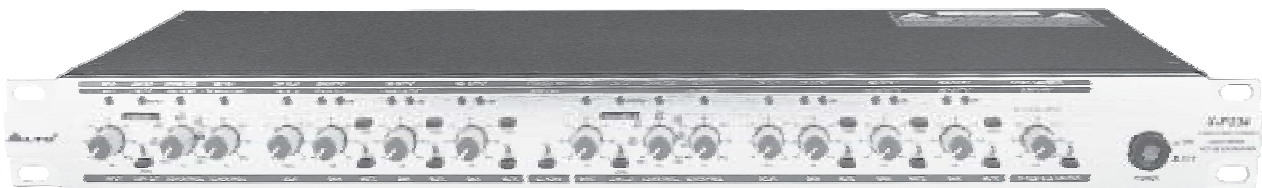


User's Manual

X - P234

2-WAY/3-WAY STEREO
4-WAY MONO
ACTIVE CROSSOVER



www.altoproaudio.com

Version 2.0 Dec. 2002

— English —

SAFETY RELATED SYMBOLS



This symbol, wherever used, alerts you to the presence of un-insulated and dangerous voltages within the product enclosure. These are voltages that may be sufficient to constitute the risk of electric shock or death.



This symbol, wherever used, alerts you to important operating and maintenance instructions. Please read.



Protective Ground Terminal



AC mains (Alternating Current)



Hazardous Live Terminal

ON: Denotes the product is turned on.

OFF: Denotes the product is turned off.

WARNING

Describes precautions that should be observed to prevent the possibility of death or injury to the user.

CAUTION

Describes precautions that should be observed to prevent damage to the product.

WARNING

• Power Supply

Ensure that the mains source voltage (AC outlet) matches the voltage rating of the product. Failure to do so could result in damage to the product and possibly the user.

Unplug the product before electrical storms occur and when unused for long periods of time to reduce the risk of electric shock or fire.

• External Connection

Always use proper ready-made insulated mains cabling (power cord). Failure to do so could result in shock/death or fire. If in doubt, seek advice from a registered electrician.

• Do Not Remove Any Covers

Within the product are areas where high voltages may present. To reduce the risk of electric shock do not remove any covers unless the AC mains power cord is removed.

Covers should be removed by qualified service personnel only.

No user serviceable parts inside.

• Fuse

To prevent fire and damage to the product, use only

the recommended fuse type as indicated in this manual. Do not short-circuit the fuse holder. Before replacing the fuse, make sure that the product is OFF and disconnected from the AC outlet.

• Protective Ground

Before turning the product ON, make sure that it is connected to Ground. This is to prevent the risk of electric shock.

Never cut internal or external Ground wires. Likewise, never remove Ground wiring from the Protective Ground Terminal.

• Operating Conditions

Always install in accordance with the manufacturer's instructions.

To avoid the risk of electric shock and damage, do not subject this product to any liquid/rain or moisture. Do not use this product when in close proximity to water.

Do not install this product near any direct heat source.

Do not block areas of ventilation. Failure to do so could result in fire.

Keep product away from naked flames.

IMPORTANT SAFETY INSTRUCTIONS

Read these instructions

Follow all instructions

Keep these instructions. Do not discard.

Heed all warnings.

Only use attachments/accessories specified by the manufacturer.

• Power Cord and Plug

Do not tamper with the power cord or plug. These are designed for your safety.

Do not remove Ground connections!

If the plug does not fit your AC outlet seek advice from a qualified electrician.

Protect the power cord and plug from any physical stress to avoid risk of electric shock.

Do not place heavy objects on the power cord. This could cause electric shock or fire.

• Cleaning

When required, either blow off dust from the product or use a dry cloth.

Do not use any solvents such as Benzol or Alcohol. For safety, keep product clean and free from dust.

• Servicing

Refer all servicing to qualified service personnel only.

Do not perform any servicing other than those instructions contained within the User's Manual.

Preface

Dear Customer:

Thanks for choosing ▲LTO Active Crossover and thanks for choosing the one of results of ▲LTO AUDIO TEAM job and researches.

For our ▲LTO AUDIO TEAM, music and sound are more than a job...are first of all passion and let us say...our obsession!

We have been designing professional audio products for a long time in cooperation with some of the major brands in the world in the audio field.

The ▲LTO line presents unparalleled analogue and digital products made by Musicians for Musicians in our R&D Centres in Italy, Netherlands, United Kingdom and Taiwan. The core of our digital audio products is a sophisticated DSP (Digital sound processor) and a large range of state of the art algorithms which have been developed by our Software Team for the last 7 years.

Because we are convinced you are the most important member of ▲LTO AUDIO TEAM and the one confirming the quality of our job, we'd like to share with you our work and our dreams, pay attention to your suggestions and your comments.

Following this idea we create our products and we will create the new ones! From our side, we guarantee you and we will guarantee you also in future the best quality, the best fruits of our continuous researches and the best prices.

Our ▲LTO Active Crossover is the result of many hours of listening and tests involving common people, area experts, musicians and technicians.

