



VOLTAGE CONVERTER

General Description

The Rane VC 18 UPS (Uninterruptible Power Supply) Voltage Converter is a special purpose DC-DC converter used to power Rane products equipped with red modular jacks and designed for external Remote AC Power, i.e., RAP units. The VC 18 provides inputs for simultaneous powering by AC and DC power. When the AC power fails, the VC 18 automatically switches to DC power, thus providing uninterruptible power. The AC power source may be either an RS 1, RS 2, FRS 8 or a RAP 10. The DC power is either a 12 volt or 24 volt battery, connected to the #6 terminals on the VC 18. (Special protection circuits provide safe operation of the VC 18 in harsh automotive and other mobile environments.)

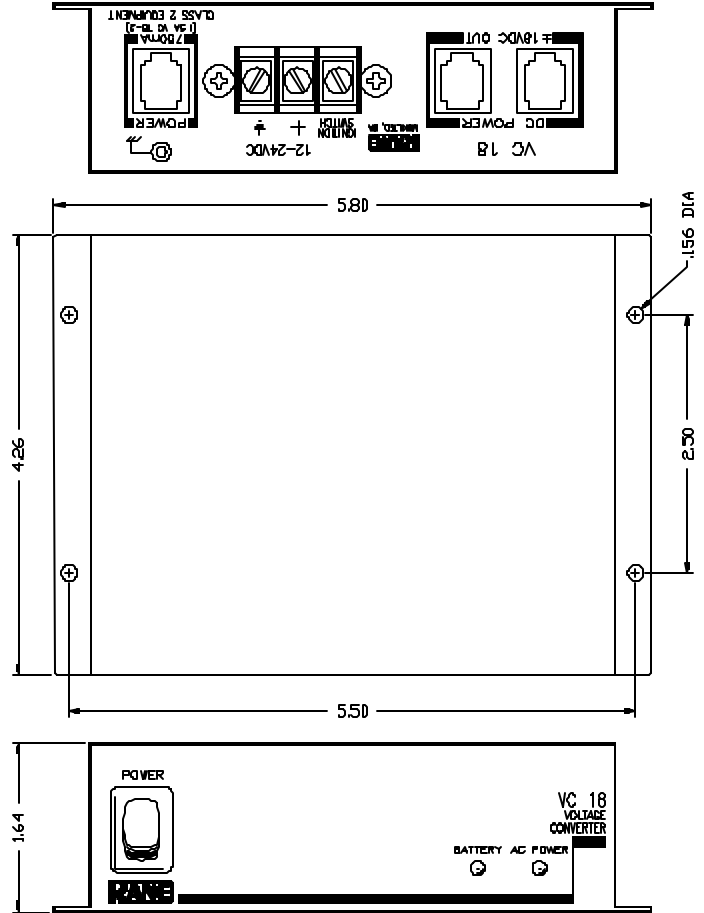
The VC 18 may be used to provide emergency back-up power for all Rane products designed for remote power. See the Application Information on the back of this sheet for a complete discussion on which Rane units apply, and powering more than one unit at a time.

VC 18-2 Option

Ordering a VC 18-2 gets two 6W converters in one VC 18 chassis. Each drives a separate output jack. **The VC 18-2 requires powering by a Rane RS 2, 1.5 amp AC supply (or parallel FRS 8 or RAP 10 outputs); the smaller RS 1 supply will not work.**

Features

- UNINTERRUPTIBLE POWER SOURCE
- AC INPUT & 12/24 VDC BATTERY INPUT
- ±18 VDC DC/DC CONVERTER OUTPUT
- 6W OUTPUT; EXPANDABLE TO 2x6W
- FULLY REGULATED
- HIGH OUTPUT ALLOWS ±15 VOLT REGULATORS TO OPERATE



