

The Souvenir Series

*"Truth is only developed in the hour of need.
Time, and not man discovers it". – Bonald*



POLAR STABLE™

Every Record Ever Made Sounding Its Very Best

Like an electronic encyclopedia of disc recording, the Souvenir EQS MK12 decodes and translates the many different response curves and recording techniques employed from the earliest cylinders and 78's to modern day vinyl.

The heart of the MK12 is the unique KAB Chronologic™ equalizer. Just the touch of a button restores the proper spectral balance to any recording ever made. Twelve passively equalized precision response curves reveal the

truest sound of each recording. Free of glare, bloated bass and veiling caused by mismatched frequency response.

A unique processing section offers a very effective rumble filter, mono switch with mix control, vertical/lateral processing and a process loop. The final output stage offers RCA and TRS Balanced outputs with adjustable gain.

The KAB Souvenir EQS MK12 Disc Remastering Stereo Phono Preamp

APPLICATIONS	SPECIFICATIONS	UNIQUE SPECIFICATIONS
<ul style="list-style-type: none"> • Restoration • Remastering • Vintage Playback • Hi End Audio • Signal Processing • Disc Transfers • Broadcasting • Webcasting • Disc Grading 	<ul style="list-style-type: none"> • 20-20kHz ± 0.25 dB • 0.025% THD 1 Vrms • 0.025% IMD 1 Vrms • Gain 40db @ 1kHz • Max Input 70mV rms • Vout Max 6Vrms SE • Vout Max 12Vrms Bal. • Rumble Filter 24dB/Oct • -3dB@30 Hz. • 12 EQ Curves - MK12 • RIAA Only - MK 2 	<ul style="list-style-type: none"> • 2 Phono Inputs • Discrete Class A Gain Stages • Adjustable Cartridge Loading • 12 Historical EQ Curves • Rumble Filter • Vertical/Lateral Function • Mono/Stereo w/Mix Control • -12 to +15 dB Line Stage • 2 Process Loops • RCA and TRS Balanced Out • Cascaded Voltage Regulation



K-A-B ELECTRO-ACOUSTICS

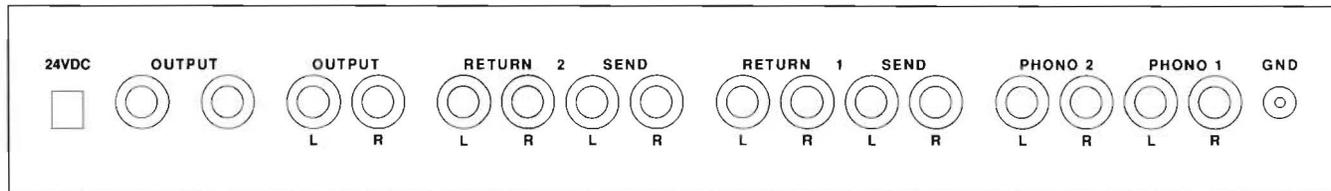
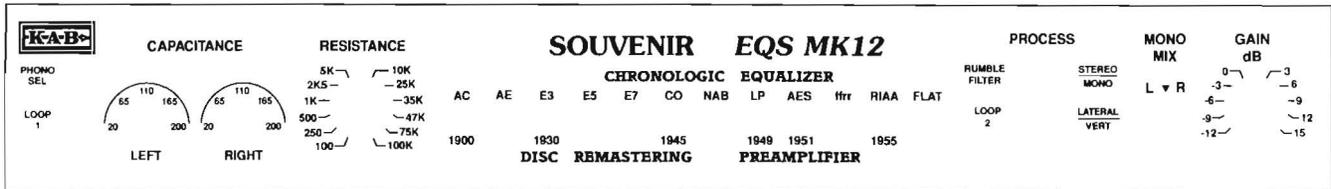
PRESERVE

ENHANCE

RESTORE™

"Serving the Record Collector and Sound Enthusiast"