The results of this effort is an efficient and effective electronic crossover solution, which will give you precise control superior sound from your loudspeaker system.

Nothing else to add, but that we would like to thank all the people that made the ▲LTO Active Crossover a reality available to our customers, and thank our designers and all the ▲LTO staff, there to make possible the realization of products containing our idea of music and sound and there to support you, our customers, in the best way, conscious that you are our best richness.

Thank you very much.

▲LTO AUDIO TEAM

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1. INTRODUCTION

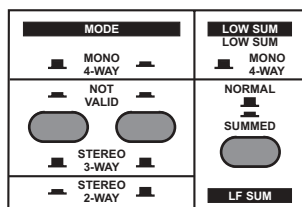
Thank you very much for expressing your confidence in ▲LTO products by purchasing our X-P234 Active Crossover. The ▲LTO X-P234 Active Crossover is an ideal crossover solution for most small and large PA systems, live sound venues, commercial installations, recording studio monitors and DJ setups. In addition to its flexibility in configuring to different sound systems, the X-P234 Active Crossover has advanced features such as CD Horn Equalization for constant directivity horn compensation, Phase Switches for instant phase correction and Mute Switches per frequency band.

The X-P234 Active Crossover is a single rack unit, dual channels electronic crossover capable of managing the frequency control for stereo 2-way/3-way and mono 4-way speaker systems.

2. FEATURE LIST

- Single rack unit (1U)
- Professional high-precision stereo 2-way/3-way/mono 4-way crossover
- World-class performance 24 dB per octave Linkwitz-Riley filters
- Absolutely flat summed amplitude response, zero phase difference
- Individual output level controls for all bands
- Individual limiter on each output for optimal loudspeaker protection
- Individual output mutes for easy band adjustment
- Individual phase reverse switches for instant phase correction
- Switchable 25 Hz subsonic filter on each input for low-frequency driver protection
- "Low Sum "function provides low-level mono output for subwoofer operation
- Adjustable time delay for phase alignment between drivers
- CD horn equalization for constant directivity horn compensation
- Servo-balanced, gold-plated XLR connectors for all inputs and outputs
- Ultra high-precision potentiometers for ultimate accuracy and repeatability
- High-quality components and exceptionally rugged construction for long life and reliability
- Shielded toroidal mains transformer for minimal noise interference

3. CONTROL ELEMENTS



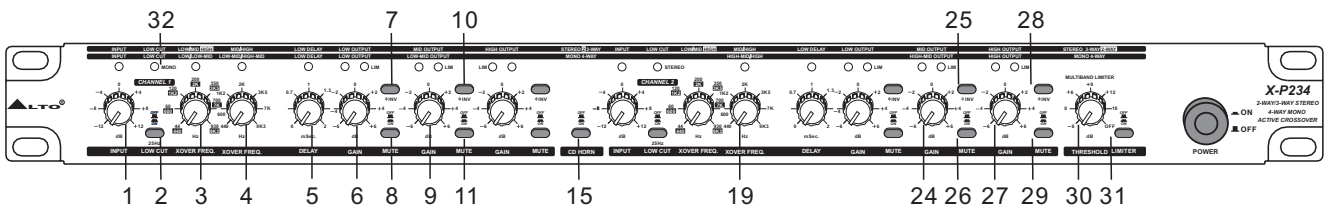
The X-P234 Active Crossover can be operated in three modes: 4-way mono / 3-way stereo and 2-way stereo, please activate each operation mode by means of the two Mode Buttons on the rear panel:

Operation Mode		Mode Button status	
		Left Button	Right Button
3.1	Mono 4-way operation	Out	Pressed
3.2	Stereo 3-way operation	Out	Out
3.3	Stereo 2-way operation	Pressed	Out

Since you selected the direct operation mode, the Stereo LED on the front panel lights up to indicate the stereo operation in 3.2 & 3.3, and Mono LED lights up to indicate the mono operation in 3.1. The functions of most of these controls are different in each mode selection, detail you can refer to the panel description.

3.1 Mono 4-Way Operation

a. The Front Panel



1. Input Level Control

This knob is used to adjust the input level, which can be varied from -12dB to +12dB.

2. Low Cut

Engage this button to add a 25Hz low cut filter into the input signal path.

3. Low/Low-Mid XOVER FREQ.

This knob adjusts the Low/Low-Mid crossover frequency from 44Hz to 930Hz, based on which, the Low/Low-Mid frequencies can be output separately.

4. Low-Mid/High-Mid XOVER FREQ.

This knob adjusts the Low-Mid/High-Mid crossover frequency from 440Hz to 9.3KHz, based on which, the Low-Mid/High-Mid frequencies can be output separately.

5. Delay Control

This knob adjusts the delay time from 0 to 2ms for the low frequencies output, which is proved to be a useful function in the PA applications, esp. in the large size concert environment.

6. Low Output Gain Control

This control is used to attenuate or boost the low frequencies output by 6dB.

7. Phase Inversion for Low Output

This button will reverse the phase of the low frequencies output by 180°, so that, the low frequencies cancellation in some fields can be compensated for.

