

## General Description

The VP 12 is a voice processor incorporating a studio-grade microphone stage, balanced line input, low and hi cut filters, de-esser, gate/compressor, and two channels of parametric EQ.

The Microphone XLR Input features switchable 48V Phantom Power and an Input Gain control. A separate balanced Line Level Input arrives from either screw terminals or a 1/4" TRS jack. A front panel switch selects whether the Mic, Line, or the Sum of Both Inputs will be processed by the VP 12. The Sum feature allows the Line Input of the VP 12 to act as an Expand Input for other outboard mic preamps. The Line Level Input easily accepts the output of wireless mic systems. Variable Low and High Cut Filters tailor the frequency range to the specific application.

A De-esser is provided to remove unwanted sibilance. This function is implemented using an adaptive ratio servo-controlled sliding band filter governed by three controls. The Threshold control sets the signal level in dBu above which the circuit becomes active. The Frequency control is equivalent to a high pass "side chain". The detector circuit is sensitive to all frequencies above this control setting. The Ratio switch sets the amount of band limiting for a given signal level above the Threshold setting.

Versatile Gate/Expander and Compressor circuits extend the dynamic range of the VP 12. The Downward Expander Threshold control sets the level in dBu below which the signal is attenuated at the selected Ratio. This effectively pushes the noise floor down as the input signal level is reduced. Three selectable Ratios

allow smooth dynamic range expansion without "pumping" or "breathing".

The Compressor features Ratio and Threshold controls for applications ranging from mild dynamic range compression to program limiting. The Threshold control sets the level in dBu above which the circuit is active. The Ratio control sets the amount of attenuation that occurs as the input signal rises above the Threshold. This allows higher average signal levels, effectively increasing the dynamic range of the system. A seven segment Gain Reduction meter lets you know just how much the Compressor and Downward Expander are working.

To control signal tone, or remove potential problems, two bands of Parametric EQ are included. Each band has a frequency multiplier switch that allows the range to cover 10 Hz to 20 kHz. A Bandwidth control allows control over a wide valley or a narrow crevasse. If +12 dB of Boost or -15 dB of Cut isn't enough, the filters are in series—so simply setting the filters to the same Frequency can double the amount of Boost or Cut.

Independent Bypass switches in each processing section defeat unnecessary processing and allow process/unprocessed comparisons. Additionally, each section of processing can be re-patched in any order via jumpers on the rear of the unit.

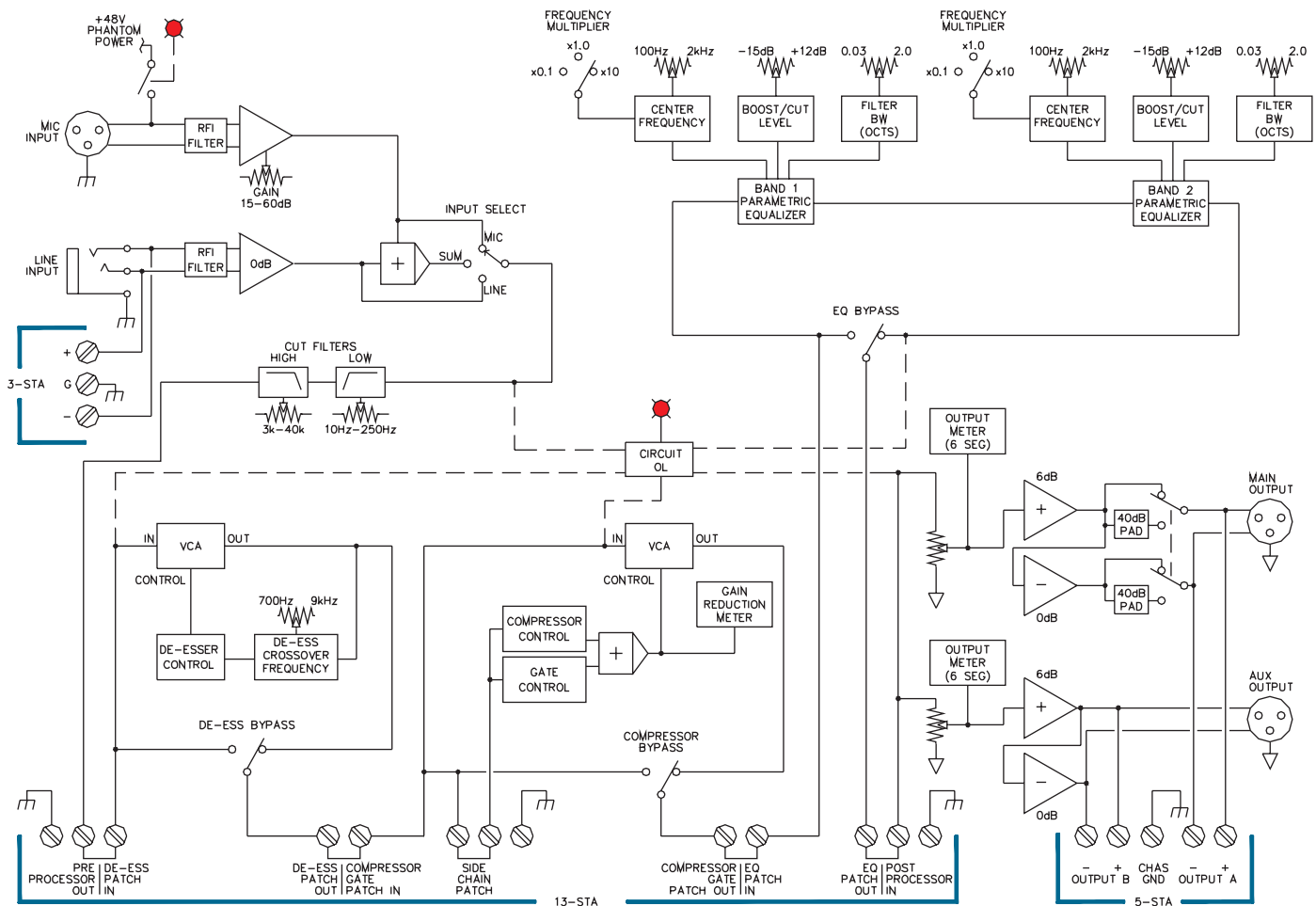
Concentric front panel Output Level controls deliver the Main and Aux Outputs to balanced XLR and screw terminal connections. The six segment Output Meters are accurately calibrated in peak dBu.

