



VHD PRE-EQ

User Guide

Preamp with built-in Line Drivers



Important Safety Instructions

Observe all instructions and follow warnings marked on the equipment and in the user's manual.

Connect the equipment only to a source of proper mains voltage.

Do not attempt to switch on any equipment that has been dropped, that is damaged, or has had liquid penetration, or if malfunctions have occurred and their nature requires a repair action. The supply cable shall be made by a person having proper qualifications.

Warning

The equipment is designed in Class I and shall be connected to a wall socket having protective earthing.

The mains plug and supply cable shall remain easy accessible, as this is used for disconnection of the equipment from the supply source if necessary.

Never interrupt earthing due to safety reasons.

Do not place the equipment close to heating bodies or other sources of heat and protect it against direct sunlight.

The equipment must not come into contact with open flames.

Ventilation of the equipment must not be obstructed by covering of ventilation openings.

The equipment must not be exposed to dripping or splashing liquid or water and excessive humidity.

Any object filled with any liquid shall not be placed on the equipment.



The triangle with a symbol of a lightning marks parts of the equipment under life jeopardizing voltage, whose values may cause an injury from electric shock.



The symbol indicating that the equipment is manufactured in compliance with EU standards.



The triangle with a symbol of an exclamation mark in the text marks important instructions for operation, setting and maintenance.

Contents

Introduction	3
Introduction	3
Dimensions	3
Getting Started	4 - 5
Unpacking / Rack mounting / AC Power requirements / Voltage requirements / Cooling	4
Connector wiring / Microphone INSERT wiring	5
Front Panel	6 - 7
Rear Panel	8
Specifications	9
Using the system	10 - 12
Simple AV mixer-Projector sound and a microphone	10
Demonstration / presentation mixer	11
Summing multiple PRE-EQ's	12
Block Diagram	13
Warranty · Service	14
Input Cables and Output Cables	15
Notes	16

PRE-EQ

VHD TECHNOLOGY

VHD PRE-EQ - part number KVV 987 419 (230V, 115V)



Application

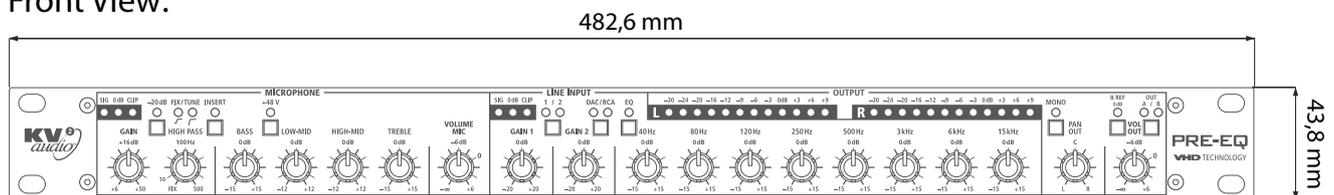
Especially designed as a super high quality preamplifier to allow A/B comparisons and presentations between products and systems

- Fixed installations
- Sub mixing
- Portable
- Demonstrations/presentations

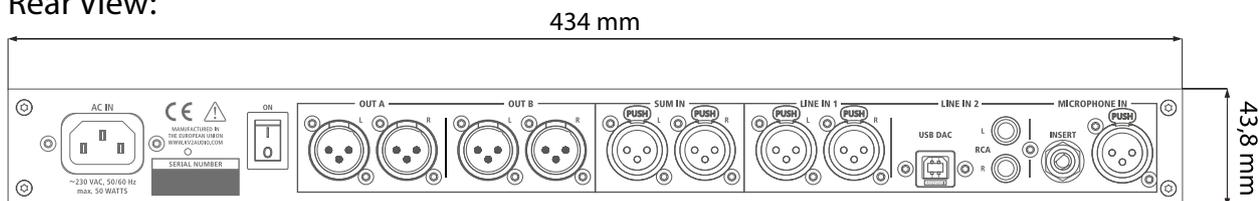
Introduction

The design of the new VHD PRE-EQ is based on years of experience in presenting KV2 Audio systems using our associated Electronics. The VHD PRE-EQ includes a single microphone input, two stereo line inputs (balanced XLR, RCA / internal DAC) and A/B switchable master outputs. The preamp includes direct summing inputs for combining multiple preamps in mixing applications. The microphone input is equipped with a tuneable or preset HPF, insert, and 4-band EQ. The stereo line inputs are configured with Line input 1 - XLR, Line input 2 - RCA / internal DAC and share a brand new revolutionary George Krampera 8-band EQ. The A/B outputs are equipped with left/right pan, mono summing and master volume. The VHD PRE-EQ is equipped with signal level presence on inputs and meters on outputs. A high quality, high definition USB DAC up to 384KHz/24bit sample rate is included. Great emphasis was placed on maintaining the highest possible sound quality.