8. Mute for Low Output

This button mutes the low frequencies output.

9. Low-Mid Output Gain Control

This control is used to attenuate or boost the low-middle frequencies output by 6dB.

10. Phase Inversion for Low-Mid Output

This button will reverse the phase of the low-middle frequencies output by 180°, so that, the low-middle frequencies cancellation in some fields can be compensated for.

11. Mute for Low-Mid Output

This button mutes the low-middle frequencies' output.

15. CD Horn

Abbreviation for 'Constant Directivity Horn', this button can be used to boost the high frequencies, so that the power loss of it during the long distance transmission can be compensated for.

19. High-Mid/High XOVER FREQ.

This knob adjusts the High-Mid/High crossover frequency from 440Hz to 9.3KHz, based on which, the High-Mid/High frequencies can be output separately.

24. High-Mid Output Gain Control

This control is used to attenuate or boost the high-middle frequencies output by 6dB.

25. Phase Inversion for High-Mid Output

This button will reverse the phase of the high-middle frequencies output by 180°, so that, the high-middle frequencies cancellation in some fields can be compensated for.

26. Mute for High-Mid Output

This button mutes the high-middle frequencies output.

27. High Output Gain Control

This control is used to attenuate or boost the high frequencies output by 6dB.

28. Phase Inversion for High Output

This button will reverse the phase of the high frequencies output by 180°, so that, the high frequencies cancellation in some fields can be compensated for.

29. Mute for High Output

This button mutes the high frequencies output.

30. Threshold Setting

To prevent any damage to your speakers effectively, set the threshold of the multi-band limiter at the proper position.

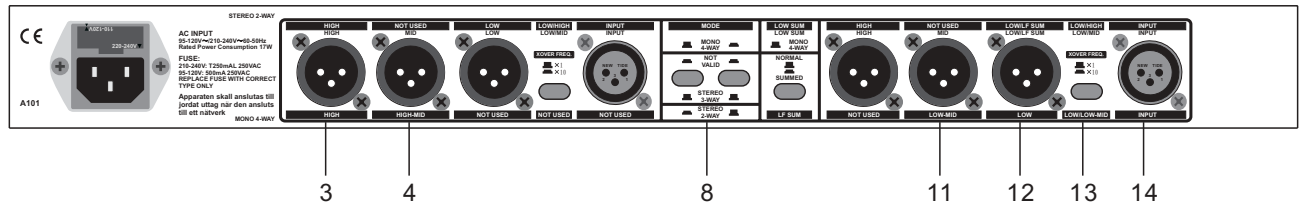
31. Limiter Control

Engage this button to activate each band's limiter.

32. Mono Mode Indicator

This LED lights up when the operation is selected in Mono mode.

b. The Rear Panel



3. High Output Connector

This XLR balanced connector is used to output the high frequencies signal.

4. High-Mid Output Connector

This XLR balanced connector is used to output the high-middle frequencies signal.

8. Operation Mode Button

Release the left button, and press the right button to enter into the mono 4-way operation mode.

11. Low-Mid Output Connectors

This XLR balanced connector is used to output the low-middle frequencies signal.

12. Low Output Connector

This XLR balanced connector is used to output the low frequencies signal.

13. Low/Low-Mid XOVER FREQ Multiplier

Combined with the usage of the Low/Low-Mid XOVER FREQ. (3) knob on the front panel, this button can switch the crossover frequency range to 440Hz to 9.3kHz.

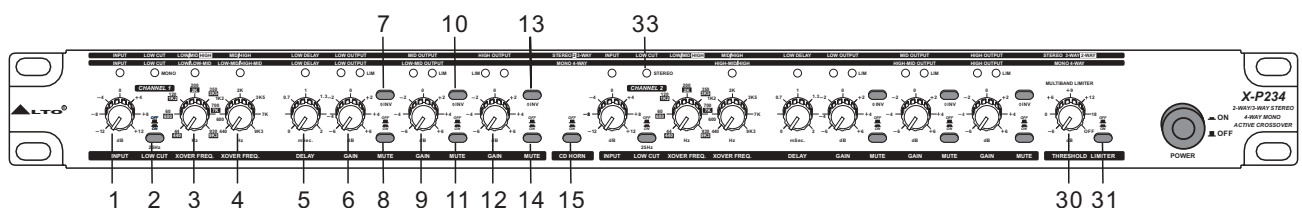
Please ensure that, your speaker management system must be powered off before you proceed this switching, otherwise, the offensive switching noise can be heard through your speakers.

14. Input Connector

This balanced XLR connector is used to input the mono program sources.

3.2 Stereo 3-Way Operation

a. The Front Panel



1. Input Level Control

This knob is used to adjust the input level, which can be varied from -12dB to +12dB.

2.Low Cut

Engage this button to add a 25Hz low cut filter into the input signal path.

3.Low/Mid XOVER FREQ. Control

This knob adjusts the Low/Mid crossover frequency from 44Hz to 930Hz, based on which, the Low/Mid frequencies can be output separately.

4.Mid/High XOVER FREQ.

