



# COMPEX

## User Guide

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# The Future of Sound. Made Perfectly Clear.

At KV2 Audio our vision is to constantly develop technologies that eliminate distortion and loss of information providing a true dynamic representation of the source.

Our aim is to create audio products that absorb you, place you within the performance and deliver a listening experience beyond expectations.

## Important safety instructions

**Before using your COMPEX, be sure to carefully read the applicable items of these operating instructions and the safety suggestions.**

1. Read all product instructions.
2. Keep printed instructions, do not throw away.
3. Respect and review all warnings.
4. Follow all instructions.
5. Do not use this unit near water, in unprotected out door areas or in rain or wet conditions.
6. Clean only with dry cloth.
7. Do not block any ventilation openings.
8. Install in accordance with KV2 Audio's recommended installation instructions.
9. Do not install near any heat sources such as heat radiators, heat registers, stoves or other apparatus that produce heat.
10. Do not defeat the safety purpose of the grounding type plug. A grounding type plug has two blades and a third grounding connector. The third connector is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
11. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the COMPEX. The AC mains plug or appliance coupler shall remain readily accessible for operation.
12. Only use accessories specified by KV2 Audio.
13. The unit is intended for use in a 19" rack. Follow the mounting instructions.
14. Unplug COMPEX during lightning storms or when unused for long periods of time.
15. Refer all servicing to qualified service personnel. Servicing is required when the COMPEX has been damaged in any way, such as when the power-supply cord or plug has been damaged; liquid has been spilled or objects have fallen into the COMPEX; rain or moisture has entered the, COMPEX; the COMPEX has been dropped; or when for undetermined reasons the COMPEX does not operate normally.
16. Do not remove top or bottom covers. Removal of the cover will expose hazardous voltages. There are no user serviceable parts inside and removable may void the warranty.
17. An experienced user shall always supervise this professional audio equipment.

**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER.  
NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.**

**WARNING:** To prevent fire or electric shock, do not expose this equipment to rain or moisture.

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# COMPEX

**COMPEX - part number KVV 987 289 (230V)  
KVV 987 288 (115V)**



## Application

Designed as a tool to optimise recordings for playback at high volume levels

- Fixed Installations • Portable PA
- Speaker protection and level control
- Use with any KV2 Audio system

## Introduction

The COMPEX is a stereo (2 input x 2 output) Analog Dynamic Harmonics Control unit. COMPEX is a pure analog signal processor which provides adjustment of the audio signal from low quality signal sources.

Audio recordings are often purposely mixed to play on low quality audio devices with small speakers or headphones that have a reduced frequency range. These recordings are predetermined for playing at low acoustic levels, therefore they have very limited dynamic range. Secondly the use of low sampling rates in respect to MP3 and other digital audio formats causes considerable losses of harmonic content and delivers degraded reproduction.

When using these types of recordings as a signal source for speakers with large output power, high dynamic range and an expectation to propagate sound over long and wide distances, the poor tonal quality, high distortion and limited dynamic range is highlighted by making the listening experience very unpleasant.

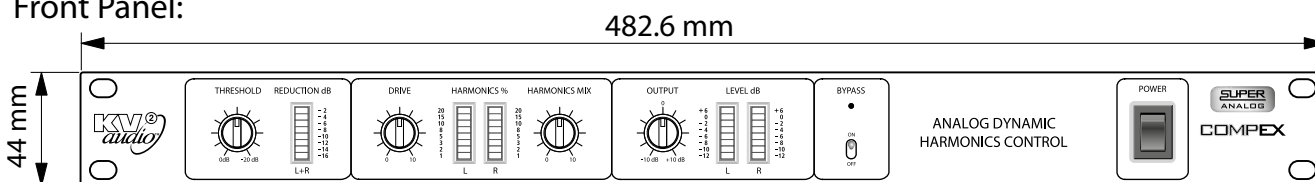
The COMPEX features an optical audio compressor, with level dependent filters for reduction of unpleasant high frequency distorted signals from bad signal sources and recordings (compressed audio, Mp3, bad CD, laptops etc.). The COMPEX also features a very high quality harmonics expander, which adds harmonic content to the depleted high frequencies on these recordings. The amount of harmonics added or changed is set by an individual potentiometer.