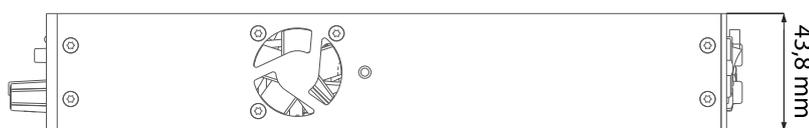
Front View:



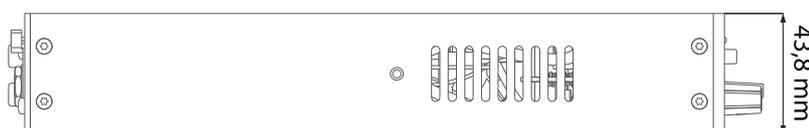
Rear View:



Right side:



Left side:



VHD PRE-EQ · Introduction

Unpacking

Unpack the VHD PRE-EQ and check to see if there is any damage to it. If you find any damage notify your supplier immediately. Only the consignee may institute a claim with the carrier for any damage incurred during shipping. Be sure to save the carton and all packaging materials for the carrier's inspection.

Should you ever need to ship the unit, only use the original factory packaging. If the shipping carton is unavailable, contact your supplier to obtain a replacement.

The VHD PRE-EQ carton should contain:

- VHD PRE-EQ unit
- User's Guide
- IEC Power Cable
- USB2.0 cable, USB A-B, 1.8m, black

Rack mounting

The VHD PRE-EQ will mount in a standard 19" rack system. Use four screws and washers to mount the VHD PRE-EQ to the rack rails. We recommend using a shock-mounted rack for touring use to prolong the life of your VHD PRE-EQ.

To prevent accidental adjustment of settings, or unwanted tampering in a fixed installation, KV2 Audio provide an additional security panel.

AC Power requirements

The VHD PRE-EQ uses a standard IEC 3-pole AC connector. The device must be connected to a mains socket outlet with protective earthing connection. The VHD PRE-EQ operates in either 115V or 230V mode. This setup is preconfigured at the factory. The mains plug of the power supply cord shall remain readily operable.

Voltage requirements

The VHD PRE-EQ operates safely and without audio discontinuity if the AC voltage stays within the operating window of 90V-130V in 115V mode or 180V-260V when working in 230V mode at 50 or 60Hz.

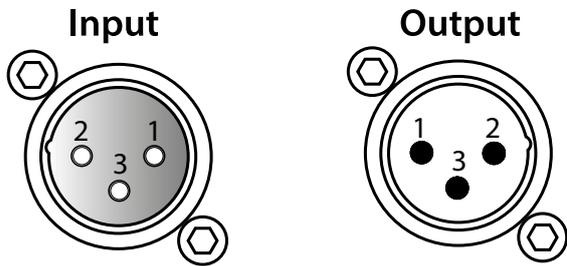
CAUTION: IF ANY LED DOES NOT ILLUMINATE ON THE PRE-EQ, OR THE SYSTEM DOES NOT RESPOND TO AUDIO INPUT. REMOVE AC POWER IMMEDIATELY. VERIFY THAT THE POWER VOLTAGE IS WITHIN THE PROPER RANGE. IF THE PROBLEM PERSISTS, PLEASE CONTACT KV2 AUDIO OR AN AUTHORIZED SERVICE CENTER.

Cooling

The cooling fan will operate only when the internal temperature is higher than 50°C, to keep the device resistant to high temperature conditions. Air enters through the left side grille and exits through the right fan grille. Do not place the equipment close to heating bodies or other sources of heat and protect it against direct sunlight. Be sure to allow adequate air flow of the rack in which the PRE-EQ is mounted.

Connector wiring

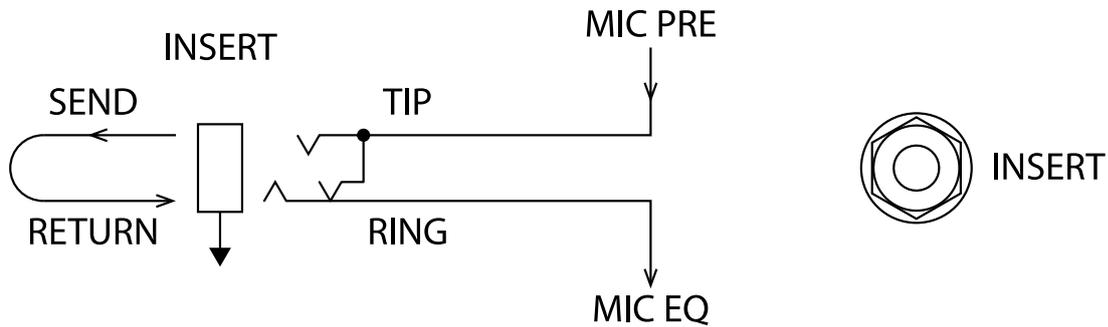
XLR Balanced Input and Output connectors