## Features

- High and Low Cut Filters
- Adjustable De-esser
- Adjustable Gate
- Adjustable Compressor
- Two-Band Parametric Equalizer
- Processing Re-configurable
- Mic Input with +48 V Phantom Power
- Line Level Input
- Mic/Line Mixing Capable
- Fully Balanced Output Line Drivers
- UL/CSA/CE and 100/120/230 Remote Power Supplies

Parameter	Specification	Limit	Units	Conditions/Comments
Mic Input: Impedance	1k	1%	Ω	Balanced 500 + 500
.....Gain Range	+15 to +60	2	dB	
.....Phantom Power	+48	4%	VDC	DIN 45596 & IEC 268-15
.....Equivalent Input Noise	-130	2	dBu	20 kHz BW, 60 dB gain, 150 Ω
.....Max Input Level	+3.5	1	dBu	Min gain
.....Connector	XLR			
Line Input: Type	Active Balanced/Unbalanced			¼" TRS and Screw Terminal
.....Max Input Level	+20	1	dBu	
.....Impedance	20k	1%	Ω	
RFI Input filters	Yes			
De-esser: Frequency	700 Hz - 9 kHz	20	%	
.....Threshold	-50 to +20	5	dB	
.....Ratio Settings	Mild, Norm, Max	10	%	Switchable
Gate: Threshold Range	-50 to +10	5	dB	
.....Ratio Settings	1.5:1, 2:1, 3:1	1	%	Switchable
Compressor: Threshold Range	-50 to +20	5	dB	
.....Ratio Range	1:1 to 10:1	10	%	
EQ Section: Bands	Two			Full parametric
.....Frequency Coverage	10-20 kHz	5	%	Three range switch positions
.....Boost/Cut Range	+12/-15	1	dB	
.....Bandwidth	.03 to 2 Octaves	20	%	
Output: Design	Active Balanced			¼" TRS and Screw Terminal
.....Impedance	100	1	Ω	Each leg to ground
.....Mic/Line Pad	Mic = -40 dB	1	%	
Frequency Response	20-20 kHz	+0/-3	dB	EQ out, no Cut Filtering
THD+Noise	0.01	0.002	%	+4 dBu, 20-20 kHz BW min gain
	0.2	0.01	%	+4 dBu, 20-20 kHz BW max gain
IM Distortion	0.03	0.01	%	+4 dBu, 60 Hz/7 kHz, 4:1
Signal to Noise Ratio	97 (re +4 dBu)	1	dB	+15 dB Gain, 20 kHz BW
Unit: Agency Listing				
.....120 VAC Model	Class 2 Equipment UL / CSA			National Electrical Code Exempt Class 2 equipment
.....230 VAC Model	CE-EMC CE-Safety			EMC Directive 89/336/EEC Exempt Art. 1, LV Dir. 73/23/EEC
Power Supply: Agency Listing				
.....120 VAC Model	UL CSA			File no. E88261 File no. LR58948
.....230 VAC Model	CE-EMC CE-Safety			EMC Directive 89/336/EEC LV Directive 73/23/EEC
.....100 VAC Model	Built to JIS			Japan only
Power Supply: Input	18 VAC w/Center Tap	10%	Vrms	Model RS 1
.....Maximum Current	600		mA	RMS current from remote supply
Unit: Construction	All Steel			19" 1U rackmount
Unit: Size	1.75" H x 19" W x 8.5" D			(4.4 cm x 48.3 cm x 21.6 cm)
.....Weight	7 lb (w/o power supply)			(3 kg)
Shipping: Size	4.5" x 20.3" x 13.75"			(11.5 cm x 52 cm x 35 cm)
.....Weight	11 lb			(5 kg)
<i>Note: 0 dB = 0.775 Vrms</i>				