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Detailed Specifications

Front Panel

Phono Inputs: 2
 Process Loop 1: Between first gain Stage and EQ Networks (150mV ref 5 mV input)
 Capacitance: 20pF to 200pF. (Add this to Turntable contribution - 200 pF typ.)
 Resistance 100Ω to 100KΩ 12 steps

EQ Curves: Notes
 AC: Acoustic Horn Tailored Response
 AE: First Electric WE curve
 E3: Early Electric 300 Hz Turnover/Custom Treble
 E5: Early Electric 500Hz Turnover//Custom Treble
 E7: Early Electric 700Hz Turnover/Custom Treble
 CO: Columbia 78 Standard Columbia 78
 NAB: Transcriptions Standard NAB
 LP: Columbia LP Standard LP
 AES: AES LP Standard AES
 frr: Decca London Decca London LP
 RIAA: RIAA Standard RIAA
 FLAT: FLAT Response

Process Section

Rumble Filter -3 dB @ 30 Hz 24dB/Oct
 Vertical/Lateral Electronic Inversion
 Stereo-Mono with Mono Mix Control
 Process Loop 2 between EQ Network and Process Section (450mV ref 5 mV input)
 Gain Setting -12 to +15 dB in 10 steps.

Rear Panel

Power 24 VDC
 Output Balanced TRS
 Output Single Ended RCA
 Process Loop 2 Send / Return RCA (Hi-Quality Output)
 Process Loop 1 Send / Return RCA
 Phono 1 and 2 RCA
 Main Signal Ground

Physical Dimensions

1.75" x 19" x 7"
 Shipping Weight: 8 Lbs.
 AC Requirements: 24VDC External Power Pak
 Power Requirements: 10 Watts Max.

Architects and Engineers Specifications

The **Phono Preamp** shall be a stereo unit that shall provide 12 independent response curves reflecting known historical disc recordings. There shall be inputs for 2 turntables, adjustable cartridge loading and additional processing features. The unit shall occupy one rack space (1U).

Cartridge Loading shall provide adjustable capacitance from 20 to 200 pF and selectable resistance in 12 steps from 100Ω to 100KΩ

Each **EQ Curve** shall be formulated using precision components in a passive configuration. Channel balance shall track within 0.25dB.

The **Processing Section** shall include : (1) A rumble filter which corners at 30 Hz and attenuates at 24 dB/Oct.. (2) A vertical/Lateral function for vertical cut recordings. (3) A mono switch with mix control. (4) A process loop.

The **Output Stage** shall feature adjustable gain of -12dB to +15dB into both RCA and TRS active balanced outputs.

The unit shall be a KAB Souvenir EQS MK12 Disc Remastering Preamplifier.



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KAB
Souvenir EQS MK12
Stereo Disc Remastering Phono Preamp

1. Introduction.

The KAB EQS MK12 is a full-featured phono preamp intended for use in the remastering and restoration environment. It is equally at home with audiophiles and serious collectors. Like an electronic encyclopedia of disc recording, the Souvenir EQS MK12 decodes and translates the many different response curves and recording techniques employed from the earliest cylinders to modern day vinyl. Like all KAB products the EQS MK12 embodies features and design standards ordinarily found in more expensive gear.

The heart of the EQS MK12 is the KAB exclusive chronologic EQ which features 12 de-emphasis curves presented along a historical time line. Standardized curves are identified by their official terms. The individual stereo curves are selected via a custom 12 position interlocked switch array. This approach makes selecting and auditioning different curves very easy.

The EQS MK12 features multiple inputs and outputs to appeal to the professional and audiophile alike. The audiophile for instance, can use the second send loop to "send" hi quality audio to a separate AUX input. This output comes directly off the discrete class A gain stages and precedes the process section. The final output can then be used to gain access to the process section, while high quality vinyl sees a minimal signal path.

The Process section features a steep rumble filter, Vertical/Lateral translator, Stereo/Mono switch with Mix Control and the second process loop switch. The adjustable gain lets you set the output between -12 and +15dB. Referenced to the 35dB nominal gain of the preamp.

