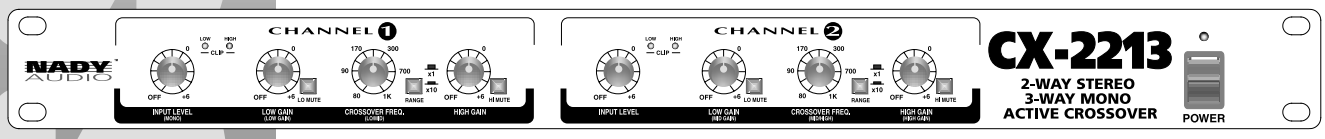
NADY™ AUDIO

OWNER'S MANUAL

CROSSOVER



CX-2213

2-WAY STEREO, 3-WAY MONO ACTIVE CROSSOVER

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NADY™ AUDIO

Congratulations on your choice of crossover — you have purchased one of the finest stereo crossovers on the market today. This unit was developed using the expertise of professional sound engineers and working musicians. You will find that your new NADY AUDIO CX-2213 has superior performance and greater flexibility than any other crossovers in its price range. Please read this manual carefully to get the most out of your new unit.

Thanks for selecting NADY AUDIO as your choice in crossovers.

FEATURES

The CX-2213 crossover provides precise frequency dividing for multi-amplified speaker applications, and is a valuable tool in many professional live sound applications. It offers all the features needed to meet the most exacting requirements.

This manual contains all the information you'll need to fully utilize your crossover.

- 2-Way Stereo or 3-Way Mono operation
- Single rack space (1U)
- Shielded internal power supply with AC voltage select switch (~115V/60Hz or ~230V/50Hz)
- Phase inversion switches
- Low-cut subsonic filters for low frequency driver protection
- Servo-balanced XLR inputs/outputs, 1⁄4" TRS inputs/outputs for any combination of balanced and unbalanced operation
- State-variable Linkwitz Riley 24dB/octave filters
- Switchable constant directivity horn equalization circuit for use with horns requiring a high frequency boost
- Allows low summing of all or any of the low outputs
- Peak LED indicators
- Mute switches
- Designed for the most precise accurate control
- Top audio performance with high slew rate circuitry and 115dB dynamic range for clear transparent sound

CONTENTS

Date of Purchase_____

Dealer's Name_____

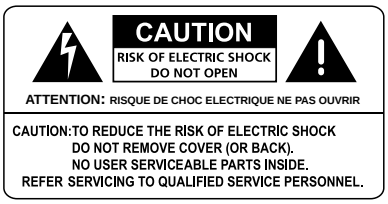
City _____

State _____Zip _____

Model # _____

Serial # _____

WARNING



An equilateral triangle enclosing a lightening flash/arrowhead symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure which may be of sufficient magnitude to constitute a risk of electric shock.

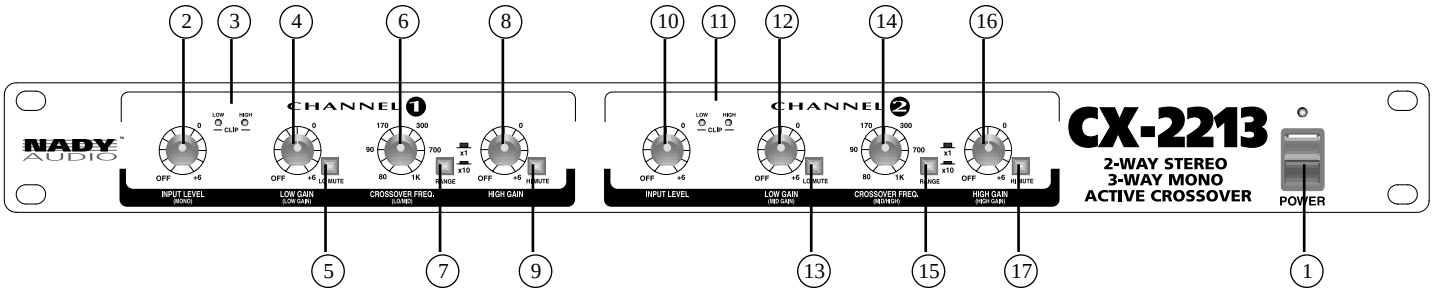
An equilateral triangle enclosing an exclamation point is intended to alert the user to the presence of important operating and service instructions in the literature enclosed with this unit.