COMPEX also features a remote controlled bypass feature, useful for easy switching between high quality signal live audio (bypassed) and audio signal from recordings.

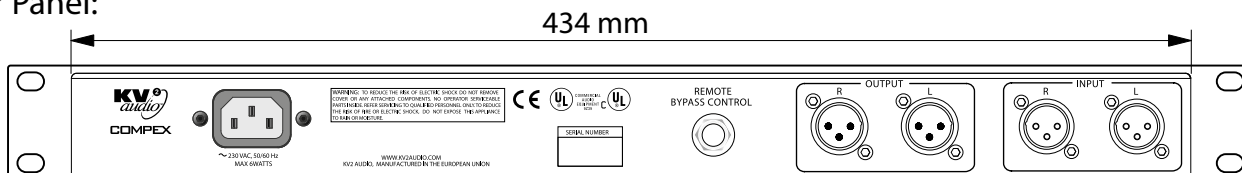
It is important to understand that when using the COMPEX the results achieved are of personal choice and there are no presets as each recording will vary. When operating, the user should aim to improve the audio content subtly by removing distortion and adding harmonic content.

## Dimensions

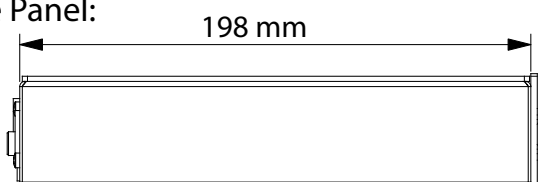
Front Panel:



Rear Panel:



Side Panel:



COMPEX · Introduction

## Unpacking

Unpack the COMPEX 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 COMPEX carton should contain:

- COMPEX Super Analogue unit
- User's Guide
- IEC Power Cable

## Rack mounting

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

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

## AC Power requirements

The COMPEX uses a standard IEC 3-pole AC connector. The device must be connected to a mains socket outlet with protective earthing connection. The COMPEX 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.

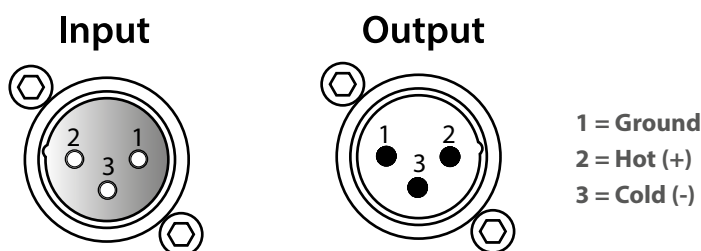
## Voltage requirements

The COMPEX 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 THE GREEN OR RED (BYPASS) - ON LED DOES NOT ILLUMINATE OR THE SYSTEM DOES NOT RESPOND TO AUDIO INPUT REMOVE AC POWER IMMEDIATELY. VERIFY THAT THE VOLTAGE IS WITHIN THE PROPER RANGE. IF THE PROBLEM PERSISTS, PLEASE CONTACT KV2 AUDIO OR AN AUTHORIZED SERVICE CENTER.**

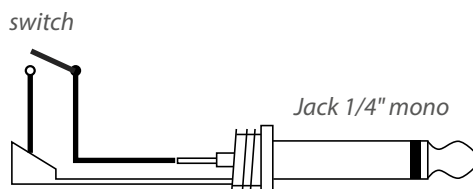
## Connector wiring

XLR Balanced Input and Output connectors

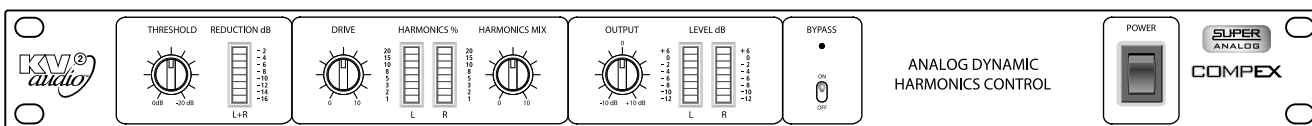


**CAUTION: IF IT IS NECESSARY TO CONVERT BALANCED OUTPUT TO UNBALANCED, IT IS IMPOSSIBLE TO SHORT HOT (2) OR COLD (3) PINS WITH GROUND (1). IN THIS EVENT THE LINE DRIVERS WILL CAUSE PERMANENT DISCONNECTION.**

