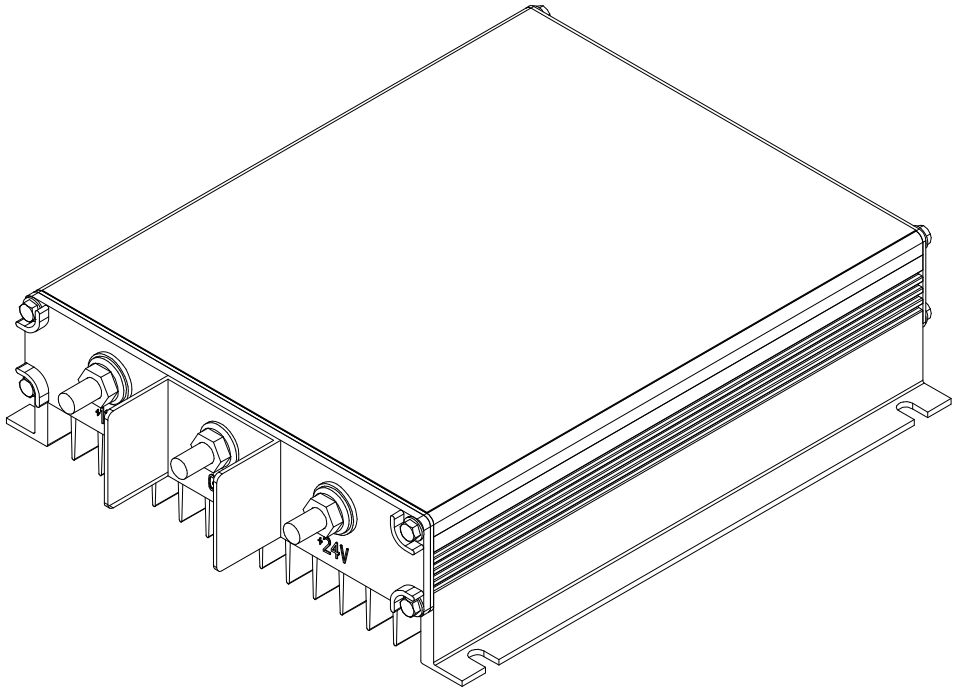
Model 91-45

12 volt to 24 volt DC to DC Converter



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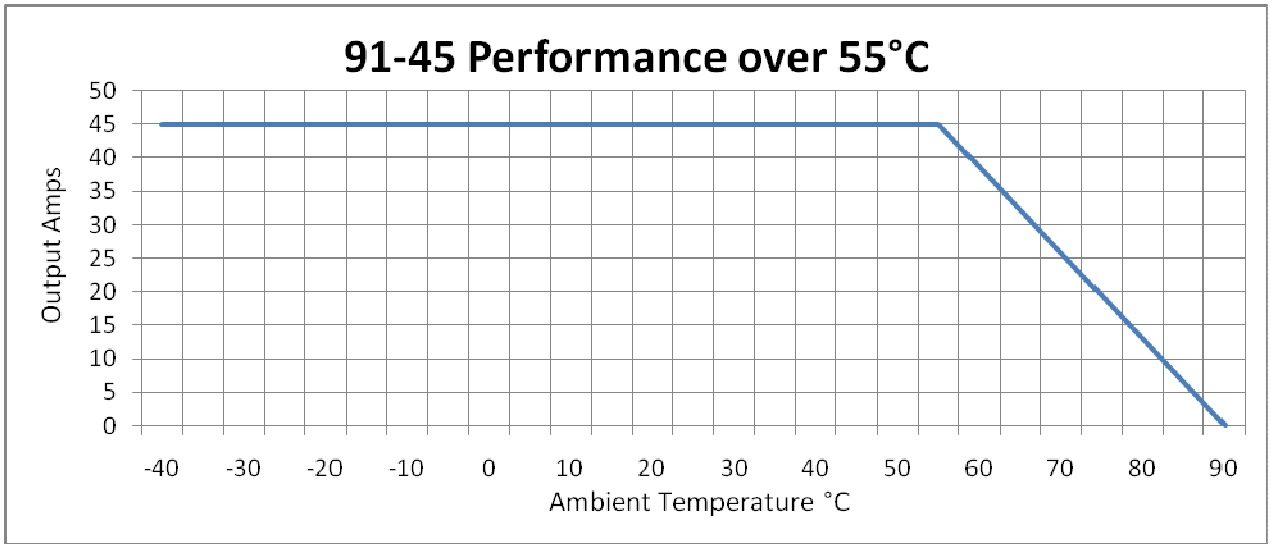
Introduction

Thank you for purchasing a Vanner DC to DC Converter. We are confident that you will be very pleased with its performance. With minimum maintenance and care, you can be assured of many years of trouble free service. The Vanner 12v to 24v DC to DC Converter is an efficient and highly reliable method of obtaining 24 volt DC power from a 12 volt DC electrical system.

Specifications

Specifications	Model Number 91-45
12 Volt Input	
Input Voltage Range	11.4vdc to 20vdc
Minimum start voltage	12.5vdc
Input Amps	100 amps max
24 Volt Output	
Output Voltage	27.5vdc
Output Capacity (Amps)	0 to 45amps
Ambient Temperature	
Operating Range	-40°C to +85°C (-40°F to 185°F) see chart below.
Operating at Full Load	-40°C to +55°C (-40°F to 131°F)
Emissions Compliance	FCC B 30 MHz – 1 GHz
	Navy fixed and Air Force 50 MHz – 1 GHz
Vibration Compliance	MIL STD 202F, Method 204D, Test Condition A
Environmental Considerations	Anodized aluminum enclosure provides protection against salt, fungus, dust, water, fuel vapors and all fluids associated with commercial and off-highway vehicle operations. Continuous exposure to splashes and spills should be avoided.
Serviceable	No
Weight	6.0 lbs



Operation

Normal Operation: Model 91-45 DC to DC Converter will provide up to 45 amps continuous output and maintain 27.5 volts output voltage across the full range of DC input voltage. No minimum load is required.