### Block Diagram



### Application Information

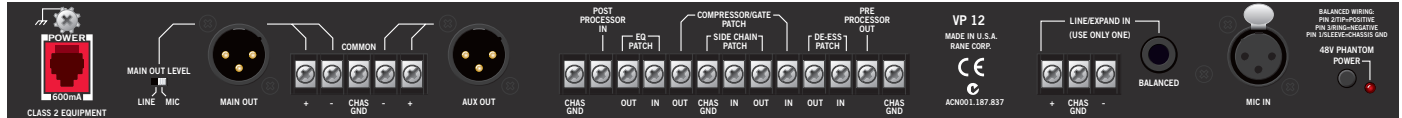
The VP 12's audio quality surpasses that found in most professional mixing consoles, making it perfect for studio recording and broadcasting. Digital recordings benefit tremendously with the pristine mic stage and dynamic control capabilities of the VP 12. When a single processor replaces multiple units or a mixing console between the mic and the tape or hard disk, the noise floor drops and clarity improves. The Bypass switches on each section of the VP 12 allow any unnecessary processing to be removed from the signal path, and for A/B comparisons. The rear panel patching jumpers allow re-arrangement of the different processes, as well as permanent bypass if required. For instance, some may wish to equalize before compression—the option is yours.

The VP 12 has its place in live sound applications as well. Onstage, the artist can adjust the vocal mic signal and run a balanced line to the house system. Or the house engineer can dedicate VP 12s for each vocal mic, back at the mixing desk.

The De-esser is simple to operate while providing enough control to allow the user to process a wide range of material. Dynamics can be managed easily by the versatile Gate/Expander and Compressor circuit. The seven segment meter provides a visual display of how much the settings affect the signal. The two-band Parametric EQ allows gentle sweetening or serious notching, anywhere in the full audio spectrum. The two EQ bands are configured in series so the EQ sections can be additive if desired. The Output of the VP 12 splits into two fully balanced line driving outputs, each with separate Level controls and metering.

The VP 12 finds a home in any application where high-quality comprehensive processing of vocal range audio is required.

## Rear Panel



## Architectural Specifications

The voice processor unit shall be constructed entirely from cold-rolled steel, and mounted into a standard EIA relay rack occupying 1 rack-space (1U). The unit shall consist of a mic level input with switchable 48V Phantom power. Additionally, a line level input shall be available that can be configured as the main input or used as an expand input which can be summed with the mic input. The output shall be split into two independent balanced output line drivers, each having a level control and meter. The processing elements shall consist of an adjustable de-esser with a frequency range of 700 Hz to 9 kHz with threshold and ratio controls, a gate/expander with threshold control, a compres-

sor with threshold and ratio controls, and two full range bands of parametric equalization. Each of the processing elements shall include an individual bypass switch aiding in the comparison of wet and dry signals.

The unit shall be exempt from agency safety requirements and powered from a UL listed, CSA certified remote power supply (120V) or TUV approved, (230V) that meets CE-EMC requirements.

*The unit shall be a Rane Corporation VP 12 Voice Processor Mic/Line Preamplifier.*

## Available Accessories

- SC 1.7 Security Cover