IMPORTANT SAFETY INSTRUCTIONS

When using this electronic device, basic precautions should always be taken, including the following:

1. Read all instructions before using the product.
2. Do not use this product near water (e.g., near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, etc.).
3. This product should be used only with a cart or stand that will keep it level and stable and prevent wobbling.
4. This product, in combination with headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be positioned so that proper ventilation is maintained.
6. The product should be located away from heat sources such as radiators, heat vents, or other devices (including amplifiers) that produce heat.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product. Replace the fuse only with one of the specified type, size, and correct rating.
8. The power supply cord should: (1) be undamaged, (2) never share an outlet or extension cord with other devices so that the outlet’s or extension cord’s power rating is exceeded, and (3) never be left plugged into the outlet when not being used for a long period of time.
9. Care should be taken so that objects do not fall into, and liquids are not spilled through, the enclosure’s openings.
10. The product should be serviced by qualified service personnel if:
    A. The power supply cord or the plug has been damaged.
    B. Objects have fallen into, or liquid has been spilled onto the product.
    C. The product has been exposed to rain.
    D. The product does not appear to operate normally or exhibits a marked change in performance.
    E. The product has been dropped, or the enclosure damaged.
11. Do not attempt to service the product beyond what is described in the user maintenance instructions. All other servicing should be referred to qualified service personnel.

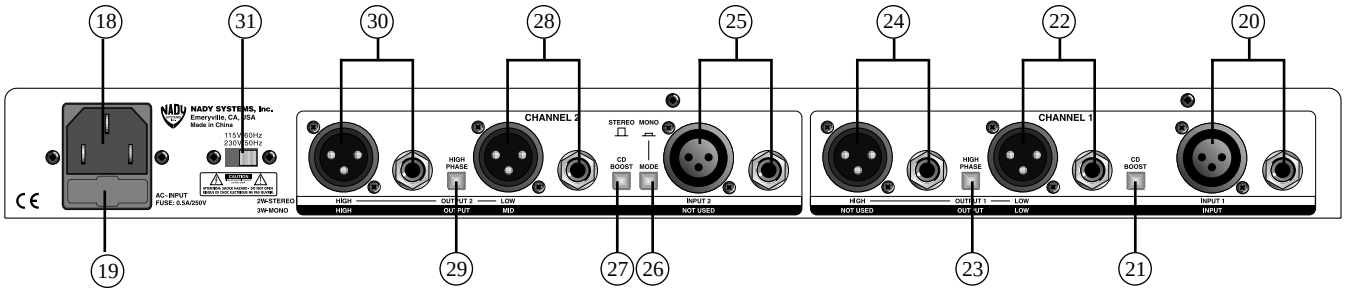
CONTROLS



FRONT PANEL • ***2-Way Stereo / 3-Way Mono Active Crossover***

	2-WAY STEREO MODE	3-WAY MONO MODE
	CHANNEL 1	
1	POWER SWITCH	
2	Input Level	Input Level
3	LOW & HIGH Clip LEDS	LOW & MID Clip LEDS
4	LOW Gain	LOW Gain
5	LOW Mute	LOW Mute
6	LOW-HIGH Crossover Frequency 800HZ-10KHz (Range X10)	LOW-MID Crossover Frequency (80Hz-1KHz (Range x1)
7	LOW-HIGH Crossover Range	LOW-MID Crossover Range
8	HIGH Gain	(not used)
9	HIGH MUTE	(not used)
	CHANNEL 2	
10	Input Level	(not used)
11	LOW & HIGH Clip LEDS	(Ignored) & HIGH CLIP LED
12	LOW Gain	MID Gain
13	LOW Mute	MID Mute
14	LOW-HIGH Crossover Frequency 800HZ-10KHz (Range X10)	MID-HIGH Crossover Frequency (80Hz-1KHz (Range x1)
15	LOW-HIGH Crossover Range	MID-HIGH Crossover Range
16	HIGH Gain	HIGH Gain
17	HIGH MUTE	HIGH Mute