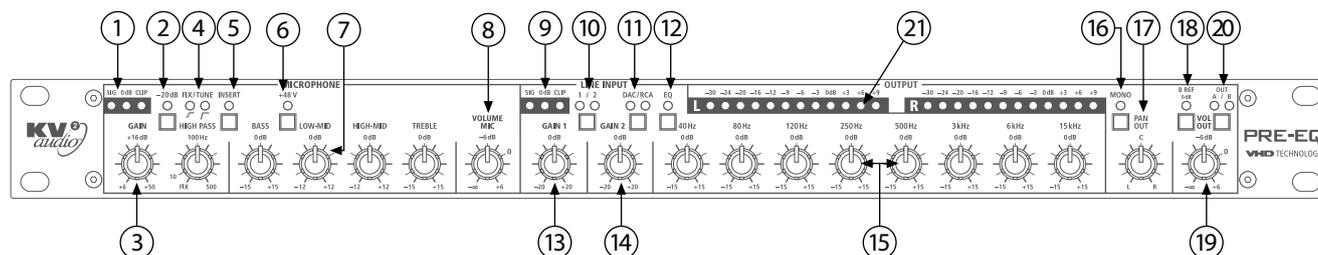
CAUTION: IF IT IS NECESSARY TO CONVERT BALANCED OUTPUT TO UNBALANCED, IT IS IMPOSSIBLE TO SHORT HOT (2) OR COLD (3) PINS WITH GROUND (1). IN THIS EVENT THE LINE DRIVERS WILL CAUSE PERMANENT DISCONNECTION.

Microphone INSERT wiring

Plugging a jack into the INSERT socket breaks the signal path between the input preamp/filter and the EQ to let you add an external signal processor such as a compressor into the channel signal path. Use a suitable Y-lead or suitable TRS jack lead to connect to the external processor.



Front Panel



Microphone input

1) Input level meter

Serves to monitor microphone input signal presence and level. The signal should average around '0dB'. If the red PEAK light flashes the signal level is too high and should be reduced using the GAIN control to prevent possible overload distortion.

2) -20dB

Applies the -20dB PAD at the XLR microphone input.

3) GAIN

Adjusts the PRE-EQ mic input gain from +6dB to +50dB.

4) HIGH PASS, FIX/TUNE

Fixed frequency or tunable high pass filter. Can be used to clean up sounds from unwanted bass content and rumbles. FIX preset is optimized for full, rich voice, it reduces, but does not cut the low frequency. Select the FIX preset by sweeping HIGH PASS fully anticlockwise. The TUNE preset drops by 12dB per octave below the cut off frequency. Select the required cut off frequency by sweeping from anticlockwise, (filter off) to the maximum 500Hz.

5) INSERT

Unbalanced insert. Used to send and return the mic input signal to external effects and signal processing equipment, (tip = send, ring = return). Insert signal path is post LOW PASS, pre-EQ. Insert signal path is activated using INSERT switch.

6) +48V

Feeds +48V to pins 2 and 3 of the input XLR for microphones or devices which require phantom power.

7) Four-Band Equalizer

The four-band EQ section is a unique Super Analog equalization circuit specially designed to highlight the desired band without adversely affecting the overall sound.

- BASS - Boosts or cuts Low frequencies around 20Hz by +/-15dB
- LOW MID - Boosts or cuts Low-Mid frequencies around 450Hz by +/-12dB
- HIGH MID - Boosts or cuts Low-Mid frequencies around 2.5kHz by +/-12dB
- HI - Boosts or cuts Hi frequencies around 18kHz by +/-15dB

8) VOLUME MIC

Adjusts the microphone output level from $-\infty$ to +6dB.

Line input

9) Input level meter

Serves to monitor line input signal presence and level. The signal should average around '0dB'. If the red PEAK light flashes the signal level is too high and should be reduced using the GAIN control to prevent possible overload distortion.

10) LINE 1 / 2

Line input selector between LINE 1 - balanced XLR and LINE 2 - internal DAC / unbalanced RCA.

11) DAC / RCA

Line 2 input selector between internal HD DAC and external input unbalanced RCA. The selected input is indicated by LED. When USB power is not connected and internal DAC selected, the DAC will not illuminate. When DAC is selected and DAC playback is in progress, the LED flashes.

12) EQ

8-band equalizer EQ enable switch. When depressed, the EQ is bypassed.

13) GAIN IN 1

Adjusts the PRE-EQ LINE 1 - balanced XLR gain from -20dB to +20dB.

14) GAIN IN 2

Adjusts the PRE-EQ LINE 2 - unbalanced RCA/internal HD DAC gain from -20dB to +20dB.

15) 8-Band Equalizer

Line input 2 - RCA / internal DAC share a revolutionary George Krampera 8- band Equalizer. Specially designed to highlight the desired band without adversely affecting the overall sound. Using the equalizer is very intuitive and musical. Equalizer boosts or cuts frequencies at 40, 80, 120, 250, 500Hz, 3, 6, 15kHz by +/-15dB.

Output

16) MONO

Sums together left and right channels in stereo mix before PAN OUT control.

17) PAN OUT

The panorama control between left and right channel in stereo mix.

18) B REF

When B REF is applied, the output volume is bypassed for OUT B output. OUT B level is fixed at 0dB. This can be used to adjust the sensitivity of the compared sound systems connected to outputs A and B.