This knob adjusts the Mid/High crossover frequency from 440Hz to 9.3kHz, based on which, the Mid/ High frequencies can be output separately.

5.Delay Control

This knob adjusts the delay time from 0 to 2ms for the low frequencies output, which is proved to be a useful function in the PA applications, esp. in the large size concert environment.

6.Low Output Gain Control

This control is used to attenuate or boost the low frequencies output by 6dB.

7.Phase Inversion for Low Output

This button will reverse the phase of the low frequencies output by 180°, so that, the low frequencies cancellation in some fields can be compensated for.

8.Mute for Low Output

This button mutes the low frequencies output.

9.Mid Output Gain Control

This control is used to attenuate or boost the middle frequencies output by 6dB.

10.Phase Inversion for Mid Output

This button will reverse the phase of the middle frequencies output by 180°, so that, the middle frequencies cancellation in some fields can be compensated for.

11.Mute for Mid Output

This button mutes the middle frequencies' output.

12.High Output Gain Control

This control is used to attenuate or boost the high frequencies output by 6dB.

13.Phase Inversion for High Output

This button will reverse the phase of the high frequencies output by 180°, so that, the high frequencies cancellation in some fields can be compensated for.

14.Mute for High Output

This button mutes the high frequencies output.

15.CD Horn

Abbreviation for 'Constant Directivity Horn', this button can be used to boost the high frequencies, so that the power loss of it during the long distance transmission can be compensated for.

30.Threshold Setting

To prevent any damage to your speakers effectively, set the threshold of the multi-band limiter at the proper position.

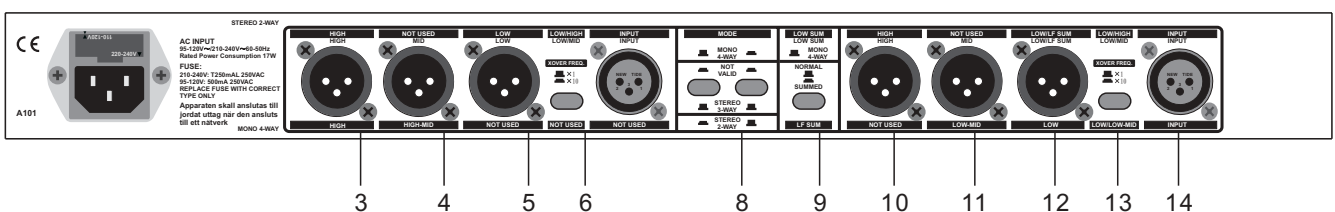
31.Limiter Control

Engage this button to activate each band's limiter.

33.Stereo Mode Indicator

This LED lights up when the operation is selected in stereo mode.

b. The Rear Panel



3.High Output Connectors (3 and 10)

These two XLR balanced connectors are used to output the high frequencies signal.

4.Mid Output Connectors (4 and 11)

These two XLR balanced connectors are used to output the middle frequencies signal.

5.Low/LF SUM output connectors (5 and 12)

These two XLR balanced connectors are used to output the low frequencies signal.

6.Low/Mid XOVER FREQ. Multiplier (6 and 13)

Combined with the usage of the Low/Mid XOVER FREQ. (3) knob on the front panel, this button can switch the crossover frequency range to 440Hz to 9.3kHz.

Please ensure that, your speaker management system must be powered off before you proceed this switching, otherwise, the offensive switching noise can be heard through your speakers.

8.Operation Mode Option

Release both buttons to enter into the stereo 3-way operation mode.

9.Low Sum Control

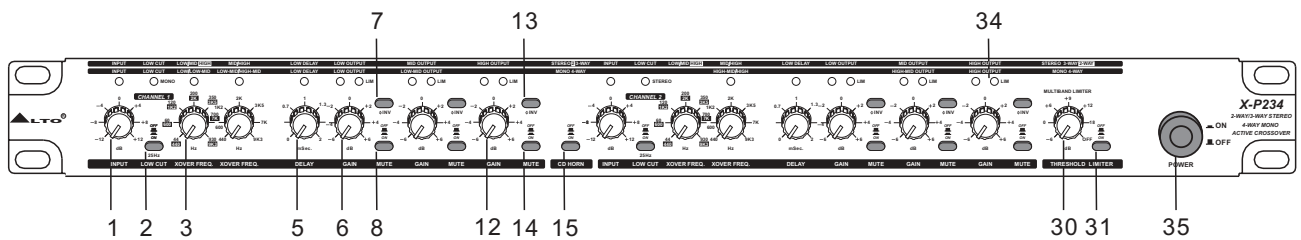
Press this button to sum up the low frequencies output of Channel1 and Channel2, and the summed signal can be output from Channel1.

14.Input Connector

These two balanced XLR connectors are used to input the program sources.

3.3 Stereo 2-Way Operation

a. The Front Panel



1.Input Control

This knob is used to adjust the input level, which can be varied from -12dB to +12dB.

2.Low Cut

Engage this button to add a 25Hz low cut filter into the input signal path.

3.Low/High XOVER FREQ.

This knob adjusts the Low/High crossover frequency from 44Hz to 930Hz, based on which, the Low/High frequencies can be output separately.

