



# **ANALYTIC SYSTEMS**

Power Conversion Solutions

## **INSTALLATION & OPERATION MANUAL**

### **VTC1505 Voltage Converter**



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.analiticsystems.com](http://www.analiticsystems.com)



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## **IMPORTANT & SAFETY INSTRUCTIONS**

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1. **SAVE THESE INSTRUCTIONS** — This manual contains important safety and operating instructions for power supply.
2. Do not expose power supply to rain or snow.
3. Use of an attachment not recommended or sold by the power supply manufacturer may result in a risk of fire, electric shock, or injury to persons.
4. Do not disassemble power supply; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
5. To reduce risk of electric shock, unplug power supply from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
6. Never place marine power supply directly above battery; gases from battery will corrode and damage power supply.
7. Never allow battery acid to drip on power supply when reading gravity or filling battery.
8. **O/P CONNECTION PRECAUTIONS**

Connect and disconnect DC output connections only after setting the power supply switch to the off position.

Analytic Systems does not recommend the use of the BCD1505 Series Battery charger 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

All new Current Mode switching design offers increased power and reliability in a compact package. Extra input and output filtering reduce EMI to extremely low levels. Reliability features include an input fuse, thermal shutdown, current limiting and output short circuit shutdown with automatic recovery. The model VTC1505 converter supplies either 12, 24, 32, 48 or 72 VDC from a 110, 240 or 300 Vdc power source.

# Specifications

Input Voltages					
Nominal (ip)	110		250		300
Actual (Vdc)	100 - 140		230 - 280		280 - 360
Input Amps (max)	21		9.2		7.7
Input Breaker	25		15		15
Output Voltages					
Nominal (op)	12	24	32	48	72
Actual (Vdc)	13.6 ± 0.05	27.2 ± 0.05	36.3 ± 0.05	54.4 ± 0.05	81.6 ± 0.05
Output Adjust	± 1.0 Volts				
Output Crowbar	16.5 ± 0.5 V	32.0 ± 1.0 V	43.7 ± 1.3 V	63.9 ± 2.0 V	96.0 ± 3.0 V
Output Amps (cont)	100	50	37.5	25	16.6
General					
Transient Response	< 1 V for 50% surge				
Efficiency	> 80 % @ maximum output				
Temp. Range	-25 to +40 deg. C @ maximum output				
Isolation	Input-Output, Input-Case & Output-Case 1500VDC				
Isolation	Output-Case 500VDC				
Length	17.0 in / 43.2 cm				
Width	8.2 in / 20.8 cm				
Height	3.5 in / 8.9 cm (without carrying handle)				
Clearance	1 Inch (2.5 cm) all around				
Material	Marine Grade Aluminum				
Finish	Black Anodize				
Fastenings	18-8 Stainless				
Weight	14.4 lb / 6.5 kg				

\* Specifications subjects to change without notice.



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

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## Installation

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### **MOUNTING**

Mount the unit in a DRY location. Allow at least 4 inches of clearance around the heat sink fins for adequate cooling.

### **POWER CONNECTION**

The unit is supplied with two 4 foot #10AWG wires. This should normally be adequate to connect to a source of power. For hard wiring to a source of power, and strip the wires as necessary. The wire colours are

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Red - Positive

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Black - Negative

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### **OUTPUT CONNECTIONS**

The output is supplied through 4 or 2 #8AWG. The red wire has to be connected to the positive (+) terminal of your device while the black wire has to be connected to the negative (-) terminal of your device.

## Operation

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Turn the switch on the side of the unit on to energize the outputs. The green indicator light will glow to indicate the proper operation of the unit.

## Troubleshooting

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If the load exceeds the continuous rating for too long a period, the temperature sensor inside the unit will turn off the output. After the unit cools sufficiently, it will automatically come back on. If this happens frequently, remount the unit for increased airflow so it cools better.



## **Special Services & Options**

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<b>Conformal Coating</b>	INCLUDED ON ALL UNITS UNLESS REQUESTED NOT TO as of April 1, 2014
<b>Option "c"</b>	Ruggedization Package (EXTRA Conformal Coating and RTV Compound)
<b>Option "v"</b>	Marine / Industrial Pkg (EXTRA Conformal dipping and RTV Compound)
<b>Option "MS"</b>	Military Pkg (incl. Wide Temp Components, Conformal Dipping and RTV Compound)
<b>Option "w"</b>	Wide Temperature Operation (-40 to +55 C, incl)
<b>Option "SM"</b>	High Voltage Protection on the DC Input Side
<b>Option "d"</b>	Paralleling Diodes
<b>Option "FI"</b>	Forklift Modifications
<b>Option "F"</b>	Open Frame - No chassis just heat sink bars (not for all products)
<b>Special Input</b>	There is no charge for nominal output voltages (ie. 12.0, 24.0, 48.0), but this must be noted at the time of order (Contact Factory for details)
<b>Special Output</b>	
<b>Water tight options</b>	IP66, IPS67, IPS68

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## 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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