



### **General Description**

Equal parts problem solver, creative tool and secret weapon, Rane's dual channel PEQ 55 features five bands of fully parametric equalization, adjustable high-cut and low-cut filters, and three-band Accelerated Slope<sup>TM</sup> tone controls per channel. Front panel controls select between dual mono 5-band, mono 10-band, and stereo linked 5- or 10-band operating modes. Analog ease of use combined with high performance digital technology make the PEQ 55 ideal for professional sound reinforcement, fixed installation, broadcast and recording applications.

The PEQ 55 is a member of Rane's analog-controlled digital family of products, which includes the AC 24 cross-over, DEQ 60 / 60L graphic equalizers, and the G4 gate.

#### **Features**

- Each channel: 5 bands of fully parametric equalization (all bands overlapping 20 Hz to 20 kHz), adjustable high- and lowcut filters, and 3-band Accelerated Slope tone controls.
- Multiple configurations  $\left\{ egin{array}{ll} \mbox{Dual mono 5-band operation.} \ \mbox{Stereo linked 5-} \ \emph{or} \ \mbox{10-band operation.} \end{array} \right.$
- Individual filter overload indicators.
- Bypass individual filters or all filters per channel.
- · Input and Output Level controls and metering.
- XLR. ¼" TRS and Euroblock input/output connectors.
- Universal internal switching power supply.

### **Analog-Controlled Digital**

For years, analog parametric equalizers have been the preferred tool in applications ranging from corrective equalization in sound reinforcement systems to creative equalization in live sound, broadcast and recording. Analog controls (knobs, sliders) allow a performer or sound engineer to make precise adjustments, in real time. Digital signal processing (DSP) provides a degree of accuracy, consistency and flexibility that simply can not be matched with a traditional analog design.

The PEQ 55 combines the best of both worlds by using analog controls and high performance digital processing to achieve an unprecedented feature set. Benefits of this approach:

- The ability to easily A/B two EQ curves
- The ability to link channels
- Improved accuracy and repeatability
- Exceptional immunity to RF and electromagnetic interference
- Lower cost per filter.

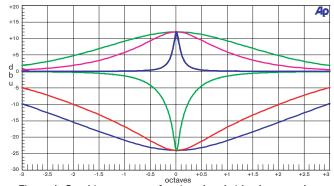


Figure 1. Graphic response of various bandwiths, boost and cut.