- REVERSE & OVERVOLTAGE PROTECTION
- TRANSIENT SPIKE PROTECTION
- SYSTEM POWER SWITCH
- IGNITION SWITCH TERMINAL
- OUTPUT GROUND ISOLATED FROM INPUT
- COMPLETE EMI/RFI SHIELDING

Parameter	Specification	Limit	Units	Conditions/Comments
GENERAL SPECIFICATIONS				
Rated Output Power	6 (2x6 for VC 18-2)		W	
Efficiency	85	Min	%	7W (14W for VC 18-2) Input Power
Rated Output Voltage	±18	5%	VDC	
Rated Output Current	167 (2x167 for VC 18-2)	10%	mA	
Ripple and Noise	150		mVp-p	DC to 20Mhz
Rated Temperature	0 to +70	Min	°C	No Derating
DC BATTERY INPUT				
.....Input Voltage Range	12-24	10%	VDC	
.....Full Load Input Current	583/292 (1.2A/584 for VC 18-2)	Max	mAD	12V/24V Input
AC INPUT				
.....Input Voltage Range	16-23		VAC	
.....No Load Input Current	60 (120 for VC 18-2)		mA	
.....Full Load Input Current	650 (1300 for VC 18-2)	Max	mA	
.....AC Isolation	80k @ 3kHz	10%	W	660pF Between Commons



Application Information

Using the VC 18 as an uninterruptible power supply requires nothing more complicated than hooking up an RS 1, RS 2, FRS 8 or RAP 10 AC power source (*NOTE: a VC 18-2 requires an RS-2 or two parallelled outputs from an FRS 8 or RAP 10*), and a 12 or 24V DC battery. The VC 18 works from the AC source until it fails; then it automatically switches over to the battery backup and continues to provide uninterruptible power until the battery runs down.

Rule: *The required DC current equals one-third (1/3) of the AC current.* Therefore simply divide the maximum AC current (silkscreened under the red modular jack & found on the Data Sheet) by three (3) to get the required DC current. This current must be less than 167 milliamps to use a VC 18 (read the asterisk note below). **DO NOT EXCEED THE MAXIMUM CURRENT RATING.**

MODEL	AC mA	DC mA
AC 22/B	160	53
AC 23/B	260	87
AP 13	600	200*
AD 22/B	650	217*
DC 24	600	200*
DMS 22	650	217*
GE 30	650	217*
MS 1	220	73
PE 15	300	100
PE 17	450	150
PS 1	175	58
SM 26B	200	67
SM 82	650	217*

* The maximum AC current ratings are in many cases quite conservative. They allow such things as simultaneously driving all output channels to +20dBu levels into 600 ohms, or all LEDs lighting together, etc. True worst case design. Since these events rarely occur in actual use, downrating the required DC current by 20-30% is easily possible. Make such reductions if *for your application* you do not need 600 ohms line driving ability (overwhelmingly, modern equipment input impedances equal 10,000 ohms or greater—never as low as 600 ohms), or if you are not using all channels, or if your use is not continuous, or is usually low level, etc. Just use common sense.

In general, if an RS 1 will power it, a VC 18 will power it.

Dash-Two Differences. A VC 18 has *one* converter and drives *both* output jacks in parallel. A VC 18-2 has *two* converters and *each* drives *one* output jack, *and requires an RS 2 as the AC input device*—an RS 1 will *not* work. In essence, two VC 18's in one box. Looked at another way, a VC 18 delivers a *total* of 167 mA from *two* jacks, while a VC 18-2 delivers 167 mA out of *each* jack. Before you ask, **NO, YOU CANNOT PARALLEL OUTPUTS.** *The output of the two converters will not add. Instead, each will go into short-circuit limit and shut down.*

Powering Two or More Units. Two output jacks implies the ability to drive two units, right? –if you're careful. You can drive as many units as you want just so long as you do not exceed the 167 mA maximum. Looking at the Tables above shows you could drive three AC 22's, but you could only drive one PE 17 for example. For VC 18-2 use, you could power two PE 17's.