5.Delay Control

This knob adjusts the delay time from 0 to 2ms for the low frequencies output, which is proved to be a useful function in the PA applications, esp. in the large size concert environment.

6.Low Output Gain Control

This control is used to attenuate or boost the low frequencies output by 6dB.

7.Phase Inversion for Low Output

This button will reverse the phase of the low frequencies output by 180°, so that, the low frequencies cancellation in some fields can be compensated for.

8.Mute for Low Output

This button mutes the low frequencies output.

12.High Output Gain Control

This control is used to attenuate or boost the high frequencies output by 6dB.

13.Phase Inversion for High Output

This button will reverse the phase of the high frequencies output by 180°, so that, the high frequencies cancellation in some fields can be compensated for.

14. Mute for High Output

This button mutes the high frequencies output.

15. CD Horn

Abbreviation for 'Constant Directivity Horn', this button can be used to boost the high frequencies, so that the power loss of it during the long distance transmission can be compensated for.

30. Threshold Setting

To prevent any damage to your speakers effectively, set the threshold of the multi-band limiter at the proper position.

31. Limiter Control

Engage this button to activate the limiter.

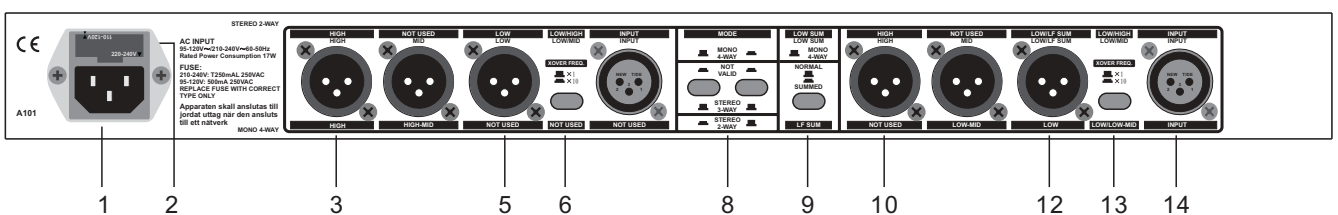
34. LIM indicator

This LED lights up when the limiter of the band is activated.

35. Power Switch

Turns the power on or off.

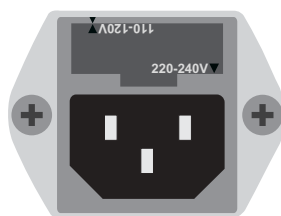
b. The Rear Panel



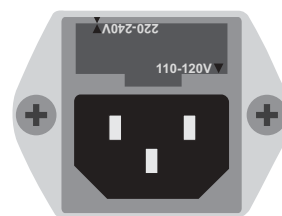
2. Fuse Holder/Voltage Selector

Your unit may have the AC voltage selector (~115V/60Hz or ~230 V/50Hz) built into the Fuse Holder. To change, pull fuse-holder out and rotate 180°, then push in again.

Caution: the fuse protecting the AC supplies circuits of this unit. The fuse can only be changed by a qualified technician, in the event of a fault or changing the supply voltage. If the fuse continues to blow after replacing, discontinue use of this before repaired.



THIS IS SET FOR
110V AC TO 120V
AC OPERATION



THIS IS SET FOR
220V AC TO 240V
AC OPERATION

The fuse-holder above the AC connector on the rear of the chassis has 3 triangular markers (please refer to the above pictures), with two of these triangles opposing each other, your unit is set to the operating Voltage printed next to these markers.

3. High Output Connectors (3 and 10)

These two XLR balanced connectors are used to output the high frequencies signal.

5. Low/LF SUM output connectors (5 and 12)

These two XLR balanced connectors are used to output the low frequencies signal.

6.Low/High XOVER FREQ. Multiplier

Combined with the usage of the Low/High XOVER FREQ. (3) knob on the front panel, this button can switch the crossover frequency range to 440Hz to 9.3kHz.

Please ensure that, your speaker management system must be powered off before you proceed this switching, otherwise, the offensive switching noise can be heard through your speakers.

8.Operation Mode Option

Press the left button, and release the right button to enter into the stereo 2-way operation mode.

9.Low Sum Control

Press this button to sum up the low frequencies output of Channel1 and Channel2, and the summed signal can be output from Channel1.

14.Input Connector

These two balanced XLR connectors are used to input the stereo program sources.

4. INSTALLATION & CONNECTION

4.1 Mains Connection

Please ensure that the ▲LTO X-P234 Active Crossover is set to the correct supply voltage before plugging the power cord into the wall outlet , use the same fuse as marked on the fuse holder at the AC power connection socket.

The mains connection of the ▲LTO X-P234 Active Crossover is made by using the enclosed mains cable and a standard IEC receptacle. It meets all of the international safety certification requirements.

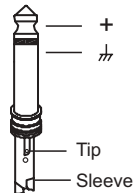
4.2 Audio Connection

The ▲LTO X-P234 Active Crossover presents with balanced XLR connectors, and it can be interfaced by several ways to support a variety of applications without any signal loss.