19) VOL OUT

Adjusts the overall output level from $-\infty$ to +6dB. Serves for output A and B, when B REF is applied, the volume affects OUT A only.

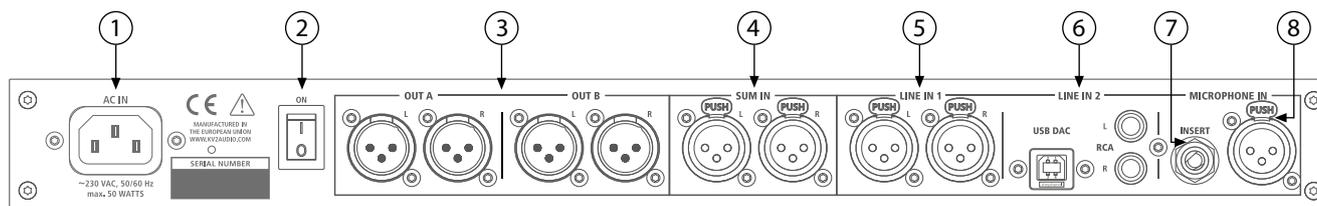
20) OUT A / B

Switches between A or B outputs, to allow a simple comparison of systems between the two outputs. Both A and B outputs use line drivers built into them to maintain audio signal integrity over long cable lengths. When output A is selected, output B is muted and vice versa.

21) OUTPUT LEVEL METERS

12 segment, 3 color peak reading meter for L and R output.

Rear Panel



1) Plug power connector

For connection to a standard IEC 3-pole AC connector. Before connecting make sure that the mains voltage corresponds to the VHD PRE-EQ's voltage requirements as stated on the unit.

2) AC Power Switch

Used to turn the PRE-EQ on or off.

3) Output A, B

Output A

Balanced Male XLR connectors (pin 2 = hot) for sending Left and Right audio signal. When output B is selected, output A is muted.

Output B

Balanced Male XLR connectors (pin 2 = hot) for sending Left and Right audio signal. When output A is selected, output B is muted.

4) Sum Input

Balanced Female XLR connector (pin 2 = hot) for direct summing line level audio signal.

5) LINE 1

Balanced Female XLR connector (pin 2 = hot) for connecting line level audio signal.

6) LINE 2

USB DAC

Standard USB B connector for connecting internal HD DAC. The USB power is indicated by the DAC LED.

A high quality, high definition USB DAC up to 384KHz/32bit sample rate is included. The DAC is based on AKM's VELVET SOUND DAC. The USB, based on CM6631A processor and is galvanically isolated from the PRE-EQ.

Supports USB Audio Class 2.0 and high-speed. USB Audio class 1.0 with full-speed/high-speed modes compatible with Windows® UAA driver, Mac OS X and Linux embedded USB audio drivers. Windows drivers are available at the KV2 Audio website.

RCA

Unbalanced RCA connector for connecting line level audio signal.

7) INSERT

Microphone input unbalanced insert. Used to send and return the signal to external effects and signal processing equipment, (tip = send, ring = return).