The single rack enclosure is of steel construction. Circuit highlights include glass epoxy double-sided circuit boards, low noise precision metal film resistors, 2% propylene film capacitors, multiple propylene bypass capacitors, and gold teflon hand wired RCA connectors. The two main gain stages are discrete class A Polar Stable configurations. The Process section utilizes hi performance low noise Op Amps. The unit features full RFI/EMI filtering and cascaded power supply regulation.

Scanning the front panel presents the following functions:

1. **Phono Selector.** Choose from 2 turntables.
2. **Loop 1.** Insertion point between first gain stage and EQ networks.
3. **Cartridge Capacitance Loading.** Set to cartridge Mfg's recommended setting. Note that most turntables add 200 pf all by themselves. So if the Mfg's setting is 275 pF then set the capacitance control to 75.
4. **Cartridge Resistive Loading.** Set to cartridge Mfg's recommended setting. Usually 47k.
5. **KAB Chronologic Equalizer.** Choose the EQ curve that corresponds to the record your playing. Refer to the Curve Selector Chart for guidelines and recommendations.
5. **Loop 2.** Insertion point between second gain stage and processing section.
6. **Rumble Filter.** Steep 24dB/Oct filter; corner frequency is 30 Hz.
7. **Vertical/Lateral.** Permits translation between vertical cut and lateral cut (modern) recordings.
8. **Stereo/Mono.** Selects between stereo and mono sound.
9. **Mono Mix.** Active when Mono is selected. Permits blending left and right groove wall for best sound.
10. **Gain.** Allows for adjusting output gain from -12dB to +15 dB above and below the nominal 40dB.

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2. Getting Connected.

Scanning the rear panel presents the following connections:

1. **Phono Ground Terminal** Connect turntable ground wires here
2. **Phono 1** Connect one turntable here
3. **Phono 2** Connect second turntable here

A note about turntable wiring, the cables used for turntables differs from that used for interconnecting line level equipment. The cable used should feature conductive/vinyl shield as well as copper braid and should feature low capacitance. Try to ascertain the capacitance per foot of this cable for you will need to know the total capacitance loading the cartridge. For best response, this should never exceed the Mfr rated limit.

4. **Loop 1 Return Only.** Connect an unequalized line level source here.

The return line is driving directly into the EQ curves which represent a 2000 ohm load. This can be a difficult load to drive for most home audio gear. A optional Line Driver card is available to improve performance here. This input is primarily useful for processing line level flat transfers.

5. **Loop 2 Send/Return** Connect a signal processor here.

The send line can drive 1000 ohm load easily. The return line is driving into a unity gain buffer. Input impedance is 50K ohm. *The #2 Send connectors can be considered Very High Quality outputs since the signal here passes only through the discrete class A gain stages and passive EQ.* This loop is a good place to insert dedicated devices like graphic or parametric Equalizers.

6. **Final Output RCA** Connect to line level input on your stereo or the next device in your processing chain.

The output level can be adjusted using the front panel gain control.
This output is capable of driving 600 ohms easily.

7. **Final Output Active Balanced TRS** Connect to TRS balanced inputs.

The output level can be adjusted using the front panel gain control.
This output is capable of driving 600 ohms easily.

8. **Power In 24 VDC** Use supplied power transformer only.

A word about safety, the unit is operated from a dedicated 24VDC power pak. The powerpak meets all the standard safety requirements. **NEVER SUBSTITUTE THE POWER PAK.**

There are no user serviceable parts inside

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3. Initial Setup.

Turn the unit on.

Note that there will be approximately 20-30 seconds before sound can pass through the unit. Relays short circuit the outputs during this period. At this time, the amplifiers stabilize and the coupling components are preconditioned. When the relays open they are effectively removed from the signal path. Sound does not pass *through* the relays.

Set cartridge loading.

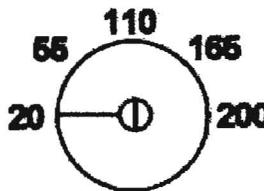
Capacitance

As stated earlier, most cartridges prefer a load of 275pF.

Most turntables provide 200pF with their supplied interconnects.

Therefore set both capacitance controls to 75pF(Factory Preset).