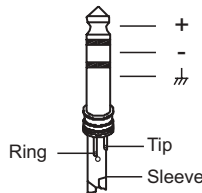
a. Wiring Configuration

Either the 1/4" TRS (Tip-Ring-Sleeve) jack or the XLR servo connector can be wired in balanced and unbalanced modes. Please wire your systems as the following examples:

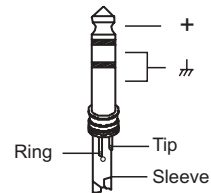
- For 1/4" Phone jack



TS Type Unbalanced

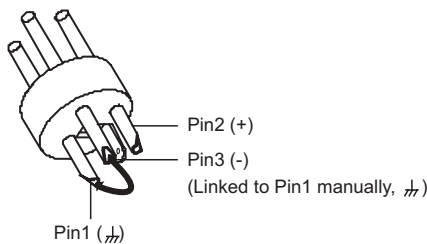


TRS Type Balanced

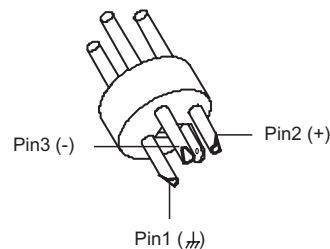


TRS Type Unbalanced

- For XLR connector



XLR Type Unbalanced

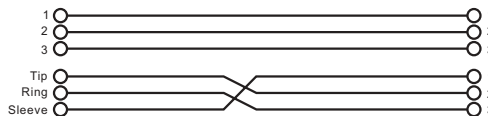
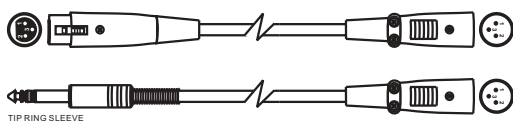


XLR Type Balanced

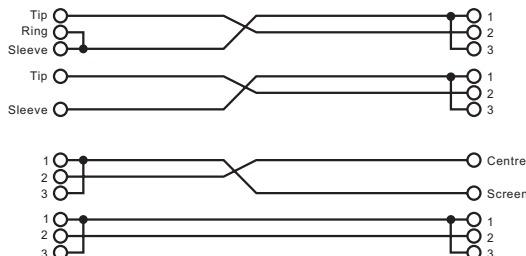
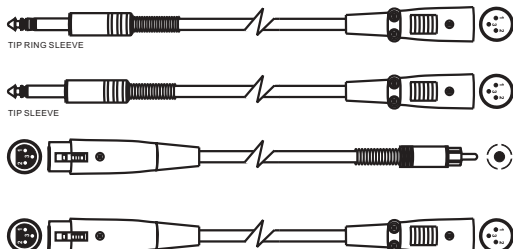
b. In Line Connection

For these applications, the X-P234 Active Crossover provides XLR connectors to easily interface with most professional audio devices. Follow the configuration examples below for your particular connection.

- Balanced



- Unbalanced



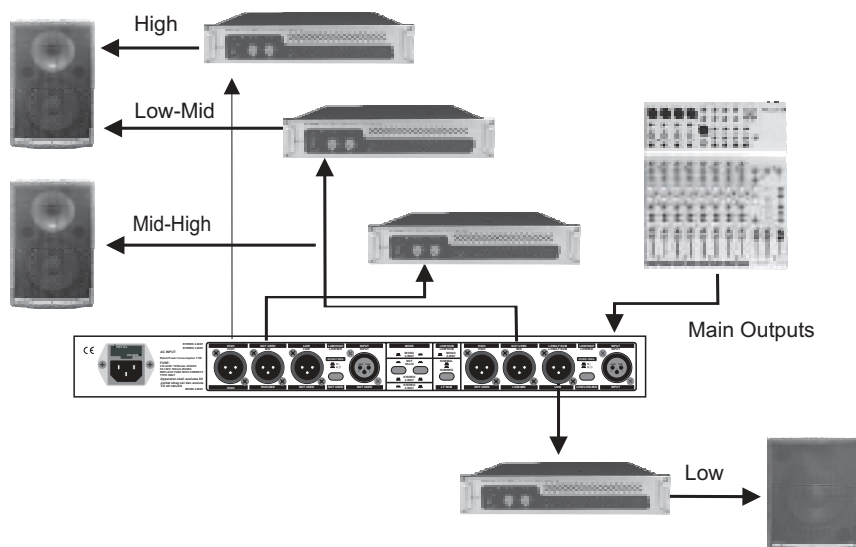
4.3 Rack Mounting

The most secure mounting is on a universal rack shelf available from various rack manufactures or your music dealer. The X-P234 Active Crossover fits into one standard 19" rack unit of space. Please allow at least an additional 4" depth for the connectors on the rear panel. Be sure that there is enough air space around the unit for sufficient ventilation and please do not place the X-P234 Active Crossover on high temperature devices such as power amplifiers etc. to avoid overheating.