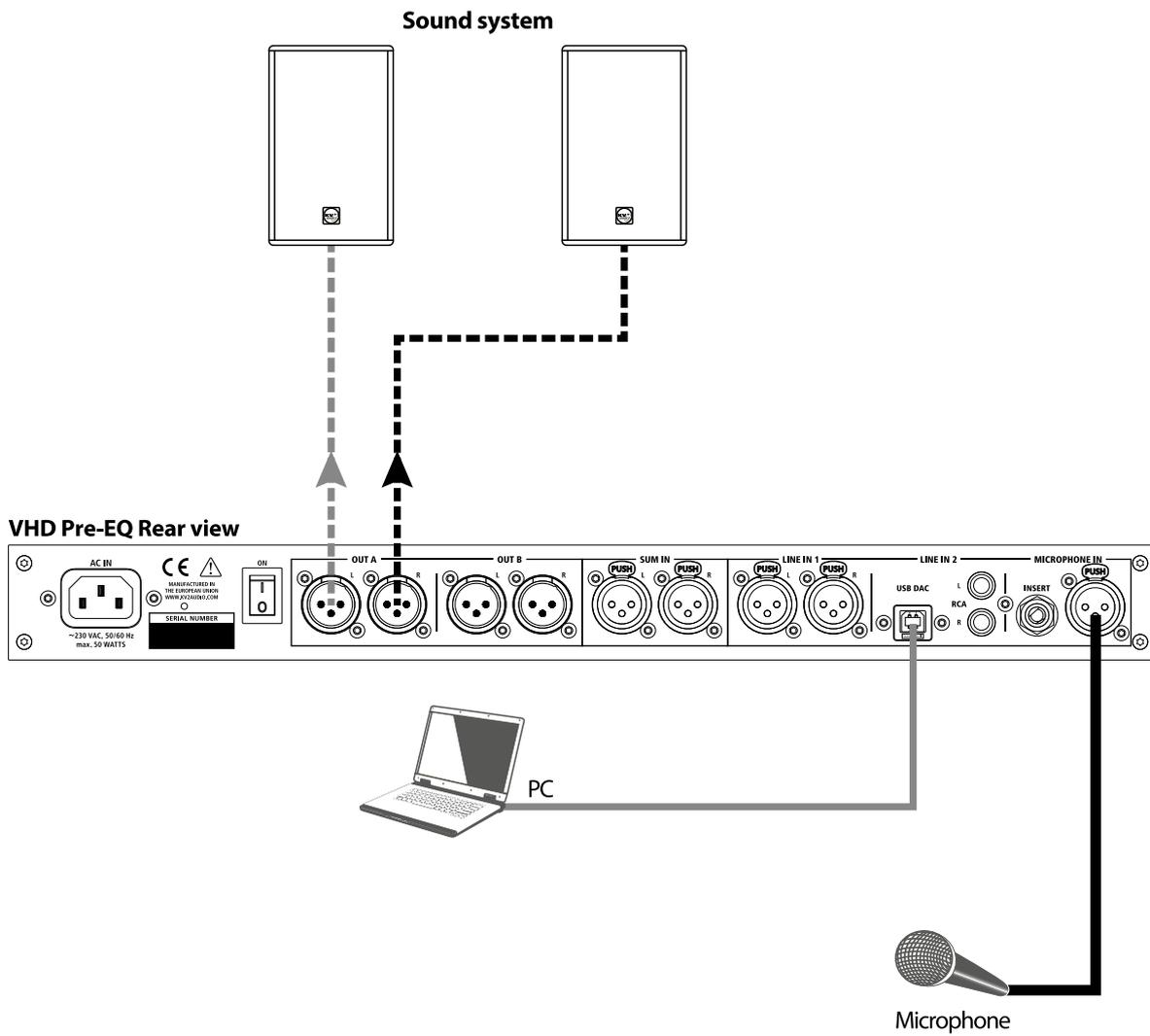
8) MICROPHONE INPUT

Balanced Female XLR connector (pin 2 = hot) for connecting microphone level or line level audio signal.

Specifications

System Acoustic Performance	
-3dB Response	10Hz to 120kHz
Total Harmonic Distortion	<0.0005%
Output Channels	
Number of Channels	2x A/B - XLR
Max. Output Voltage	18dBu / 12dBu (50Ω) RMS
Max. Output Current	450mA
Signal Input	
Input Channels	9
Input Impedance	2kΩ Mic / 20kΩ Balanced IN / 10kΩ RCA IN
Max. Input voltage	+26dBu
Mic input	Phantom power, -20dB, Input level, 4-band EQ
Line input	Balanced, DAC/RCA, ±20dB
DAC input	USB2.0, 384kHz/24bit DAC
Signal Output	
Signal Output Channels	stereo A / stereo B
Output Impedance	50Ω
Features	
Input Level Control	-∞ to +6dB
High Pass Filter	Vocal preset / 10Hz to 500Hz
Equalization	8-band EQ
Indicators	LED, VU meters
Power Requirements	
Power Connector	IEC 320
Operating Voltage Range	90 to 130V@60Hz 180 to 260V@50Hz
Physical Dimensions	
Height	43.8 mm (1.72")
Width	482.6 mm (19.0")
Depth	248 mm (9.76")
Weight	4.5 kg (10lbs)

