



# **ANALYTIC SYSTEMS**

Power Conversion Solutions

## **INSTALLATION & OPERATION MANUAL**

### **VTC140/240 SERIES Voltage Converters**



An ISO9001 and AS9100 Registered Company Battery Chargers • Inverters • Power Supplies • Voltage Converters

8128 River Way, Delta B.C. V4G 1K5 Canada T. 604.946.9981 F. 604.946.9983 TF. 800.668.3884 (US/CANADA)

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



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# IMPORTANT & SAFETY INSTRUCTIONS

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## GENERAL WARNING

1. SAVE THESE INSTRUCTIONS — This manual contains important safety and operating instructions for the battery charger.
2. WARNING - Unless the label specifically states that the converter may be used for battery charging, it must not be used for that purpose.
3. Do not expose converter to rain or snow.
4. Use of an attachment not recommended or sold by the converter manufacturer may result in a risk of fire, electric shock or injury to persons.
5. Do not disassemble converter; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
6. To reduce risk of electric shock, disconnect converter from batteries or other DC supply before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

## CONVERTER LOCATION

1. Never place converter directly above battery; gases from battery will corrode and damage converter.
2. Never allow battery acid to drip on converter when reading gravity or filling battery.

## DC CONNECTION PRECAUTIONS

1. Connect and disconnect DC output connections only after setting converter switch to off position.

Analytic Systems does not recommend the use of the VTC140 or VTC240 Series Voltage Converters in life support applications where failure or malfunction of this product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness. Analytic Systems does not recommend the use of any of its products in direct patient care.

Examples of devices considered to be life support devices are neonatal oxygen analyzers, nerve stimulators (whether used for anesthesia, pain relief, or other purposes), autotransfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, neonatal ventilator incubators, ventilators for both adults and infants, anesthesia ventilators, and infusion pumps as well as any other devices designated as “critical” by the U.S. FDA.



# Introduction

The VTC140 and VTC240 Voltage Converters are variable duty cycle switching power supplies incorporating state of the art switchmode technology for unmatched efficiency and ultra-quiet operation. Multiple stages of filtering reduce radiated or conducted noise to very low levels. They can be run from a 24 VDC or 28 VDC battery system. Safety features include reverse input protection, current limiting, and output over voltage crowbar.

We are confident that you will get many years of reliable service from these Voltage Converters.

# Specifications

Input Voltages	VTC140-24-12	VTC240-24-12
Input Volts (DC)		20-35
Input Amps (max)	11.6	17.8
Input Fuse (slow blow)	MDA-12	MDA-20
Output Voltages	VTC140-24-12	VTC240-24-12
Output Volts (DC)	13.8± 0.1	
Output Amps	12 Continuous / 15 peak	20 continuous / 23 peak
Output Crowbar	16.5 ± 0.5V	
Noise on Input	< 10 milli-Volts	
Noise on Output	< 10 milli-Volts	
Transient Resp.	<1V for 50% Surge	
Efficiency	>88% @ maximum output	
Temp. Range	0 - 40°C @ maximum output	
Isolation	Any Input or Output to Case 500VDC Input to Output Common Negative	
Dimensions	7.9 in / 20.1cm	
Width	4.0 in / 10.2cm	
Height	2.4 in / 6.1cm	
Clearance	1 Inch (2.5 cm) all around	
Material	Marine Grade Aluminum	
Finish	Black Anodize / Powder Epoxy	
Weight	2 lb / 0.9 kg	2.2lb / 1 kg

\* Specifications subjects to change without notice.

Designed and manufactured by: **ANALYTIC SYSTEMS WARE (1993) LTD.**

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www.analyticssystem.com

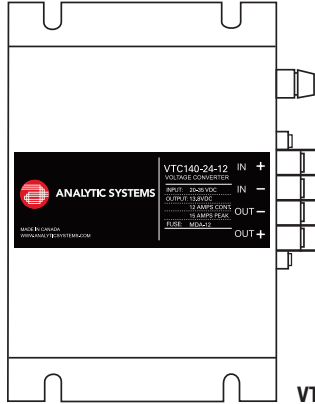
info@analyticssystem.com



# Installation

## MOUNTING

Mount the unit in a DRY location. Allow at least 1 inch of clearance around the heat sink fins for adequate cooling.