## Remote bypass control wiring



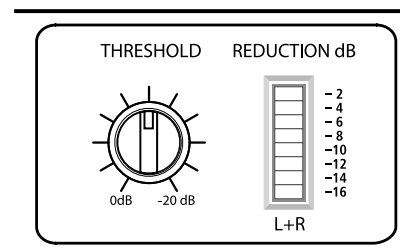
## Front Panel



### Threshold

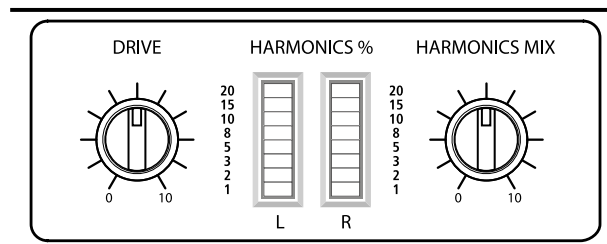
Adjusts the COMPEX's input levels to engage the compressor at a certain threshold from 0dB to -20dB. When this threshold is exceeded, the compressor reduces the signal. Signal reduction is indicated on the REDUCTION dB meter. During the time the compressor reduces the level, the level dependent filter is applied.

When the compressor is activated in conjunction with the dynamic filter, it reduces the unpleasant high frequency distortion which becomes more prominent with increasing level. This creates a bigger, not louder sound that is significantly less harsh and unpleasant when the system is driven at high levels.



### Drive

Adjusts COMPEX's expander drive level. This controls the amount of harmonics created from input signal and is indicated on the HARMONICS % level meters. Usually only a few percent of drive is required to enhance the high frequency range.

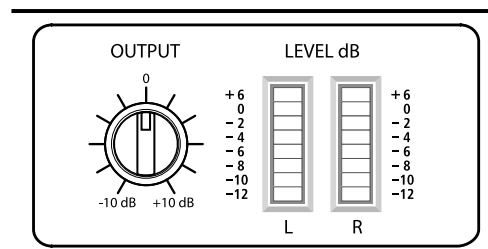


### Harmonics mix

The harmonic content created by the DRIVE control are mixed with original or compressed signal using the HARMONICS MIX knob. This 'lights up' the sound giving an impression of space and improved intelligibility. Again, use this control subtly to achieve the desired result.

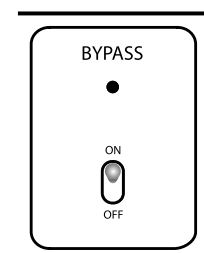
### Output

Adjusts the OUTPUT levels from -10dB to +10dB. The output level is indicated on the LEVEL dB meter. This helps compensate for any loss of gain in the compression process.

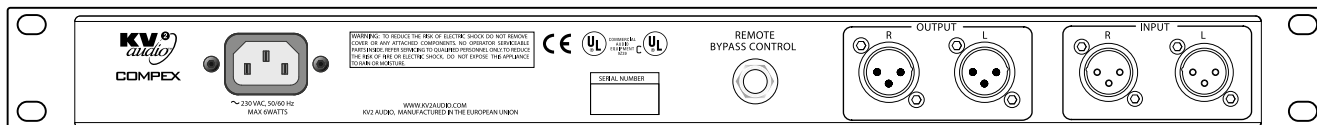


### Bypass

True bypass, bypasses all COMPEX features. Direct input signal is transferred on the COMPEX outputs. Bypass activation is indicated by the RED LED light above the bypass switch. Bypass can be activated remotely by using the REMOTE BYPASS Jack 1/4" input on the rear panel.