# **PEQ 55**

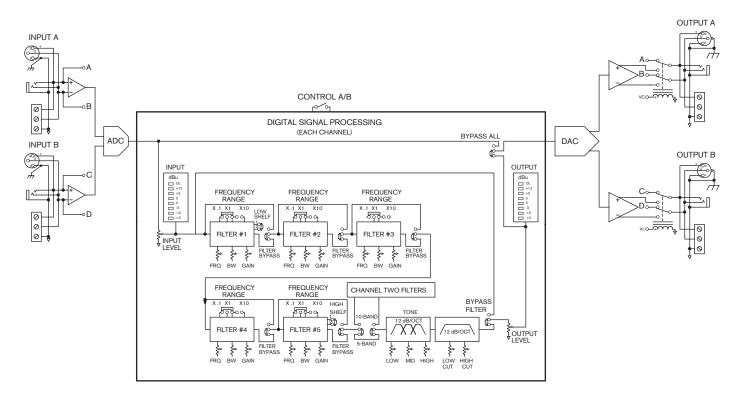
## PARAMETRIC EQUALIZER

## **Features and Specifications**

	arameter	Specification	Limit	Units	Conditions/Comments
XLR, ¼" TRS, Euroblock	puts: Type				
Maximum Input	Connectors	XLR, 1/4" TRS, Euroblock			XLR pin 2 hot per AES standards
Doubputs: Type	Maximum Input	+22	1	dBu	1 kHz
Double Strips   Double Stri	-	60	typ.	dB	1 kHz
Outputs: Type       Active Balanced       XLR, ¼" TRS, Euroblock		10.0k		Ω	Each leg to ground @ 1 kHz
XLR, ¼" TRS, Euroblock   1%	1				
ImpedanceMaximum OutputMaximum Output					XLR pin 2 hot per AES standards
## Page 12   1			1%	O	
EMI Filters Frequency Response 15 Hz to 20 kHz 17HD+Noise .006 17HD+AdBu, 20-20 kHz, 20 kHz, 2	_				
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THD+Noise THD+Noise THD+Noise Jobs Block 24-bit Converters: Sample Rate 24-bit Converters: Sample Rate Jobs Block 24-bit Converters: Sample Rate ManDynamic Range Propagation Delay Input Level: Range High Shelf Filters Low Shelf Filters Low Shelf Filters Manage M			±0/3	4D	inputs and Outputs
THD+Noise Crosstalk SDSP Block 224-bit Converters: Sample RateDynamic Range Propagation Delay Input Level: Range Output Level: Range High Shelf Filters Low Shelf Filters Parametric Filters:Frequency Range I12.5 Hz to 20 kHz Propagation Filters I2.5 Hz to 20 kHz Parametric Filters:Frequency Range I12.5 Hz to 12 kHz I12 to 2 Octaves I12 to 2 Octaves I12 to 2 Octaves I12 to 4 octave n I12 to 2 Octaves I12 to 4 octave n I12 to 2 Octaves I12 to 6 off III to 6 off III to 7 octave n III to 8 octave n III to 9 octave n III to 10 octave n III to 2 octave n III to 10 octave	- · ·				±4 dDy 20 20 kHz 20 kHz DW
Crosstalk  DSP Block 24-bit Converters: Sample Rate  MSP Block  MSP Block 24-bit Converters: Sample Rate  MSP Block					
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Dynamic Range   106   1,29		40		1 77	
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Input Level: Range Output Level: Range Output Level: Range High Shelf Filters Low Shelf Filters Low Shelf Filters 25 Hz to 20 kHz  Parametric Filters:Bandwidth 1/12 to 2 OctavesBoost/Cut Tone ControlsRange 15-240 Hz Low-Cut Filter Hz Low-Cut Filter Hz Hz Hz  Input and Output Hz Hz  Rear switch:Bypass Filters Bypass Switch ModeRear switch:Bypass Filters A/B Switches Unit: Power Supply RequirementAgency Listing  dB  dB  dB  dB  dB  dB  dB  dB  dB  d	, ,		1		A-weighted (input to output); unity
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Tone ControlsRangeRangeMid/High Crossover Point Low-Cut Filter High-Cut Filter MetersTypeType Bypass:Power Failure Bypass Switch ModeRear switch:Bypass AllRear switch:Bypass Filters A/B Switches Unit: Power Supply RequirementAgency Listing  3-band; Accelerated Slope™ +6 to off 300  4  15-240  5-20  Input and Output Peak responding 0/500 Automatic relay bypass  yp.  2nd-order, phase 0° @ un Center detent=0 dB  Hz  kHz  kHz  kHz  Bach channel  Peak-dBu is displayed for per 20 dB step Input wired to Output Each channel By front panel bypass By front panel bypass By front panel bypass By pass and A/B not affe 100 to 240 VAC, 50/60 F UL/cUL/CE					
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Type   Deak responding	igh-Cut Filter	5-20		kHz	
Bypass:Power Failure Bypass Switch Mode Bypass Switch:Bypass All Bypass Filters A/B Switches  Unit: Power Supply Requirement Bypass Switch Bypass Filters A/B Controls to channel Bypass Bypass All Bypass Bypass All Bypass Bypas	eters	Input and Output			Each channel
Bypass:Power Failure Bypass Switch Mode Bypass Switch Mode Bypass Switch Mode Filters and Levels bypassed Filters and Levels bypassed Filters bypassed only Determine controls to channel  Unit: Power Supply Requirement Automatic relay bypass Filters and Levels bypassed Filters bypassed only Determine controls to channel  Unit: Power Supply Requirement Controls to channel  Determine controls to channel  UL/cUL/CE  Input wired to Output Each channel By front panel bypass Bypass and A/B not affe 100 to 240 VAC, 50/60 F UL/cUL/CE	Туре	Peak responding		dBu	Peak-dBu is displayed for 1.5 sec
Bypass Switch ModeRear switch:Bypass AllRear switch:Bypass Filters A/B Switches  Unit: Power Supply RequirementAgency Listing  Each channel By front panel bypass Bypass and A/B not affe 100 to 240 VAC, 50/60 F UL/cUL/CE	Attack/Decay	0/500	typ.	ms	per 20 dB step
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Rear switch:Bypass Filters A/B Switches Determine controls to channel By front panel bypass Bypass and A/B not affe 100 to 240 VAC, 50/60 F UL/cUL/CE	Rear switch:Bypass All	Filters and Levels bypassed			By front panel bypass
A/B Switches  Unit: Power Supply Requirement Agency Listing  Determine controls to channel  Bypass and A/B not affe 100 to 240 VAC, 50/60 F UL/cUL/CE		* *			1 1
Unit: Power Supply Requirement 100 to 240 VAC, 50/60 FUL/cUL/CE	* *	* -			Bypass and A/B not affected
Agency Listing UL/cUL/CE					100 to 240 VAC, 50/60 Hz, 20 W
		All Steel			
Size 3.5" H x 19" W x 5.25" D (2U) (8.9 cm x 48.3 cm x 13.3					(8.9 cm x 48.3 cm x 13.3 cm)
Weight (3.3 kg)					,
	_				(11.5 cm x 52 cm x 35 cm)
Shipping: Weight 12 lb (5.5 kg)					
	ompping. Weight	12 10			(S.5 Kg)
Note: 0 dBu=0.775 Vrms	ote: 0 dBu=0.775 Vrms				



