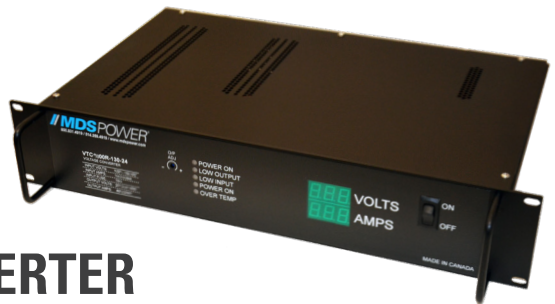




INSTALLATION & OPERATION MANUAL

VTC1000R RACKMOUNT VOLTAGE CONVERTER



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VOLTAGE CONVERTERS

IMPORTANT SAFETY INSTRUCTIONS

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

VOLTAGE CONVERTER PRECAUTIONS

1. Do not expose the voltage converter to rain or snow unless it is a sealed model.
2. Use of an attachment not recommended or sold by the manufacturer may result in a risk of fire, electric shock, or injury to persons.
3. Do not disassemble the voltage converter. If service or repair is required, return it to the manufacturer or an authorized service center. Incorrect reassembly may result in a risk of fire or electric shock. Voltages up to 350 volts are present inside the voltage converter any time it is connected to input power, even if it is switched OFF.
4. To reduce risk of electric shock, disconnect the voltage converter from the input power before attempting any maintenance or cleaning. Switching the voltage converter to OFF will not reduce this risk.
5. Never place the voltage converter directly above a battery; gasses from the battery will corrode and damage the voltage converter.
6. Never allow battery acid to drip onto the voltage converter.

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Introduction

The model VTC1000R Voltage Converter supplies 24VDC from a 130VDC power source. The 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 short circuit shutdown with automatic recovery. The output voltage is easily adjusted 1.0 volts above or below the standard output voltage to accommodate special requirements. High quality digital meters can be added (factory option) to allow monitoring of charging current and charging voltage.

Box Contents

The box you have received should contain the following:

- One VTC1000R-130-24 DC Voltage Converter
- This manual
- One Warranty Card

If anything is missing or damaged please contact your dealer for a replacement

Main Parts



Front Panel

1. Output Voltage Adjust
2. Indicator LEDs
3. Power Switch
4. Digital Voltmeter/Ammeter Display



Rear Panel

1. **Input Fuse:** Ceramic 16-Amp
2. Dry Contact Relay Connector
3. **Input Connection:** 2x 1-foot/30cm 10AWG Type-D stranded wire leads (Red: Positive, Black: Negative)
4. **Output Connection:** Magnum A48430404 Single-row 4-pole 10-32 block connector
5. Cooling Fans

Installation

MOUNTING

This unit is designed for a 19" inch rack mount. The mounting location should be DRY and WELL VENTILATED. Allow at least 1 inch (2.54 cm) of clearance surrounding the unit for adequate cooling.

WARNING: TO PREVENT THE RISK OF HIGH VOLTAGE ELECTRIC SHOCK, NEVER CONNECT OR DISCONNECT ANYTHING TO THE UNIT WHILE IT IS ENERGIZED!

POWER INPUT CONNECTION

This unit is equipped with a set of 1-foot/30cm 10AWG Type-D stranded wire leads to serve as a DC Input Connection. This should normally be adequate to connect to a source of power. The polarity of this connection can be found on the unit label and is as follows:

Red - Positive

Black- Negative

All connections should be made inside an appropriate junction box. Refer to the specifications table for the correct sizing of the circuit breaker in the distribution panel.

A ground stud is provided to bond the chassis to local ground to reduce or eliminate EMI.

OUTPUT CONNECTIONS

This unit is equipped with a Magnum A48430404 Single-row 4-pole 10-32 block connector to serve as a DC Output Connection. The polarity of this connection can be found on the unit label and is as follows:

PIn	Connection
1	Positive 1
2	Positive 2
3	Negative/Ground
4	Negative/Ground

Connect only one wire to each terminal. Ensure that the total average load connected does not exceed the continuous current rating of the unit. (40 A)

Operation

This unit is designed for simple operation. Before this voltage converter can be into operation, it must be properly installed and connected. For more information, see *Installation*.

TO TURN THE UNIT ON

1. Flip the Power Switch on the front panel to the ON position.
2. The Power LED on the top of the chassis will glow green indicating power on the Output Connection. The unit will supply the connected load with the voltage listed on it's label for as long as it is connected.

