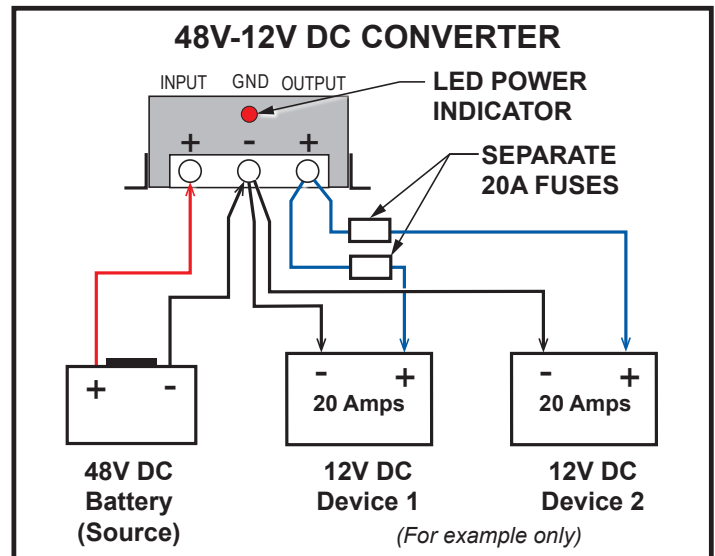


Fig. 2 - Wiring Multiple Loads

- Once connected, the converter should be operational.
- A red LED indicates unit is powered on.
- Power on connected 12V DC device(s)

TROUBLESHOOTING



- **CAUTION:** It is normal for the converter to become warm or even hot during operation. The case of the converter can reach temperatures of 185°F (85°C).

- Allow for proper ventilation for the heat to dissipate from the unit. Remove any objects on or around unit to allow for proper cooling.
- If unit suddenly stops working - check all connections, fuses or circuit breakers in use. If using a fuse, check to see if the fuse is burned. If so, replace it. If an installed circuit breaker is tripped - reset the breaker. Check again to see if the converter is now functioning.
- Check the battery level for adequate input power. If battery level is low, charge the 48V DC source battery as needed.
- If functionality does not return, check conditions for proper ventilation, damaged, pinched or loose wiring, etc.
- If unit has shut down due to a protection feature such as voltage overload or high heat, disconnect the load and allow the unit to cool down then try again.
- If protective shutdown reoccurs, it is possible the connected devices may be drawing too much voltage from the converter. Reduce the load connected to the converter and try again.
- If unit continues to fail after checking these issues - please contact Vanair® Customer Service.



- This unit is sealed. Do not try to open the case as there are no user-serviceable parts inside.

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**EPEQ® ELECTRIFIED POWER
EQUIPMENT™****EXCLUDES
ELIMENT™ BATTERY****VANAIR® VANTAGE
WARRANTY**

This limited warranty supersedes all previous Vanair® warranties and is exclusive with no other guarantees or warranties expressed or implied.

LIMITED WARRANTY—Subject to the expressed terms and conditions set forth below, Vanair® Mfg., Inc. ("Vanair"), of Michigan City, Indiana (USA), warrants to the original retail purchaser of new Vanair® equipment that such equipment is free from defects in materials and workmanship when shipped by Vanair®.

For warranty claims received by Vanair® within the applicable warranty periods described below, Vanair® will repair or replace any warranted equipment, parts or components that fail due to defects in material or workmanship or refund the purchase price for the equipment, at Vanair's discretion. Vanair® is not responsible for time or labor to gain access to the machine to perform work. **WARRANTY WILL BE VOID IF GENUINE VANAIR PARTS AND FLUIDS ARE NOT USED.**

Vanair® must be notified in writing within thirty (30) days of any such defect or failure. All warranty or returns must be pre-authorized in writing prior to performing warranty work. Call Vanair® for process and forms. Vanair® will provide instructions on the warranty claim procedures to be followed.

Warranty will commence upon receipt of the Warranty Registration Card. If the Warranty Registration Card is not received within six (6) months of shipment from Vanair®, the warranty commencement date shall be thirty (30) days from the date of shipment from Vanair®. Records of warranty adherence are the responsibility of the end user.