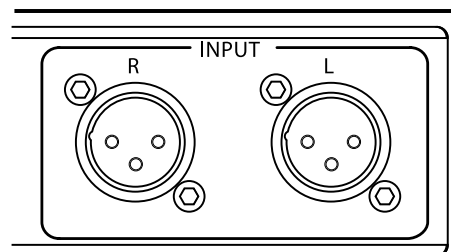


## Rear Panel



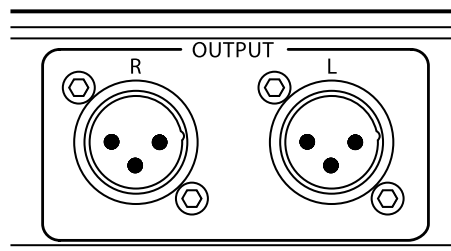
## Input

Balanced Female XLR connectors for connecting Left and Right audio signal.



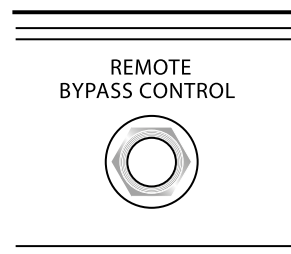
## Output

Balanced Male XLR connectors for sending Left and Right audio signal.



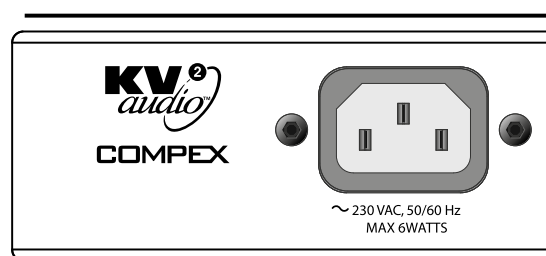
## Remote bypass control

The COMPEX's bypass can be activated or deactivated by the external switch connected by a standard Jack 1/4". To switch the bypass short the tip and sleeve of the jack.