Simple AV mixer-Projector sound and a microphone



VHD PRE-EQ · Using the system

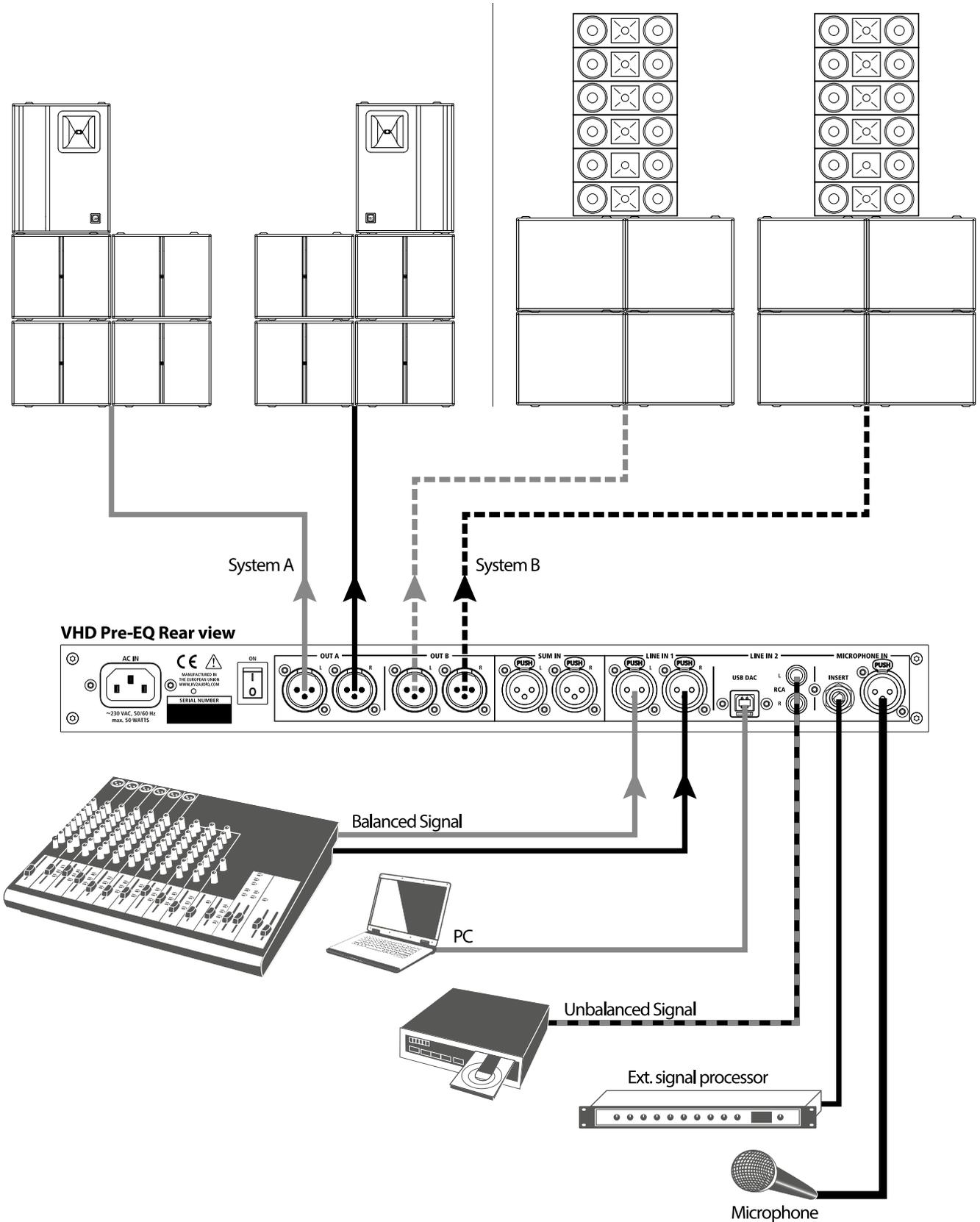


Demonstration / presentation mixer

Two sound systems comparing

System A

System B

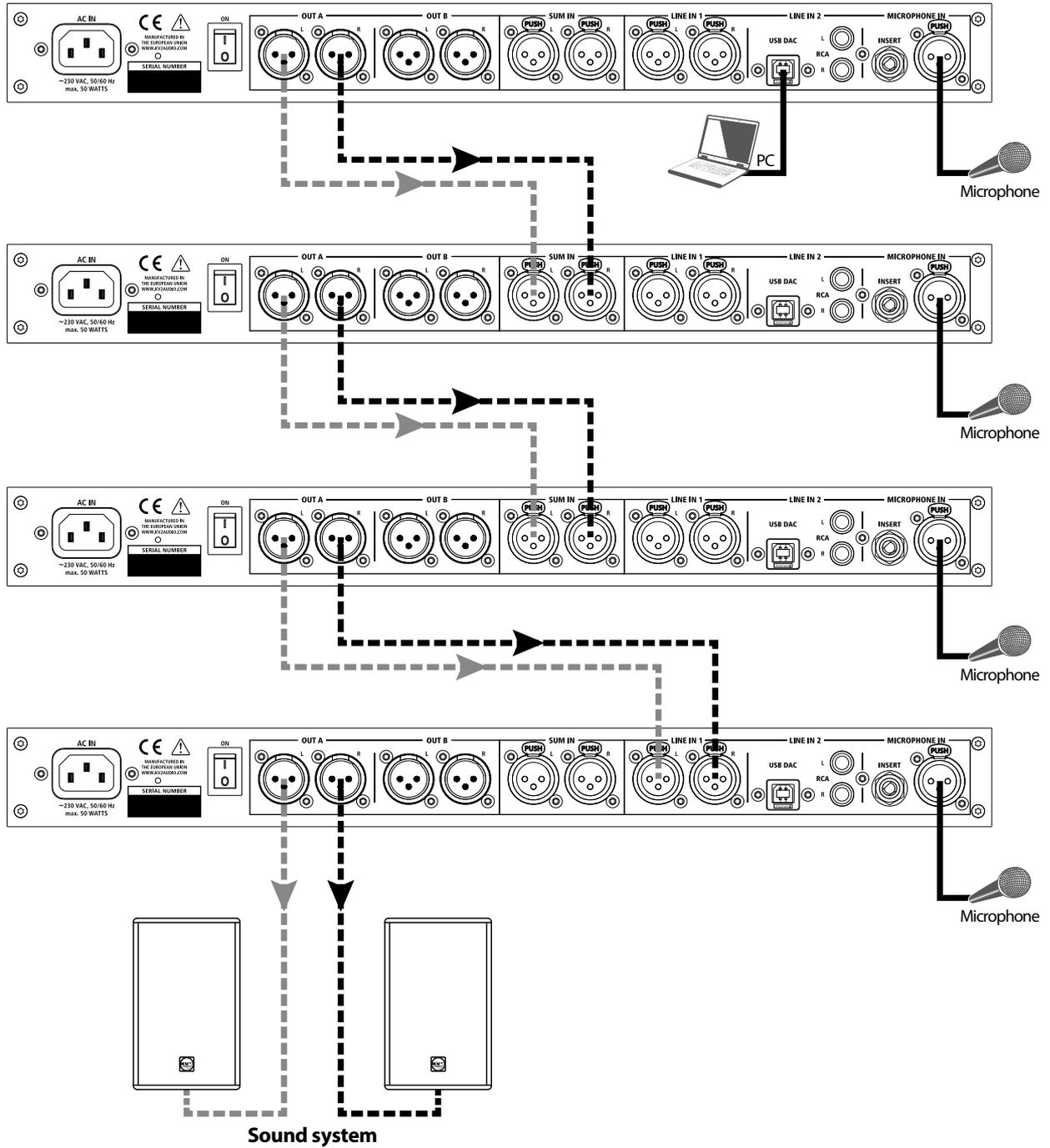


VHD PRE-EQ · Using the system

Summing multiple PRE-EQ's