The controls are located behind the hole covers on the front panel.



Resistance

As stated earlier, most cartridges prefer a load of 47 K ohm. Set the resistance control to this setting. For absolute precision, check the cartridge specifications and adjust the setting accordingly. *Note: with moving magnet cartridges, lowering the resistance below the recommended value will roll off the treble response. With vintage material, one might tinker with this to achieve a simple noise filter.*

Choosing a curve.

The Chronologic Equalizer follows a unique time scale. If you know the approximate age of the disc you are playing, you can simply "test" the curves in that era and settle on the one that sounds right to you. If you have a newer disc and can identify the curve as a standard one, then select it by name. If still in doubt, go through the selection chart and find the label and corresponding curve. The differences in some of the more modern curves are subtle, yet in an audiophile environment, these subtleties can make big differences. What we are trying to achieve in selecting a curve is *spectral balance*- a kind of unity between the bass, midrange, and treble. It can take a little patience to listen carefully and discern the differences, but this kind of attention to detail is what makes the difference between good reproduction and really great sound.

Process Section

Rumble Filter

The rumble filter will remove all low frequency disturbances below 30 Hz. It has a steep 24 dB/Oct rate of attenuation. Without losing deep bass, the filter will clean up sub sonic nasties. Especially useful on 78's since many of these tend to have rumble from the primitive cutting machines.

Vertical / Lateral

Some vintage discs are cut with a vertical groove where modulation moves the stylus up and down. Compare this with the current method, lateral, where the stylus moves side to side. Pressing the Vertical button inverts the left channel only. Now, press the mono button. You're now hearing the vertical movement of the stylus. You might even find this useful when playing stereo recordings. In a stereo recording, the vertical information usually consists of the ambience and reverb cues, but not always. Some Beatle recordings spring to mind. Experiment when you have a free moment.

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3. Initial Setup Cont'd.

Process Section Cont'd

Mono / Stereo

Use to select either mono or stereo mode.

Mono Mix

When a mono recording is played with a stereo phono cartridge, the left and right channels conform to the two independent walls of the groove.

Whenever mono is selected, the Mono Mix control is engaged. turning this control full left produces the left channel only, full right produces the right channel only. When the control is in the center, both sides of the groove wall are mixed together equally. The purpose of the control is to get the cleanest sound by finding the "true" center. Groove wear and pressing defects often skew the setting in favor of one side or the other. Use the Vertical function simultaneously to get a null, then switch back to lateral.

Gain

When set to 0, the unit has a mean gain of 36 dB. This is optimum for most moving magnet/iron cartridges with outputs of 3-5 mV @ 5cm/s. For low output cartridges such as moving coil designs, add gain by increasing the setting until you obtain a satisfactory signal level. Reduce gain only if you find that you are overloading proceeding stages. Do not use it as a volume control.

Loop 1

This line level input is located just after the first class A gain stage but before the EQ Section. Push Loop 1 to engage the source connected here.

Loop 2

The second process loop is located just after the second class A gain stage but before the Process Section.

Push Loop 2 to engage the loop.

White Buttons

White key caps are used on the buttons that can cause major changes to the sound output. **Loop 1, Flat EQ, Loop 2 and Vertical /Lateral.** If you should suddenly notice something unusual about the sound, check these buttons first,

Black Buttons

Black key caps are used for the EQ curves. Exception is RIAA which is gray and Flat which is white

Gray Buttons

Gray key caps are used for process features and the phono input selector.

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4. EQ Curve Chart (Records made from 1900 and 1955)