VTC140-24-12 is shown

## POWER CONNECTION

A terminal strip is provided at one end of the unit for connecting input and output leads. For the VTC140 use #12 AWG wiring or larger and for the VTC240 use #10 AWG wiring or larger. Keep the wiring as short as possible. Connect leads as follows:

- Input Positive to IN +*
- Input Negative to GND -*
- Output Negative to GND -*
- Output Positive to OUT +*

Ensure that the total average load connected does not exceed the continuous current rating of the unit.

## Operation

With the power turned off wire the converter as described above. Then, turn on the power.

## Troubleshooting

If the current demanded by the devices connected to the unit exceed the maximum output current rating, the output voltage will drop to maintain the current at the maximum level. If the fuse blows whenever it is turned on, check that the power leads are connected to the battery with the correct polarity; if they are then the unit is damaged and must be returned for repair.





## Limited Warranty

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1. The equipment manufactured by Analytic Systems Ware (1993) Ltd. (the "Warrantor") is warranted to be free from defects in workmanship and materials under normal use and service.
2. This warranty is in effect for:
  - a. 3 Years from date of purchase by the end user for standard products offered in our catalog.
  - b. 2 Years from date of manufacture for non-standard or OEM products
  - c. 1 Year from date of manufacture for encapsulated products.
3. Analytic Systems will determine eligibility for warranty from the date of purchase shown on the warranty card when returned within 30 days, or
  - a. The date of shipment by Analytic Systems, or
  - b. The date of manufacture coded in the serial number, or
  - c. From a copy of the original purchase receipt showing the date of purchase by the user.
4. In case any part of the equipment proves to be defective, the Purchaser should do the following:
  - a. Prepare a written statement of the nature of the defect to the best of the Purchasers knowledge, and include the date of purchase, the place of purchase, and the Purchasers name, address and telephone number.
  - b. Call Analytic Systems at 800-668-3884 or 604-946-9981 and request a return material authorization number (RMA).
  - c. Return the defective part or unit along with the statement at the Purchasers expense to the Warrantor; Analytic Systems Ware (1993) Ltd., 8128 River Way, Delta, B.C., V4G 1K5, Canada.
5. If upon the Warrantor's examination the defect proves to be the result of defective material or workmanship, the equipment will be repaired or replaced at the Warrantor's option without charge, and returned to the Purchaser at the Warrantor's expense by the most economical means. Requests for a different method of return or special handling will incur additional charges and are the responsibility of the Purchaser.
6. Analytic Systems reserves the right to void the warranty if:
  - a. Labels, identification marks or serial numbers are removed or altered in any way.
  - b. Our invoice is unpaid.
  - c. The defect is the result of misuse, neglect, improper installation, environmental conditions, non-authorized repair, alteration or accident.
7. No refund of the purchase price will be granted to the Purchaser, unless the Warrantor is unable to remedy the defect after having a reasonable number of opportunities to do so.
8. Only the Warrantor shall perform warranty service. Any attempt to remedy the defect by anyone else shall render this warranty void.
9. There shall be no warranty for defects or damages caused by faulty installation or hook-up, abuse or misuse of the equipment including exposure to excessive heat, salt or fresh water spray, or water immersion except for equipment specifically stated to be waterproof.
10. No other express warranty is hereby given and there are no warranties that extend beyond those described herein. This warranty is expressly in lieu of any other expressed or implied warranties, including any implied warranty of merchantability, fitness for the ordinary purposes for which such goods are used, or fitness for a particular purpose, or any other obligations on the part of the Warrantor or its employees and representatives.
11. There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives for injury to any person or persons, or damage to property, or loss of income or profit, or any other consequential or resulting damage which may be claimed to have been incurred through the use or sale of the equipment, including any possible failure of malfunction of the equipment, or part thereof.
12. The Warrantor assumes no liability for incidental or consequential damages of any kind



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