Multiple PRE-EQs may be summed using SUM IN, low impedance direct LINE DRIVER input.

VHD Pre-EQ Rear view

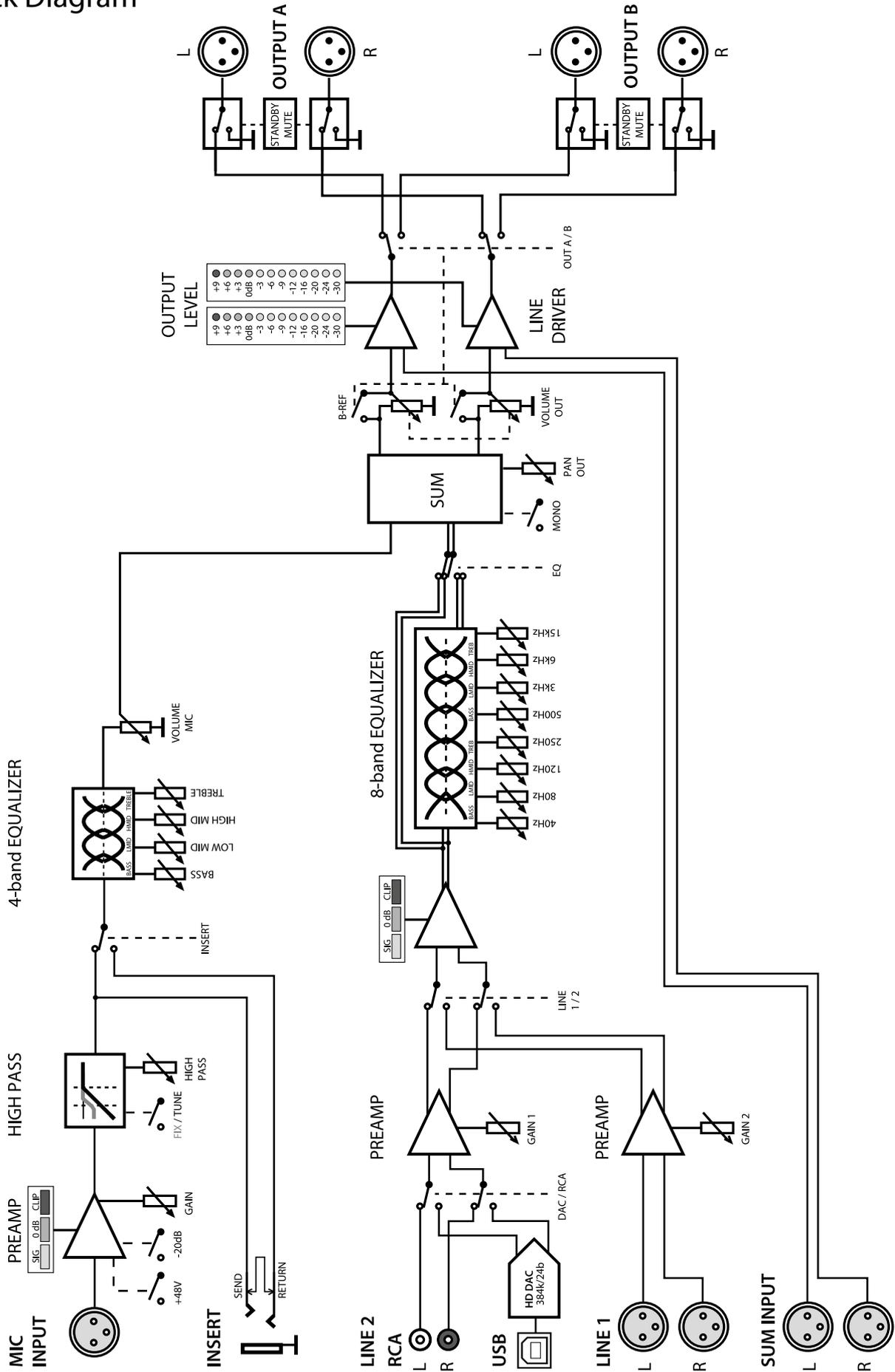


VHD PRE-EQ · Using the system

VHD PRE-EQ · Block Diagram



Block Diagram



VHD PRE-EQ · Block Diagram

Warranty

Your VHD PRE-EQ is covered against defects in material and workmanship.