78 RPM		LP's		LP's	
Label	Setting	Label	Setting	Label	Setting
Acoustics	AC or AE	Allegro	LP	Oceanic	LP
Blue Bird	AE, E5, NAB	American Rec Soc	AES	Oxford	LP
Brunswick	AE, E3, CO	Angel	AES	Odeon	E3, RIAA
Capitol	AES, RIAA	Atlantic	NAB	Okeh	E3, RIAA
CBS	E3, CO, NAB	Bach Guild	LP	Parlophone	E3, RIAA
Columbia	AE, E3	Banner	LP	Period	LP
Continental	E3, CO	Bartok	LP	Philharmonia	AES
Coral	NAB, RIAA	Boston	LP	Polydor	E3, RIAA
Decca	E5, NAB, RIAA	Blue Note	AES	Rachmaninoff	LP
ffrr	AE, E3	Caedmon	AES	RCA Victor	RIAA
Deutsche Gr.	E3, CO	Capitol	AES	Remington	LP
Electrola	E7, AES	Canyon	AES	Stradavari	LP
Good Time Jazz	E3, CO	CapitolCetra	AES	Telefunken	E3
Gramophone	A3, E3	Colosseum	AES	Radiofunken	E3
Harmony	AE, E3, CO	CetraSortia	LP	Ultraphone	E3
Hit of the Week	E5	Columbia	LP	Urania old	LP
H.M.V.	E7, AES	Concert Hall	AES	Urania new	AES
King	NAB, RIAA	Contemporary	AES	Vanguard	LP
London	E7, RIAA	Coral	AES	Vox	LP
Lyrichord	LP	Cook	LP	Westminster	LP
Majestic	LP	Decca ffrr	ffrr	Vitaphone	LP
Melotone	E3, CO	Dial	LP		
Mercury	AES	Electra	LP		
MGM	AES	EMS	AES	Musicraft	RIAA
Okeh	AE, E3, CO	Esoteric	AES		
Polydor	ffrr	Festival	LP		
Victor					
VE(Oval)	AE	Handel Society	LP		
VE(Diamond)	E5	Hayden Society	LP		
New Ortho	RIAA	HMV	E7		
Sittin' in with	NAB	London	E7		
Schirmer	NAB	Mercury	AES		
Supraphone	AE, E5	MGM	AES		
Technichord	E5, RIAA	Montilla	AES		
Ultraphone	E5, RIAA	Musicraft	RIAA		
Velvet tone	AE, E3	New Records	LP		

Postscript

After 1955 it is believed that most recordings use the RIAA curve. It is wise to test the other modern curves to satisfy yourself that RIAA is correct. Certainly by 1965 RIAA was locked in.

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5. Specifications

Input Section

Input Capacitance: 20 - 200pF continuous

Input resistance: 100 - 100K Ohm 12 steps

Input Sensitivity: 15 mV (@1000Hz, RIAA, for 1Vrms)

Input Overload: 91 mV (@1000Hz, RIAA for 5.7Vrms Out)

Fixed Front End Gain: 36dB(@1000Hz, RIAA, Gain set to 0)

Chronologic Equalizer

(All curves computed using S. Lipshitz landmark AES paper. Vol 27, #6 June 1979 and data compiled from the Radiotron Designer Handbook and empirical data)

Curve	f3	f4	f5	LF Gain Stop
AC	50	500	5000	YES(+10dB)1/
AE	20	200	2120	NO
E3	30	300	2120*	NO
E5	50	500	2120*	NO
E7	70	700	2120*	NO
CO	30	300	1590	NO
NAB	40	400	1590	YES(+17dB)1/
LP	50	500	1590	YES(+13.5dB)1/
AES	40	400	2500	NO
ffrr	30	300	2120	YES(+17.5dB)1/
RIAA	50	500	2122	NO
FLAT	0	0	0	NO (Gain Fixed)

* High Frequency roll-off is KAB fine slope technique 3dB/Oct.. Shelving at -10dB

1/ Low Frequency gain stops limit the total bass boost to the figure stated. Ref 0 dB @ 1000 Hz.

Rumble Filter

Corner Frequency: 30 Hz.

Attenuation: 24 dB/Oct.

Output Stage

Active Balanced TRS: 10 Vrms Max

RCA Single Ended: 5 Vrms Max

Distortion & Noise (Ref 1 Vrms out)

THD < 0.05%

IMD < 0.05%

S/N > -75dB

Physical Specifications

Dimensions: (w x h x d) 19" x 1.75" x 8.25"

Weight: 5 Lbs.

Shipping weight: 8 Lbs.

Company Address

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