## Plug power connector

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

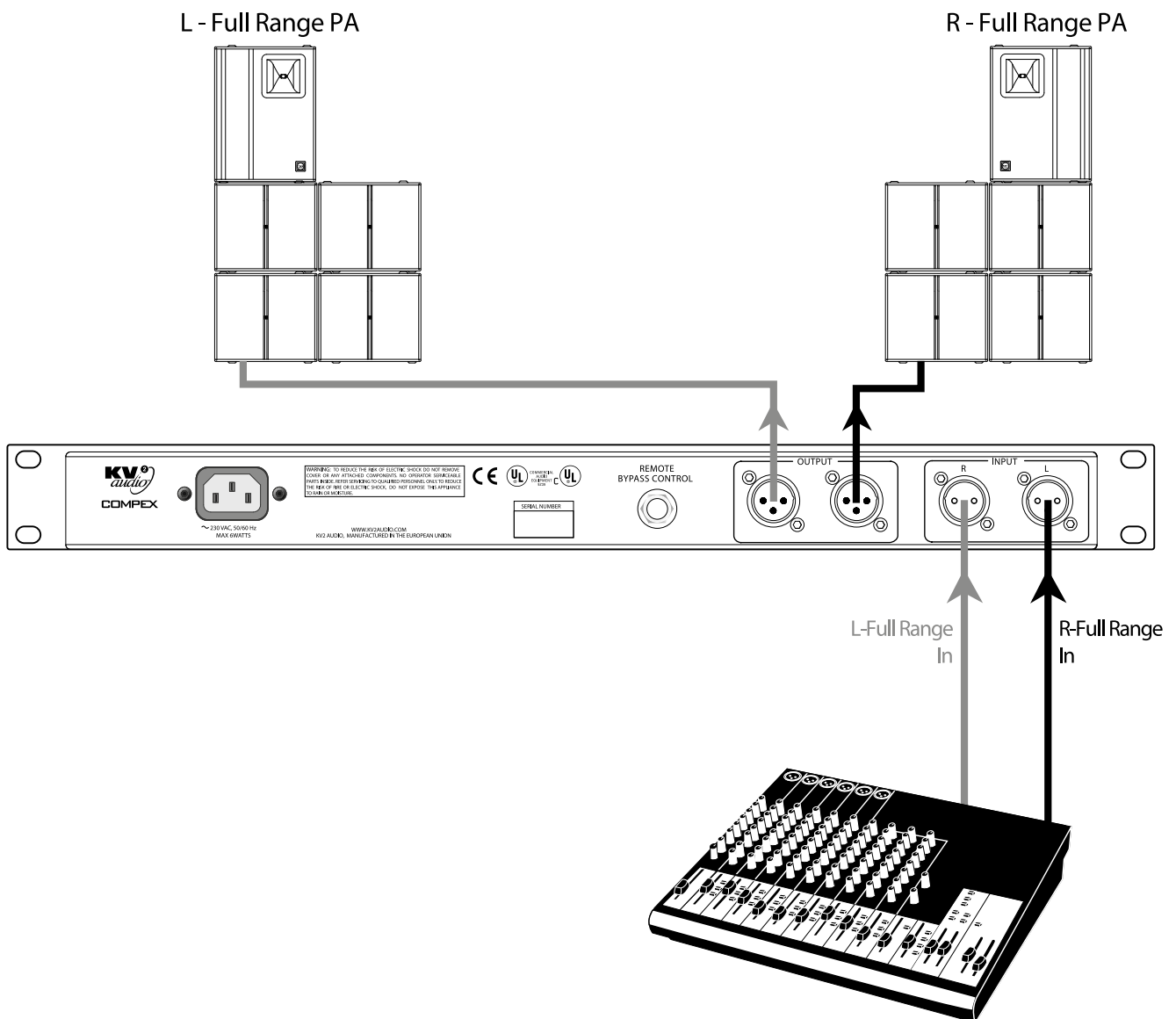


## Using the System

Connect the COMPEX between signal source directly after your mixing console and amplifier or active speaker system. The COMPEX uses balanced XLR connectors with standard signal level 0dBu. Outputs of the COMPEX features line drivers to maintain audio signal integrity over long cable lengths. Run the audio system at the desired level and set the compressor threshold level to reduce harshness for comfortable listening.

Set the drive to create desired level of harmonics and mix with the original signal. The right mix of harmonics will make the sound more open and clear. To compare the sound with the original source or to deactivate the unit you can use the bypass switch. The unit is bypassed, when switched off.

## COMPEX wiring example





## Specifications

<b>System Acoustic Performance</b>	
-3dB Response	20Hz to 100kHz
Dynamic Range	>130dB
Channel Crosstalk	90dB
Signal to Noise Ratio	110dB
Total Harmonic Distortion	0,001%
<b>Signal Input</b>	
Input Channels	2
Input Impedance	20kΩ (balanced)
Line input	XLR
<b>Signal Output</b>	
Output Channels	2
Output Impedance	50Ω
Line Output	XLR
<b>Features</b>	
Level Control	-10 / +10dB
System setup	Bypass (remote controlled)
Harmonics	Drive, 0 to 10
Equalization	Level dependent
Indicators	2x 2 Level LED bar graphs
<b>Compressor</b>	
Threshold	∞ to -20dB
Ratio	1:3
Indicators	1x LED bar graphs
<b>Harmonics</b>	
Range	0 to 10
<b>Power</b>	
Power Connector	IEC 320
Operating Voltage	115V / 230V
Operating Voltage Range	90 to 130V@60Hz   180 to 260V@50Hz
<b>Physical Dimensions</b>	
Height	44 mm (1.73")
Width	482.6 mm (19.0")
Depth	198 mm (7.8")
Weight	2.7 kg (5.96lbs)

## Warranty

Your COMPEX is covered against defects in material and workmanship.

Refer to your supplier for more details.

## Service

In the unlikely event that your COMPEX 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.









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Made Perfectly Clear.

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