

ANALYTIC SYSTEMS

Power Conversion Solutions

INSTALLATION & OPERATION MANUAL

VTC120 Series 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.analyticsystems.com



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IMPORTANT & SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS — This manual contains important safety and operating instructions for the converter.

1. GENERAL

1. **WARNING** — Unless the label specifically states that the converter may be used for battery charging, it must not be used for that purpose.
2. **CAUTION** — To reduce risk of injury, charge only lead acid or sealed gel cell type rechargeable batteries. Other types of batteries may burst causing personal injury and damage. (Applies to battery chargers only!)
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.

2. CONVERTER LOCATION

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

3. I/P & O/P CONNECTION PRECAUTIONS

Connect and disconnect DC input & output connections only after setting converter switch to OFF position.

Analytic Systems does not recommend the use of the VTC120 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 VTC120 Series Voltage Converter is a variable duty cycle switching power supply with a precision linear regulator output except for the VTC120nr-12-24. It can be configured to run from a 12 VDC or 24 VDC battery system to provide output voltages as shown below. Depending on the version, the output is either Common Negative, or Fully Isolated from the input. Three high output versions are also available.

Applications include running 24V PLC controls from a 12 Volt battery system, or any other application requiring 24 VDC when only 12 VDC is available or to provide ground isolation between two 12 VDC or 24 VDC power systems, or between a 12 VDC and 24 VDC power system.

Specifications

Non-Isolated Output				Non-Regulated	
Model (VTC120)	-12-3.6	-12-24	h-12-12	Model (VTC120)	nr-12-24
Input Volts (DC)	11 – 15	11 – 15	11 – 15	Input Volts (DC)	11 – 14
Input Amps (max)	2.3	15	11	Input Amps (max)	15
Input Fuse	AGC-5	AGC-20	AGC-15	Input Fuse	AGC-25
Output Volts (DC)	3.6	24.0	12.0	Output Volts (DC)	25.0 ± 5
Isolation Input-Output	Common Negative			Isolation Input-Output	Common negative
Output Amps	5 Cont. / 5.5 Peak		7.5 Cont. / 8.0 Peak	Output Amps	5 Cont. / 9 Peak

Isolated Output									
Model (VTC120)	i-12-12	i-12-24	i-24-12	i-24-24	i-48-05	i-48-12	i-48-24	i-48-48	
Input Volts (DC)	11 – 15	11 – 15	22 - 30	22 - 30	40 – 60	40 – 60	40 – 60	40 – 60	
Input Amps (max)	8.5	15	3.8	7.5	1	2.1	4.2	8.4	
Input Fuse	AGC-10	AGC-20	MDA-6	AGC-10	MDA-2	MDA-5	MDA-5	AGC-10	
Output Volts (DC)	12.0	24.0	12.0	24.0	5.0	12.0	24.0	48.0	
Output Amps	5 Continuous / 5.5 Peak							2.5 Cont. / 5.5Peak	
Isolation Input-Output	> 500 VDC								



Isolated High Output								
Model (VTC120)	ih-12-12	ih-12-15.6	ih-12-24	ih-24-12	ih-24-24	ih-36-15.6	ih-48-15.6	ih-48-12
Input Volts (DC)	11 – 15	11 – 15	11 – 15	22 - 30	22 - 30	33 – 45	40 – 60	40 – 60
Input Amps (max)	11	14.2	21.8	6.2	10.9	4.8	3.9	3.0
Input Fuse	AGC-15	AGC-20	AGC-25	MDA-7	AGC-15	MDA-8	MDA-7	MDA-7
Output Volts (DC)	12.0	15.6	24.0	12.0	24.0	15.6	15.6	12.0
Output Amps	7.5 Continuous / 8.0 Peak							
Isolation Input-Output	> 500 VDC							

* Specifications subjects to change without notice.

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

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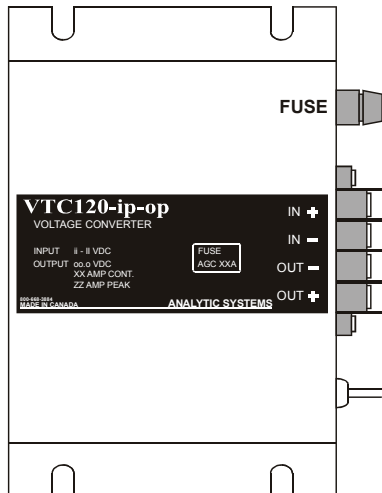
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Installation

MOUNTING

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





POWER CONNECTION

The ON/OFF switch must be in the OFF position before connecting or disconnecting power to the unit!

A terminal strip is provided at one end of the unit for connecting input and output leads.

Connect leads as follows:

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

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

CONNECTIONS

Turn the switch on the side of the unit on to energize the outputs.

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.

Special Services & Options

Conformal Coating	INCLUDED ON ALL UNITS UNLESS REQUESTED NOT TO as of April 1, 2014
Option "c"	Ruggedization Package (EXTRA Conformal Coating and RTV Compound)
Option "v"	Marine / Industrial Pkg (EXTRA Conformal dipping and RTV Compound)
Option "MS"	Military Pkg (incl. Wide Temp Components, Conformal Dipping and RTV Compound)
Option "w"	Wide Temperature Operation (-40 to +55 C, incl)
Option "SM"	High Voltage Protection on the DC Input Side
Option "d"	Paralleling Diodes
Option "FI"	Forklift Modifications
Option "F"	Open Frame - No chassis just heat sink bars (not for all products)
Special Input	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)
Special Output	
Water tight options	IP66, IPS67, IPS68



Limited Warranty

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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