



# Kosmos<sup>®</sup> v2 Spectrum Enhancement System

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## Operating Manual





Intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



Intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

**CAUTION:** Risk of electrical shock — DO NOT OPEN!

**CAUTION:** To reduce the risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

**WARNING:** To prevent electrical shock or fire hazard, this apparatus should not be exposed to rain or moisture, and objects filled with liquids, such as vases, should not be placed on this apparatus. Before using this apparatus, read the operating guide for further warnings.



Este símbolo tiene el propósito, de alertar al usuario de la presencia de “(voltaje) peligroso” sin aislamiento dentro de la caja del producto y que puede tener una magnitud suficiente como para constituir riesgo de descarga eléctrica.



Este símbolo tiene el propósito de alertar al usuario de la presencia de instrucciones importantes sobre la operación y mantenimiento en la información que viene con el producto.

**PRECAUCION:** Riesgo de descarga eléctrica ¡NO ABRIR!

**PRECAUCION:** Para disminuir el riesgo de descarga eléctrica, no abra la cubierta. No hay piezas útiles dentro. Deje todo mantenimiento en manos del personal técnico cualificado.

**ADVERTENCIA:** Para prevenir choque eléctrico o riesgo de incendios, este aparato no se debe exponer a la lluvia o a la humedad. Los objetos llenos de líquidos, como los floreros, no se deben colocar encima de este aparato. Antes de usar este aparato, lea la guía de funcionamiento para otras advertencias.



Ce symbole est utilisé dans ce manuel pour indiquer à l'utilisateur la présence d'une tension dangereuse pouvant être d'amplitude suffisante pour constituer un risque de choc électrique.



Ce symbole est utilisé dans ce manuel pour indiquer à l'utilisateur qu'il ou qu'elle trouvera d'importantes instructions concernant l'utilisation et l'entretien de l'appareil dans le paragraphe signalé.

**ATTENTION:** Risques de choc électrique — NE PAS OUVRIR!

**ATTENTION:** Afin de réduire le risque de choc électrique, ne pas enlever le couvercle. Il ne se trouve à l'intérieur aucune pièce pouvant être réparée par l'utilisateur. Confiez l'entretien et la réparation de l'appareil à un réparateur Peavey agréé.

**AVIS:** Dans le but de réduire les risques d'incendie ou de décharge électrique, cet appareil ne doit pas être exposé à la pluie ou à l'humidité et aucun objet rempli de liquide, tel qu'un vase, ne doit être posé sur celui-ci. Avant d'utiliser de cet appareil, lisez attentivement le guide fonctionnant pour avertissements supplémentaires.



Dieses Symbol soll den Anwender vor unisolierten gefährlichen Spannungen innerhalb des Gehäuses warnen, die von Ausreichender Stärke sind, um einen elektrischen Schlag verursachen zu können.



Dieses Symbol soll den Benutzer auf wichtige Instruktionen in der Bedienungsanleitung aufmerksam machen, die Handhabung und Wartung des Produkts betreffen.


**VORSICHT:** Risiko — Elektrischer Schlag! Nicht öffnen!

**VORSICHT:** Um das Risiko eines elektrischen Schlages zu vermeiden, nicht die Abdeckung entfernen. Es befinden sich keine Teile darin, die vom Anwender repariert werden könnten. Reparaturen nur von qualifiziertem Fachpersonal durchführen lassen.

**WARNUNG:** Um elektrischen Schlag oder Brandgefahr zu verhindern, sollte dieser Apparat nicht Regen oder Feuchtigkeit ausgesetzt werden und Gegenstände mit Flüssigkeiten gefüllt, wie Vasen, nicht auf diesen Apparat gesetzt werden. Bevor dieser Apparat verwendet wird, lesen Sie bitte den Funktionsführer für weitere Warnungen.

## IMPORTANT SAFETY INSTRUCTIONS

**WARNING:** When using electrical products, basic cautions should always be followed, including the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.
11. Only use attachments/accessories provided by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13.  Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Never break off the ground pin. Write for our free booklet "Shock Hazard and Grounding." Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
16. If this product is to be mounted in an equipment rack, rear support should be provided.
17. Note for UK only: If the colors of the wires in the mains lead of this unit do not correspond with the terminals in your plug, proceed as follows:
  - a) The wire that is colored green and yellow must be connected to the terminal that is marked by the letter E, the earth symbol, colored green or colored green and yellow.
  - b) The wire that is colored blue must be connected to the terminal that is marked with the letter N or the color black.
  - c) The wire that is colored brown must be connected to the terminal that is marked with the letter L or the color red.
18. This electrical apparatus should not be exposed to dripping or splashing and care should be taken not to place objects containing liquids, such as vases, upon the apparatus.
19. Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:



Duration Per Day In Hours	Sound Level dBA, Slow Response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Earplugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

**SAVE THESE INSTRUCTIONS!**

# ENGLISH

## **Kosmos® v2 Spectrum Enhancement System**

Congratulations on the purchase of your new Kosmos® v2.