TO ADJUST THE OUTPUT VOLTAGE

1. The Output Voltage Adjust potentiometer is located on the front panel, it is recessed to prevent accidental operation.
2. Using a pencil or similar non-conductive rod, reach into the front panel and rotate the Output Voltage Adjust.
3. The output voltage can be adjusted over a range of $\pm 1.0V$. Rotating clockwise increases the voltage, counterclockwise decreases it.
4. Use the digital voltmeter display also on the front panel to monitor the voltage. When satisfied with the reading stop adjustment,

TO TURN THE UNIT OFF

1. Flip the Power Switch on the front panel to the OFF position.
2. Once the LEDs have all turned off, the unit is safe to disconnect from the DC Power source and load.

Troubleshooting

This unit features several LED indicators and an alarm buzzer to help diagnose any malfunctions. The voltage converter will sound the buzzer to alert you prior to shutting down. You should immediately check which LEDs are glowing to determine the cause of the shutdown.

Issue	Meaning
<p>LOW VOLTAGE IN LED is ON Alarm buzzer sounds</p>	<p>The input voltage is too low for normal operation or there may be an internal component failure.</p>
<p>Fix:</p>	<p>Check that the DC power source is rated for the application. Check that the input wiring and connections are not corroded or damaged.</p> <p>If everything is normal, the unit is defective and must be returned to the factory or an authorized service centre for repair.</p>
<p>OVER LOAD LED is ON Alarm buzzer sounds</p>	<p>The unit is over loaded. The connected devices are drawing too much current from the voltage converter.</p>
<p>Fix:</p>	<p>The voltage converter has been operating above its continuous current rating for longer than its intended duty cycle. Reduce the load by disconnecting some devices from the output.</p>
<p>OVER TEMP LED is ON Alarm buzzer sounds</p>	<p>The unit has overheated, its internal temperature is too hot for normal operation.</p>
<p>Fix:</p>	<p>Remount the unit for improved ventilation and cooling or disconnect some devices from the output to reduce heat generation.</p> <p>Check that the unit's cooling fans are functioning. If they are NOT, the unit is defective and must be returned to the factory or an authorized service centre for repair.</p>
<p>Unit will not turn ON</p>	<p>The input fuse has blown or there may be an internal component failure.</p>
<p>Fix:</p>	<p>Turn the voltage converter OFF and disconnect it from the power source and load. Then remove the input fuse and check if it has blown using an ohmmeter. Replace the fuse if blown.</p> <p>If the new fuse blows when the unit is turned ON or the unit still doesn't turn ON, the unit is defective and must be returned to the factory or an authorized service centre for repair.</p>
<p>LOW VOLTAGE OUT LED is ON OUTPUT ON LED is OFF</p>	<p>The output voltage is too low for normal operation. One of the connected devices) may have shorted out or there is an internal failure.</p>
<p>Fix:</p>	<p>Disconnect all devices from the voltage converter and reconnect them one at a time, testing until you find the one responsible for shorting the output. The shorted device must be repaired.</p> <p>If the condition persists after all loads have been disconnected, then the unit is defective and must be returned to the factory or an authorized service centre for repair.</p>

Specifications

Input

Nominal Voltage	110 VDC
Actual Voltage	100-150
Input Amps (max)	14.5A
Input Fuse (slow blow)	16 A Ceramic

Output

Nominal Voltage	24 VDC
Actual Voltage	27.2 ± 0.05V
Output Adjust	± 1.0 Volts
Output Crowbar	32.0 ± 1.0 V
Output Amps	40 A Continuous


General

Switching Frequency	60 ± 2 KHz
Idle Power	< 10 Watts
Noise on Input	< 50 milli-Volts
Noise on Output	< 50 milli-Volts
Transient Response	< 2V for 50% Surge (Output Amps/2)
Efficiency	> 85 % @ maximum output
Temp. Range	-25 to +40°C @ maximum output
Isolation	Input-Output & Input-Case 1500 VDC Output-Case 500 VDC (1500Vdc @ 48 V Out)
Width	19.0 in. / 48.3 cm
Height	3.5 in. / 8.9 cm
Depth	13.5 in. / 34.3 cm
Clearance	1 Inch (2.5 cm) all around
Material	Marine Grade Aluminum
Finish	Black Powder Epoxy
Fastenings	18-8 Stainless
Weight	10.4 lb / 4.7 kg

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DESIGNED AND BUILT IN CANADA

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