1. Inverters: 1 Year Parts / 1 Year Labor
2. Converters: 1 Year Parts / 1 Year Labor
3. Chargers: 1 Year Parts / 1 Year Labor
4. Electric Motors: 1 Year Parts / 1 Year Labor
5. EPEQ™ Lithium Welder: 1 Year Parts / 1 Year Labor
6. Alternators: 1 Year Parts / 1 Year Labor
7. Compressor Air End:
 - Rotary Screw: Lifetime with Vanair® Authorized Service Kits and Lubricants : 3 Years Labor
 - Reciprocating: 3 Years Parts / 1 Year Labor
 - Scroll: 1 Year Parts / 1 Year Labor
8. Hydraulic Pumps/Motors: 2 Years Parts / 1 Year Labor
9. 1 Year Parts/Labor on the following:
 - All electronics and controls including, but not limited to:
 - (i) I/O Boards
 - (ii) Modules
 - (iii) Panel Boxes
 - (iv) Instrumentation
 - (v) Clutches
 - (vi) Solenoids
 - (vii) Running Gear/Trailers
 - (viii) Cooler Cores and Fans
 - (ix) Battery Management Systems and Controllers

This Limited Warranty shall not apply to:

1. Consumable components, such as: shaft seals, valves, belts, filters, capacitors, contactors, relays, brushes, wire or parts that fail due to normal wear and use.
2. Items furnished by Vanair®, but manufactured by others, such as engines and trade accessories (these items are covered by the manufacturer's warranty, if any).
3. Equipment that has been modified by any party other than Vanair® or equipment which has not been used and maintained in accordance with Vanair's specifications.

4. Equipment which has been improperly installed and/or improperly operated, based upon Vanair's specifications for the equipment or industry standards.
5. Equipment installed by non-authorized or third party personnel. Vanair® products are intended for purchase and use by commercial/industrial users and persons trained and experienced in the use and maintenance of industrial equipment.

In the event of a warranty claim covered by this Limited Warranty, the exclusive remedies shall be, at Vanair's sole discretion: (i) repair; or (ii) replacement; (iii) where authorized in writing by Vanair® in appropriate cases, the reasonable cost of repair or replacement at an authorized Vanair® service facility; or (iv) payment of (or credit for) the purchase price (less reasonable depreciation based upon actual use) upon return of the equipment at the warranty claimant's risk and expense. Vanair® will pay standard ground freight for any warranty item shipped to and from Vanair® or (Vanair® designated facility) within the first year of the applicable warranty period. Any additional expedited freight cost is the responsibility of the purchaser.

TO THE GREAT EXTENT PERMITTED BY APPLICABLE LAW, THE REMEDIES PROVIDED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES APPLICABLE TO THE VANAIR® EQUIPMENT. IN NO EVENT SHALL VANAIR® BECOME LIABLE FOR DIRECT, INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFIT OR LOST BUSINESS OPPORTUNITY), WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY. IN NO EVENT SHALL VANAIR® BECOME OBLIGATED TO PAY MORE ON ANY WARRANTY CLAIM THAN THE PURCHASE PRICE ACTUALLY PAID BY THE ORIGINAL RETAIL PURCHASER.

THIS LIMITED WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER WARRANTY OR GUARANTY ARISING BY OPERATION OF LAW. ANY WARRANTY NOT EXPRESSLY PROVIDED HEREIN, IMPLIED WARRANTY, GUARANTY AND ANY REPRESENTATION REGARDING THE PERFORMANCE OF THE EQUIPMENT, AND ANY REMEDY FOR BREACH OF CONTRACT, IN TORT, OR ANY OTHER LEGAL THEORY WHICH, BUT FOR THIS PROVISION, MIGHT ARISE BY IMPLICATION, OPERATION OF LAW, CUSTOM OF TRADE, OR COURSE OF DEALING ARE EXCLUDED AND DISCLAIMED BY VANAIR®.

Some states in the United States of America do not allow limitations of how long an implied warranty lasts, or the exclusion of incidental, indirect, special or consequential damages, and as such, the above limitations and exclusions may not apply to you. This warranty provides specific legal rights. Other rights may be available to you, but may vary from state to state.

In Canada, legislation in some provinces provides for certain additional warranties or remedies other than as stated herein, and to the extent that they may not be saved, the limitations and exclusions set out forth above may not apply. This Limited Warranty provides specific legal rights, and other rights may be available, but may vary from province to province.

VANAIR®
MOBILE POWER SOLUTIONS®

**ALL WARRANTY OR
RETURNS MUST BE
PRE-AUTHORIZED PRIOR
TO PERFORMING
ANY WARRANTY WORK.**

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