The Kosmos® v2 is a second generation subharmonic and stereo image enhancement system. As the successor to the award-winning Kosmos®, it incorporates improved circuitry and adds features to provide even more functionality for live sound and recording applications. Like the original Kosmos®, it can provide planet rattling bass as its subharmonic processor watches the source material, analyzes the bass, then generates additional phase-synced low frequencies an octave below it. Borrowing from the Kosmos® Pro, the damping (tracking) has two preset ranges.

When using the Kosmos® v2, it is recommended that other equalization (especially output equalization) be set flat. Adjust the Kosmos® v2 to optimize the tone quality, then make any fine adjustments with the other gear. You may find that little needs to be tweaked, since the Kosmos® v2 corrects deficiencies in the speaker system. Bass boost applied before the Kosmos® v2 may defeat what you are trying to accomplish by causing the sound to be muddy or distorted.

### **FEATURES:**

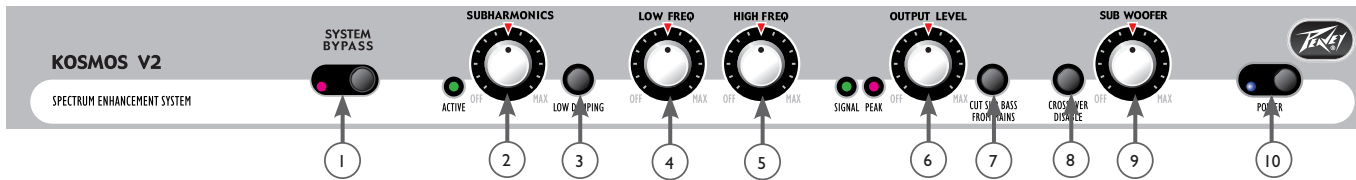
- Creates intelligent, phase-synced subharmonics that don't overpower existing material
- Dynamic source tracking yields tight, clean bass sounds
- Subharmonic activity indicator shows processing status
- A specially tuned low frequency circuit, compliments the subharmonics and can be used to fatten the low end
- High frequency image enhancement provides atmosphere through improved stereo separation and clarity
- A rear panel stereo/mono switch allows use as a channel insert or in a monophonic system
- Internal 90 Hz crossover signal can be removed from the subwoofer output when used as a side-chain effect
- Master output level controls left, right, and subwoofer output levels simultaneously
- All inputs & outputs are balanced XLR or 1/4" TRS jacks
- Signal and Peak lamps monitor signal activity and warn of overload
- Independent subwoofer output level control

Please read this guide carefully to ensure your personal safety as well as the safety of your equipment

### **Connecting your Kosmos® II in your signal chain:**

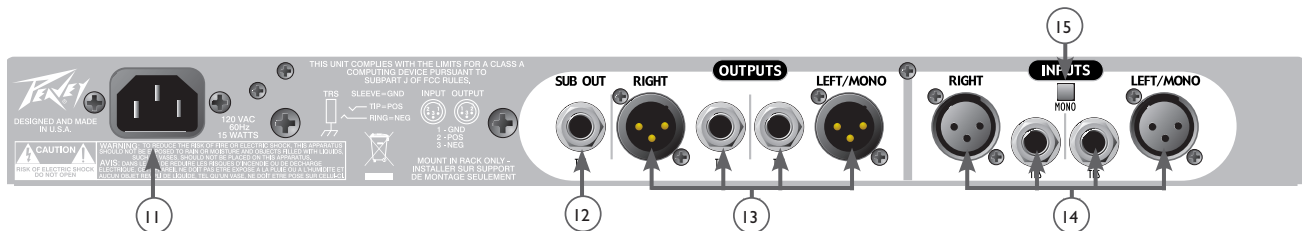
Direct: Insert Kosmos® v2 between the output of the mixer and the input of the power amp

As An Effect: Create an effects loop between your mixer and Kosmos® v2 by connecting an Aux send from your mixer into the Kosmos® v2, and return the signal to your mixer through an aux return or channel strip input. See MONO (15) on page 9.



