



**samlex**power

**DC-DC  
Step Up  
Converter**

**Model  
VTC120**

**Owner's  
Manual**

Please read  
this manual  
before  
using your  
converter

# 1

## INTRODUCTION

**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.

It is not recommend to use 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. It is not recommend to 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.

# 1

## 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.



# 2

## SPECIFICATIONS

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

Non Regulated Output	
Model (VTC120)	nr-12-24
Input Volts (DC)	11 – 14
Input Amps (max)	15
Input Fuse	AGC-25
Output Volts (DC)	25.0 ± 5
Isolation Input-Output	Common negative
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
Input Volts (DC)	11 – 15	11 – 15	22 - 30	22 - 30	40 – 60	40 – 60	40 – 60
Input Amps (max)	8.5	15	3.8	7.5	1	2.1	4.2
Input Fuse	AGC-10	AGC-20	MDA-6	AGC-10	MDA-2	MDA-3	MDA-5
Output Volts (DC)	12.0	24.0	12.0	24.0	5.0	12.0	24.0
Isolation Input-Output	> 500 VDC						
Output Amps	5 Continuous / 5.5 Peak						

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	i-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	AGC-7	AGC-15	MDA-8	MDA-7	MDA-5
Output Volts (DC)	12.0	15.6	24.0	12.0	24.0	15.6	15.6	12.0
Isolation Input-Output	> 500 VDC							
Output Amps	7.5 Continuous / 8.0 Peak							

# 2

## SPECIFICATIONS

General	
Isolation Case to Input or Output	> 500 VDC
Length	7.9 in / 20.1 cm
Temp. Range	-25 to +40o C @ maximum output
Width	6.0 in / 15.2 cm
Height	2.4 in / 6.1 cm
Clearance	1 Inch (2.5 cm) all around
Material	Marine Grade Aluminium
Finish	Black Anodize / Black Powder Epoxy
Fastenings	18-8 Stainless
Weight	2.6 lb / 1.2 kg

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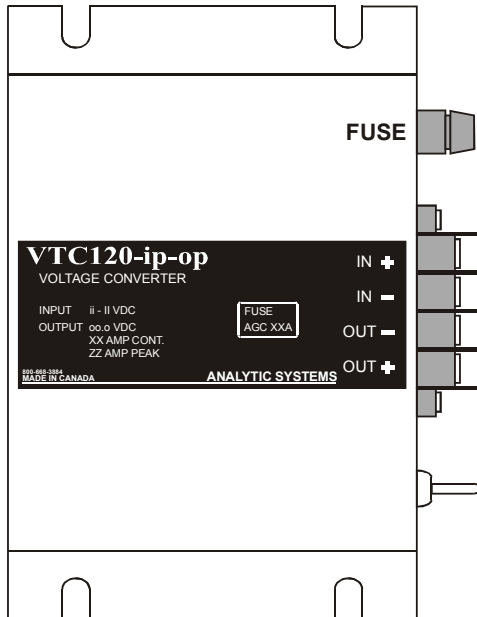
Specifications subject to change without notice.

# 3

## INSTALLATION

### 1) MOUNTING

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



### 2) 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 +
- Input Negative to IN -
- Output Negative to OUT -
- Output Positive to OUT +

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

### 3) CONNECTIONS

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

### 4) 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.

### 5) ADDENDUM

VTC120i-12-48

The Model VTC120i-12-48 Voltage Converter supplies 48.0 VDC from a nominal 12 VDC power system for use in heavy equipment, marine, industrial or alternative energy environments. State of the Art Switch-mode design offers high reliability, high efficiency and minimum size.

The following electrical specifications of VTC120i-12-48 are different as compared to the specifications for Model VTC120i-12-24:

INPUT FUSE: 30 Amps AGC

OUTPUT VOLTAGE: 48.0 Volts DC

The mechanical specifications, operation and trouble shooting of the unit are same as VTC120-12-24.

# 4 WARRANTY

## 2 YEAR Limited Warranty

The VTC120 Voltage Converter manufactured by Samlex America, Inc. (the "Warrantor") is warranted to be free from defects in workmanship and materials under normal use and service. This warranty is in effect for 2 years from the date of purchase by the user (the "Purchaser"). For a warranty claim, the Purchaser should contact the place of purchase to obtain a Return Authorization Number.

The defective part or unit should be returned at the Purchaser's expense to the authorized location. A written statement describing the nature of the defect, the date of purchase, the place of purchase, and the Purchaser's name, address and telephone number should also be included.

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.

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. Warranty service shall be performed only by the Warrantor. Any attempt to remedy the defect by anyone other than the Warrantor shall render this warranty void.

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.

No other express warranty is hereby given and there are no warranties which 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.

There shall be no responsibility or liability whatsoever on the part of the Warrantor or its employees and representatives for injury to any persons, or damage to 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.

The Warrantor assumes no liability for incidental or consequential damages of any kind.

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