5. APPLICATION

The X-P234 active crossover is truly a versatile speaker management system, according to its operation mode option, you can connect it in your system in three ways:

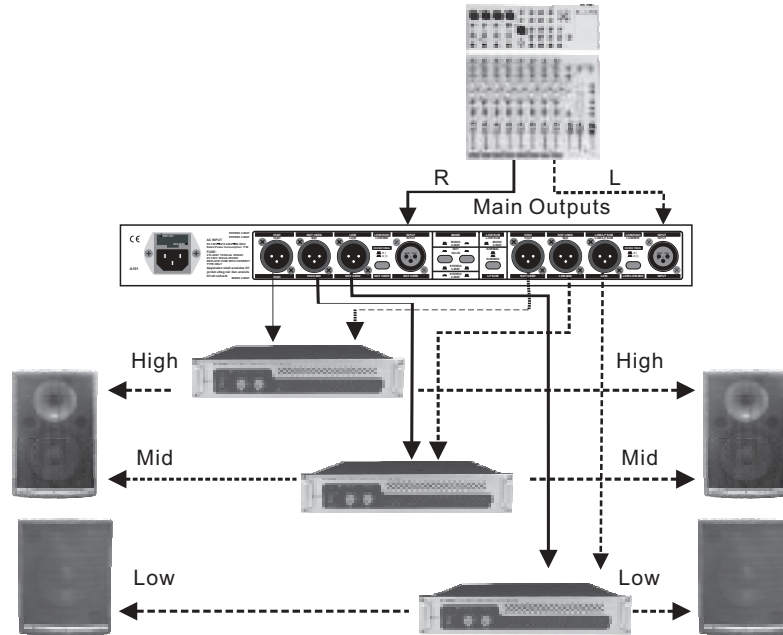
5.1 X-P234 Used in 4-way mono operation mode



To get such a typical application, configure your system and connect the wires in the following proper steps:

1. Release the left button, and press the right button to enter into the mono 4-way operation mode.
2. Apply the mono program sources from the Mixer to the Input Connector of Channel1.
3. Output the Low frequencies signal to the power amplifier.
4. Output the Low-Mid frequencies signal to the power amplifier.
4. Output the High-Mid frequencies signal to the power amplifier.
5. Output the High frequencies signal to the power amplifier.
6. Power up the X-P234 first, then the power amplifier to run the system. While powered off, please ensure the power amplifier is turned off first, then the X-P234.

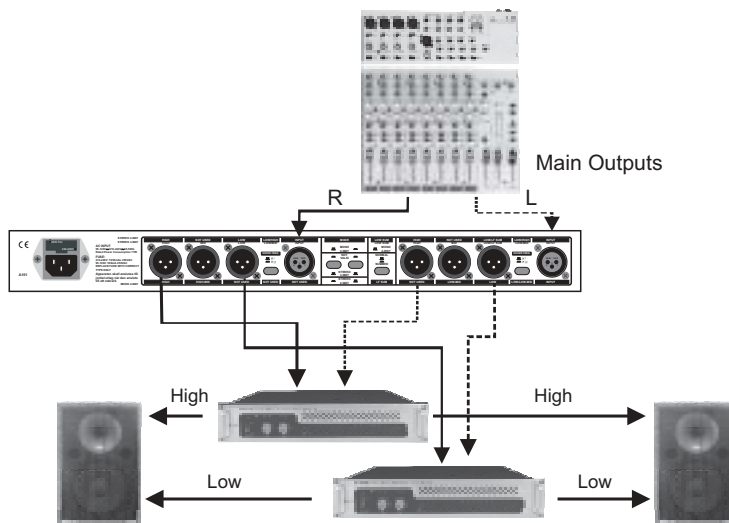
5.2 X-P234 Used in 3-way stereo operation mode



To get such a typical application, configure your system and connect the wires in the following proper steps:

1. Release both buttons to enter into the stereo 3-way operation mode.
2. Apply the stereo program sources from the Mixer to the Input Connectors of Channel1 and Channel2.
3. Output the Low frequencies signal to the power amplifier.
4. Output the Mid frequencies signal to the power amplifier.
5. Output the High frequencies signal to the power amplifier.
6. Power up the X-P234 first, then the power amplifier to run the system. While powered off, please ensure the power amplifier is turned off first, then the X-P234.

5.3 X-P234 Used in 2-way stereo operation mode



To get such a typical application, configure your system and connect the wires in the following proper steps:

1. Press the left button, and release the right button to enter into the stereo 2-way operation mode.
2. Apply the stereo program sources from the Mixer to the Input Connectors of Channel1 and Channel2.
3. Output the Low frequencies signal to the power amplifier.
4. Output the High frequencies signal to the power amplifier.
5. Power up the X-P234 first, then the power amplifier to run the system. While powered off, please ensure the power amplifier is turned off first, then the X-P234.