- 1 System Bypass**  
 This switch is a hard bypass of all functions and disables the subwoofer output. The status is indicated by a red lamp, which lights when the unit is off-line. Because the system bypass switch circumvents the internal circuitry, it functions even when no power is applied to the unit.
- 2 Subharmonics**  
 This control adds a synthesized phase synced bass signal one octave lower than what is present in the source. The adjacent LED indicates sub bass activity. This feature generates bass subharmonics that would register on a seismograph, yet are pleasing to the ear. No processing occurs when the input signal is outside the defined range. This thickens and deepens the bass of most program material without clouding the midrange, and is especially effective on bass drums. Consequently, speaker systems seem larger and more defined. Since low frequencies can be boosted significantly, care must be taken to prevent amplifier clipping and speaker damage by excessive bass levels. It's louder than you think.
- 3 Low Damping**  
 Perfect for acoustic and bass guitars, this switch loosens the tracking, allowing the subharmonics to ring out with less damping. (Normally, the subharmonics tightly follow the envelope of the input bass signal, resulting in a sharp, clean bass, which works best for kick drums and other percussive sounds.) Lower damping has a lower peak value, but can have a higher average level (depending on the source), so the level of the subharmonics may need to be reduced.
- 4 Low Freq**  
 This control adds a specific band of bass frequencies (natural, not synthesized) to the bass enhancement mix. It is voiced to compliment the subharmonics and is used to even out the low end balance. This control can be considered as a waveform adjustment tool when used in conjunction with the subharmonic level control, or used alone for bass boost.
- 5 High Freq**  
 This is a combination control. It simultaneously adjusts high frequency boost and stereo width. The minimum position is the flat setting; as the control is rotated clockwise, the left-right image becomes wider and clarity is increased. It has been designed to pull vocals more to the front of the mix while giving them a three dimensional quality.
- 6 Output Level**  
 This is the master volume control of the Kosmos® v2 processor. The left, right, and subwoofer outputs are affected simultaneously.
- 7 Cut Sub Bass From Mains**  
 This switch removes the subharmonics and the low frequency effects from the main left and right outputs. This allows the added bass enhancements to be sent only to the subwoofer output when a system with subs is used. When the left and right speakers cannot handle the additional bass produced, this is the best way to route low frequency energy. The high frequency effects are always sent to the mains and are not affected by this switch's setting.
- 8 Crossover Disable**  
 Built into the Kosmos® v2 is a 90 Hz crossover filter, which is normally sent to the subwoofer output with the bass enhancement signals. This switch removes that signal, leaving only the bass enhancements. This is useful when the Kosmos® v2 is used as a side chain effect, when only the added bass information is desired.

## Rear Panel



### 9 Subwoofer

This control sets the output level of the subwoofer signal, which is the sum of the subharmonic output, the low frequency bass output, and the information from the 90 Hz cross-over network (if not disabled by the crossover disable switch). When the bypass switch is engaged the subwoofer is disabled.



### 10 Power

Depressing the power switch supplies power to the unit.



### 11 IEC Mains

Connect the supplied AC mains cord here. Make sure that the correct voltage is applied, or damage to the unit could result. (See markings on unit.)

#### US DOMESTIC AC MAINS CORD:

The mains cord supplied with the unit is a heavy-duty, 3-conductor type with a conventional 120 VAC plug with ground pin. If the outlet used does not have a ground pin, a suitable grounding adapter should be used, and the third wire should be grounded properly.

**Never remove or cut the ground pin of the line cord plug. The console is supplied with a properly rated line cord. If lost or damaged, replace this cord with one of the proper rating.**



#### NOTE FOR UK ONLY:

If the colors of the wires in the mains lead of this unit do not correspond with the colored markings identifying terminals in your plug, proceed as follows: (1) The wire that is colored green and yellow must be connected to the terminal marked by the letter E, or by the earth symbol, or colored green or green and yellow. (2) The wire that is colored blue must be connected to the terminal that is marked with the letter N, or colored black. (3) The wire that is colored brown must be connected to the terminal that is marked with the letter L or colored red.

### 12 Subwoofer Output

This 1/4" TRS electronically balanced output can be used in either balanced (with a 1/4" TRS jack) or unbalanced (standard 1/4" jack) mode. The levels will automatically match the configuration. This output supplies the signal for the subwoofer amplifier (line level).

### 13 Left and Right Outputs

The left and right outputs are electronically balanced, with pin 2 (and tip) positive. The XLR and 1/4" TRS phono jacks are directly wired in parallel. They should not be used on the same channel at the same time since the output balance would not necessarily be maintained, especially if a balanced and an unbalanced connector were used.