### **Block Diagram**



### **Architectural Specifications**

The equalizer shall be analog-controlled, with all controls provided on the front panel. All signal processing shall be accomplished using high accuracy digital signal processing.

The equalizer shall consist of two channels of 5 frequency bands each. It shall be configurable as a dual mono 5-band, mono 10-band, or stereo linked 5- or 10-band equalizer. The equalizer shall feature analog-style control of advanced digital signal processing (DSP). A/B switches for curve comparison or stereo linking shall be provided.

Gain for each equalizer band shall be adjustable from -24 dB to +12 dB. All frequency bands shall be fully overlapping and adjustable from 12.5 Hz to 20 kHz with a x0.1, x1 or x10 frequency multiplier. Bandwidth shall be continuously adjustable from 1/12 to 2 octaves. Filter bands one and five of each channel shall include a switchable low and high shelving response, respectively. When 10-band mode is selected only band one of the first channel and band five of the second channel shall be switchable to shelving response.

Low and high cut filters shall be provided with 12 dB/octave slopes and adjustable corner frequencies. Tone controls shall be provided for Low, Mid and High frequencies. The tone controls shall have a range of +6 dB to off.

The unit shall provide an automatic relay bypass feature when power is not available, and active bypass switches for each channel when the unit is operating. Active bypass mode shall be switchable to bypass all controls, including input and output levels, or just the filter section.

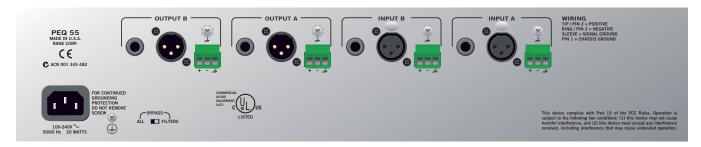
Input and Output Level controls and peak dBu meters shall be provided for each channel. All inputs and outputs shall be RFI filtered, active balanced designs terminated with XLR, ½" TRS (tip-ring-sleeve), and Euroblock terminals.

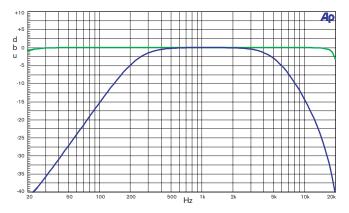
The unit shall meet CE and UL agency safety requirements and be powered from an internal universal power supply (100 to 240 VAC) via a rear panel IEC connector. The unit enclosure shall be constructed entirely from cold-rolled steel. The unit shall be supplied with ears for mounting into a standard 2U EIA rack.

The unit shall be a Rane PEQ 55 Parametric Equalizer.



#### **Rear Panel**

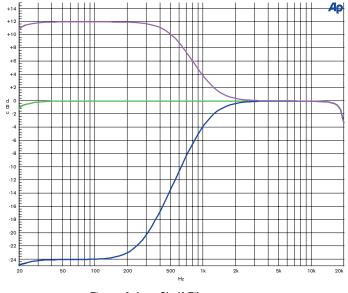




Low +6, Mid +6, Hi +6 Low +6, Hi +6 Hi -6, Hi -6 Hi -6

Figure 2. Low and High Cut filter response.





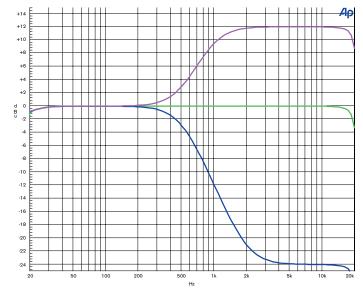


Figure 4. Low Shelf Filter response.

Figure 5. High Shelf Filter response.

### **Accessories**

Optional SC 5.2 Security Cover