Please refer to your supplier for more details.

Service

In the unlikely event that your VHD PRE-EQ develops a problem, it must be returned to an authorized distributor, service centre or shipped directly to our factory. Because of the complexity of the design and the risk of electrical shock, all repairs must be attempted only by qualified technical personnel.

If the unit needs to be shipped back to the factory, it must be sent in its original carton. If improperly packed, the unit may be damaged.

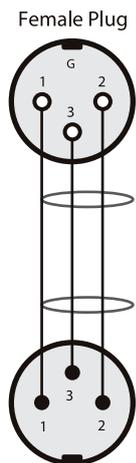
To obtain service, contact your nearest KV2 Audio Service Centre, Distributor or Dealer.

Input Cables and Output Cables

VHD PRE-EQ Input Cables

XLR output - XLR input

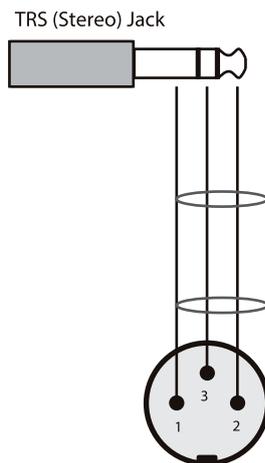
- Pin 2 - Pin 2 (Hot)
- Pin 3 - Pin 3 (Cold)
- Pin 1 - Pin 1 (Shield)



VHD PRE-EQ Male Plug

Jack output (balanced) - XLR input

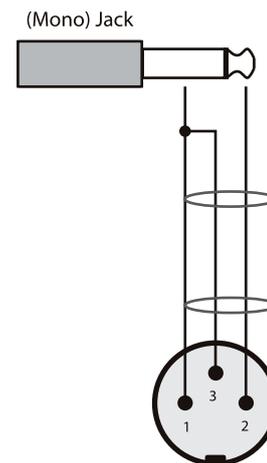
- Tip - Pin 2 (Hot)
- Ring - Pin 3 (Cold)
- Sleeve - Pin 1 (Shield)



VHD PRE-EQ Male Plug

Jack output (unbalanced) - XLR input

- Tip - Pin 2 (Signal)
- Sleeve - Pin 3 (Shield)
- Sleeve - Pin 1 (Shield)



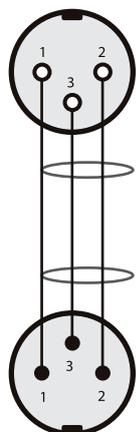
VHD PRE-EQ Male Plug

VHD PRE-EQ Output Cables

XLR output - XLR input

- Pin 2 - Pin 2 (Hot)
- Pin 3 - Pin 3 (Cold)
- Pin 1 - Pin 1 (Shield)

VHD PRE-EQ Female Plug

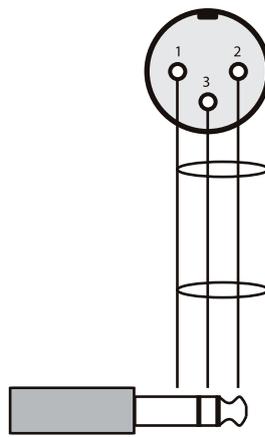


Male Plug

XLR output - Jack input (balanced)

- Pin 2 - Tip (Hot)
- Pin 3 - Ring (Cold)
- Pin 1 - Sleeve (Shield)

VHD PRE-EQ Female Plug

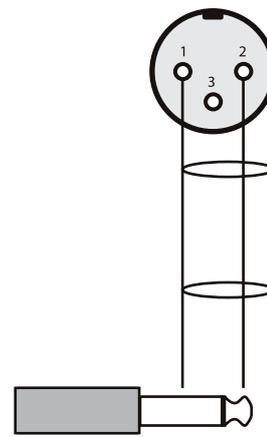


TRS (Stereo) Jack

XLR output - Jack input (unbalanced)

- Pin 2 - Tip (Signal)
- Pin 3 - No Connection
- Pin 1 - Sleeve (Shield)

VHD PRE-EQ Female Plug



TRS (Stereo) Jack

XLR Plugs seen from solder side



The Future of Sound.
Made Perfectly Clear.

KV2 Audio International

Nádražní 936, 399 01 Milevsko
Czech Republic

Tel.: +420 383 809 320

Email: info@kv2audio.com

www.kv2audio.com

KVV120152-00-01-0