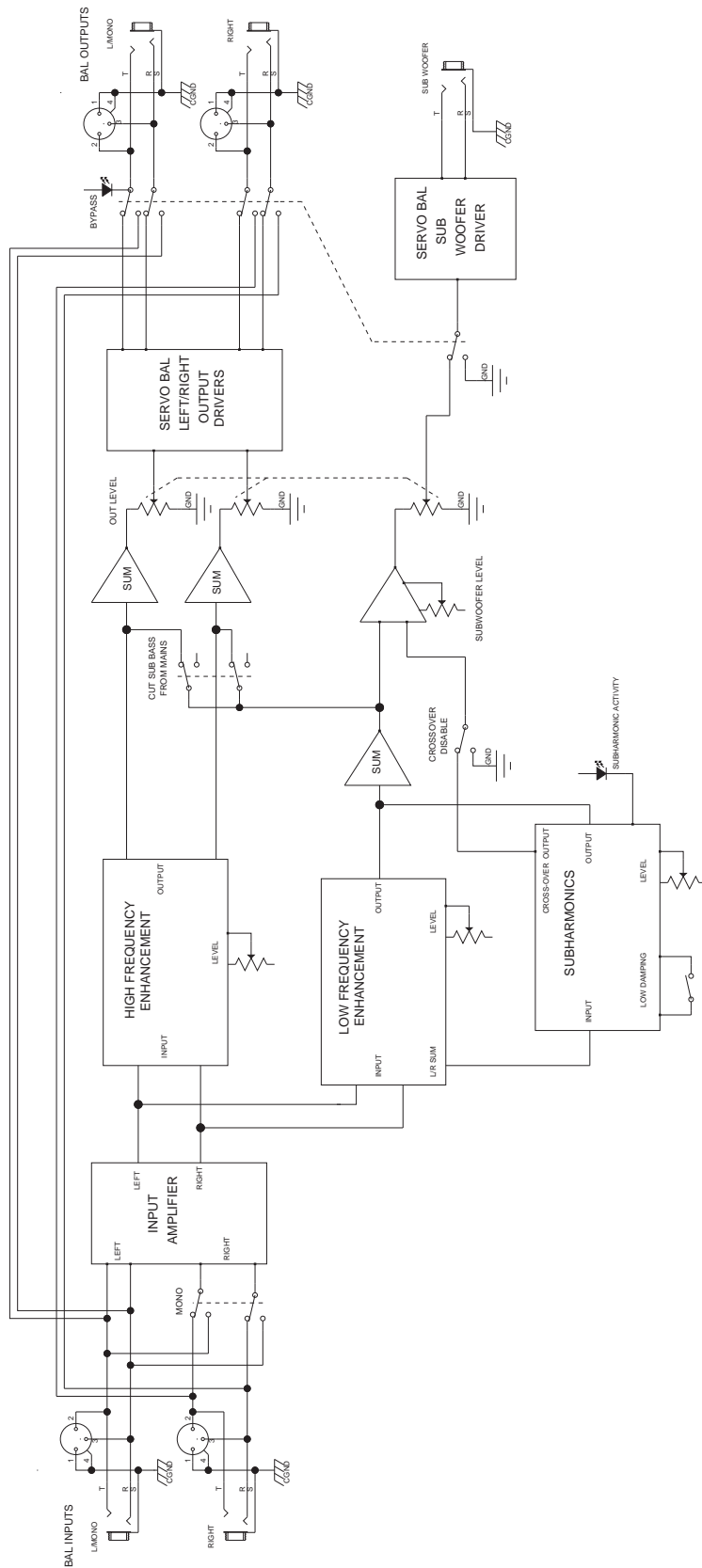
### 14 Inputs

The left and right input jacks are balanced with pin 2 (and tip) positive. The XLR and 1/4" TRS jacks are directly wired in parallel. Balanced or unbalanced inputs can be used. As mentioned above, do not use both the XLR and the 1/4" inputs on the same channel at the same time or an imbalance could occur, compromising the unit's hum and noise rejection.

### 15 Mono

This switch converts the Kosmos® v2 to monophonic operation by selecting the left/mono input jack as the source and routing it to both the left and right signal paths internally. The right input jacks are disabled in this mode. Both the left and right outputs function, with only the high frequency stereo circuitry causing a difference between them. When the unit is used as an insert effect, the switch should be set to mono to operate properly.

# Kosmos® II Block Diagram



## Kosmos® V2 Specifications

### Frequency Response

Process Mode: Program Controlled

Bypassed: <10Hz to 80KHz +/-1 dB

### Dimensions (HxWxD)

1.75" x 19.0" x 9.0"

(4.45 cm x 48.6 cm x 22.86 cm)

### Weight

Net: 7.1 lbs (3.22 kg)

Shipping Weight: 8.7 lbs (3.95 kg)

### THD+N (10Hz -80K Hz BW)

Process Mode:  $\leq .003\%$

Bypassed:  $\leq .001\%$

### Power Requirements

8 Watts @ 120VRMS 50/60 Hz

8 Watts @ 230VRMS 50/60 Hz

### Signal to Noise

88 dB

### Crosstalk

<75 dB @ 1KHz

### CMRR

60 dB

### Nominal Input Level

+4 dBu (1.23 VRMS)

### Max Output

+26 dBu

### Max Input

+22 dBu

### Input Impedance

20K ohms balanced (Pin 2 positive),  
10K ohms unbalanced

### Output Impedance

200 ohms balanced (Pin 2 positive),  
100 ohms unbalanced

Features and specifications subject to change without notice.





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