6. TECHNICAL SPECIFICATIONS

INPUT		
	Connectors	XLR
	Type	Electronically servo-balanced, RF filtered
	Impedance	Balanced >50K Ohms, unbalanced >25K Ohms
	Max. Input Level	+22dBu typical, balanced or unbalanced
	CMRR	>40dB, typically > 55 dB at 1 KHz
OUTPUT		
	Connectors	XLR
	Type	Electronically servo-balanced, RF filtered
	Impedance	Balanced 60 Ohms, unbalanced 30 Ohms
	Max. Output Level	+20dBu balanced or unbalanced
PERFORMANCE		
	Bandwidth	20Hz to 20KHz, +0/-0.5dB
	Frequency Response	<5Hz to>90KHz, +0/-3dB
	Signal to Noise	Ref: +4dBu, 20Hz to 20KHz, unweighted
		Stereo Mode: Mono Mode:
	Low Output	>93dBu >93dBu
	Low-Mid Output	>94dBu
	Mid Output	>95dBu
	High-Mid Output	>94dBu
	High Output	>90dBu >88dBu
	Dynamic Range	>106dB, unweighted
	THD & Noise	Limiter Off Limiter On
		<0.04% <0.5 %
	Interchannel Crosstalk	High to Low: <93dBu
		High to Mid: <94dBu
		Mid to Low: <95dBu
		High to High-Mid: <95dBu
		High-Mid to Low-Mid: <95dBu
		Low-Mid to Low: <92dBu
CROSSOVER		
	Filter Type	Linkwitz-Riley, 24dB/Octave, state-variable
	Stereo Mode Frequencies	×1 ×10
	Low/High	44Hz to 930Hz 440Hz to 9.3KHz
	Low/Mid	44Hz to 930Hz 440Hz to 9.3KHz
	Mid /High	440Hz to 9.3KHz
	Mono Mode Frequencies	×1 ×10
	Low/Low-Mid	44Hz to 930Hz 440Hz to 9.3KHz
	Low-Mid/High-Mid	440Hz to 9.3KHz
	High-Mid/High	440Hz to 9.3KHz
FUNCTION SWITCHES		
	Front Panel	
	Low Cut	Activates 25 Hz Butterworth, 12 dB/Octave high-pass filter
	Mute	Mutes the individual output
	Phase Invert	Inverts the phase at the individual output
	CD Horn	Corrects CD horn frequency response above 3.5KHz
	Limiter	Activates the limiter function for all outputs

	Rear Panel	
	Xover Frequency	Mutiplies crossover frequency range by 10
	Mode	Selects stereo /mono and 2/3/4-way operation
	LF Sum	Selects normal stereo or mono-summed low frequency operation
		ON=Channel1+6dB Louder Channal2: the same as before
CONTROLS		
	Input	Controls the input gain(+/-12dB)
	Xover Frequency	Controls the crossover frequency
	Delay	Controls the delay at the low output(0 to 2 msec.)
	Gain	Controls the output gain(+/-6dB)
	Threshold	Controls the threshold of the limiter (-6dB to OFF)
POWER SUPPLY		
	Connector type	3-pole IEC, grounded
	Type	serve controlled, stabilized
	Mains supply	95-120V~/210-240V~,60-50Hz
	Power Rating	<17W
	Fuse	210-240V: T250mAL 250VAC
		95-120V: 500mA 250VAC
PHYSICAL		
	Dimensions	483(W) × 194.5(D) × 44(H)mm(19"× 7.7"× 1.7")
	Net Weight	3.3Kg(7.27lb)

7. WARRANTY

1. WARRANTY REGISTRATION CARD

To obtain Warranty Service, the buyer should first fill out and return the enclosed Warranty Registration Card within 10 days of the Purchase Date.

All the information presented in this Warranty Registration Card gives the manufacturer a better understanding of the sales status, so as to purport a more effective and efficient after-sales warranty service.

Please fill out all the information carefully and genuinely, miswriting or absence of this card will void your warranty service.

2. RETURN NOTICE

2.1 In case of return for any warranty service, please make sure that the product is well packed in its original shipping carton, and it can protect your unit from any other extra damage.

2.2 Please provide a copy of your sales receipt or other proof of purchase with the returned machine, and give detail information about your return address and contact telephone number.

2.3 A brief description of the defect will be appreciated.

2.4 Please prepay all the costs involved in the return shipping, handling and insurance.

3. TERMS AND CONDITIONS

3.1 ▲LTO warrants that this product will be free from any defects in materials and/or workmanship for a period of 1 year from the purchase date if you have completed the Warranty Registration Card in time.

3.2 The warranty service is only available to the original consumer, who purchased this product directly from the retail dealer, and it can not be transferred.

3.3 During the warranty service, ▲LTO may repair or replace this product at its own option at no charge to you for parts or for labor in accordance with the right side of this limited warranty.

3.4 This warranty does not apply to the damages to this product that occurred as the following conditions:

- Instead of operating in accordance with the user's manual thoroughly, any abuse or misuse of this product.
- Normal tear and wear.
- The product has been altered or modified in any way.
- Damage which may have been caused either directly or indirectly by another product / force / etc
- Abnormal service or repairing by anyone other than the qualified personnel or technician.

And in such cases, all the expenses will be charged to the buyer.

3.5 In no event shall ▲LTO be liable for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.

3.6 This warranty gives you the specific rights, and these rights are compatible with the state laws, you may also have other statutory rights that may vary from state to state.

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