No output condition: DC input voltage must be above 11 volts for the unit to "turn ON" and must remain above 11 volts during operation.

Low output voltage due to overload: If the DC load tries to draw more than 45 amps the 91-45 will go into "current limit". "Current limit" reduces output voltage until output current does not exceed 45 amps. (For example: output voltage would be 24.8V to a load that would draw 50 amps at 27.5V; 20.6V to a load that would draw 60 amps at 27.5V; 15.5V to a load that would draw 80 amps at 27.5V).

"Current limit" cannot reduce output voltage BELOW input voltage. If the DC load is so great that output voltage is reduced to (is the same as) input voltage, then the output current is no longer limited. **Damage to the 91-45 may result.** Circuit protection at this point solely is provided by external fuses protecting the DC input wiring and DC output wiring. (See wire and fuse sizing below recommending 100 amp minimum DC input fuse and 50 amp maximum DC output fuse.)

Parallel Operation: Multiple Model 91-45 DC to DC Converters can be operated in parallel.

Installation Recommendations

Caution: This equipment employs components that tend to produce arcs and sparks. To prevent fire or explosion, do not install in compartments containing batteries or flammable materials. Safety goggles should always be worn when working near batteries

Terminal Connections: When connecting wires or cables to the electrical terminals (+24, GND, +12), do not exceed the specified torque of 120 in-lbs. Torque values higher than specified may damage the product, reducing performance or creating hazardous conditions.
Do not connect more than one conductor per terminal. Multiple wires and cables may overstress internal components, resulting in poor performance or creating hazardous conditions.

Fusing: A fault protection device must be installed between the DC to DC Converter and the power source (battery). A fault protection device would be any fuse or circuit breaker properly rated for the maximum DC input current. This advisory is in accordance with SAE, NEC and UL, for mobile power applications.

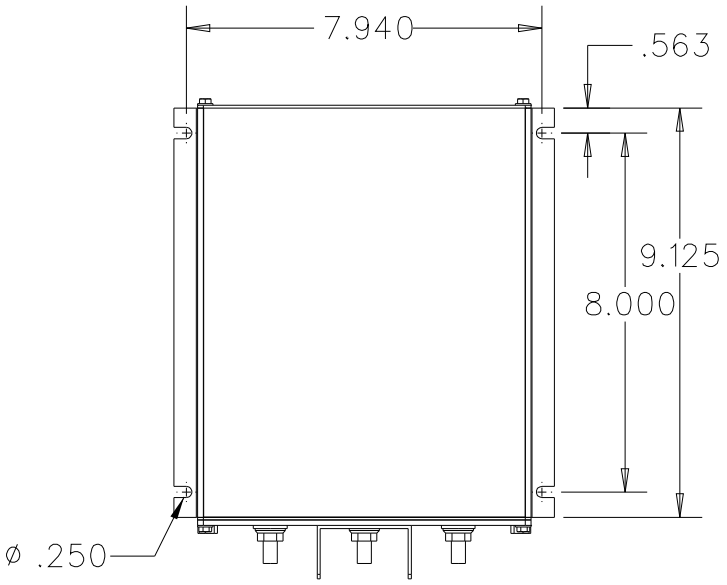
Minimum Wire and Fuse Sizes: Connect Model 91-45 to the 12vdc source using #6AWG or larger cable, and protected by a 100 amp minimum fuse or circuit breaker. Use #6AWG cable for the 24V and GND with 50amp maximum fuse. Install adequate fuse protection to smaller wires feeding multiple output circuits.

Wire Temperature rating: Since the DC to DC Converter can be operated in temperatures up to 90ºC , use wire rated at least 105ºC.

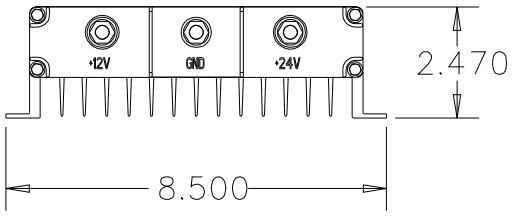
Mounting Location: The DC to DC Converter may be mounted in any orientation, however, the recommended orientation for optimum heat dissipation is wall mounted with fins vertical. It is recommended that the wiring terminals be down to prevent the possibility of a falling metal object shorting the terminals. Do not mount in zero-clearance compartment that may result in the DC to DC Converter overheating.

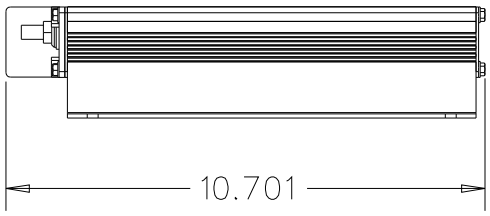
Environmental Protection: Do not expose to rain or moisture. The unit should be located in an area that will protect it from direct exposure to moisture such as high pressure washing, rain, etc.

Model 91-45 Dimensions and Torque Specifications



5/16"- 18 STUDS
TORQUE TO 120LB-IN MAX





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