CONNECTIONS



REAR PANEL • ***2-Way Stereo / 3-Way Mono Active Crossover***

	2-WAY STEREO MODE	3-WAY MONO MODE
	CHANNEL 1	
18	Power Cord Connector	
19	Fuse Holder (0.5A/250V)	
20	Line Input (Parallel XLR-F & 1/4” TRS Jack)	Line Input (Parallel XLR-F & 1/4” TRS Jack)
21	Constant Directivity Boost	Constant Directivity Boost
22	LOW Output (Parallel XLR-M & 1/4” TRS Jack)	LOW Output (Parallel XLR-M & 1/4” TRS Jack)
23	HIGH Phase Inversion	MID Phase Inversion
	CHANNEL 2	
24	HIGH Output (Parallel XLR-M & 1/4” TRS Jack)	(not used)
25	Line Input (Parallel XLR-F & 1/4” TRS Jack)	(not used)
26	Stereo/ Mono Mode Switch (Out=Stereo, In=Mono)	
27	Constant Directivity Boost	(not used)
28	LOW Output (Parallel XLR-M & 1/4” TRS Jack)	MID Output (Parallel XLR-M & 1/4” TRS Jack)
29	HIGH Phase Inversion	HIGH Phase Inversion
30	HIGH Output (Parallel XLR-M & 1/4” TRS Jack)	HIGH Output (Parallel XLR-M & 1/4” TRS Jack)
31	AC Voltage Selector Switch (~115V/60Hz or ~230V/50Hz)	

OPERATION

CAUTION

The following must be observed to prevent malfunctioning and/or possible equipment damage.

1. Before plugging the unit into the main AC line, make sure that all of the equipment following the crossover output lines is turned off or all of the inputs are turned down.
2. The unit should be plugged in only when it has been established that the AC line is supplying the correct voltage and frequency.
3. Never change the frequency range switch from the x10 to x1 position (or vice versa) with the crossover output levels passing signal. Transients can result and speaker damage is possible.

DESCRIPTION

The CX-2213 are Linkwitz-Riley electronic crossovers. This unit can be used in either of two operation modes, as shown below.

STEREO 2-WAY • MONO 3-WAY

All inputs and outputs are floating and balanced when connected to other floating and balanced equipment. Any combination of balanced and unbalanced operation is permitted. Stereo and mono modes can be easily selected via switch and connecting inputs and outputs property with no patch cords required.

CD BOOST

The constant directivity horn equalization circuit is to be used with horns that require a high frequency boost. Consult your horn manufacturer to determine whether it is needed in your circumstance. The provided boost is +3 db @3.5kHz rising 6db per octave to 22.5kHz. No changes need to be made to operate without the constant directivity boost. If the constant directivity equalization circuit is desired on a particular channel then depress the corresponding switch labeled "CD BOOST". There is one switch for each channel located by that channel's input jack. If two or more channels are ganged together, then only use the switch closest to the used input jack. The switches closest to the unused input jacks have no effect on the circuit when ganged.

PEAK (CLIP) LEDs (LOW & HIGH)

These LEDs will light when the output capability is being exceeded, resulting in clipping distortion. Occasional flickering of the Clip LEDs is acceptable, but if either remains on continuously you should turn down the level control or reduce the output level of the preceding component to avoid audible distortion.

RANGE X10

When this switch is set on, the cut off frequency adjusted by the High/Low FREQUENCY ADJUST knob is multiplied by 10.

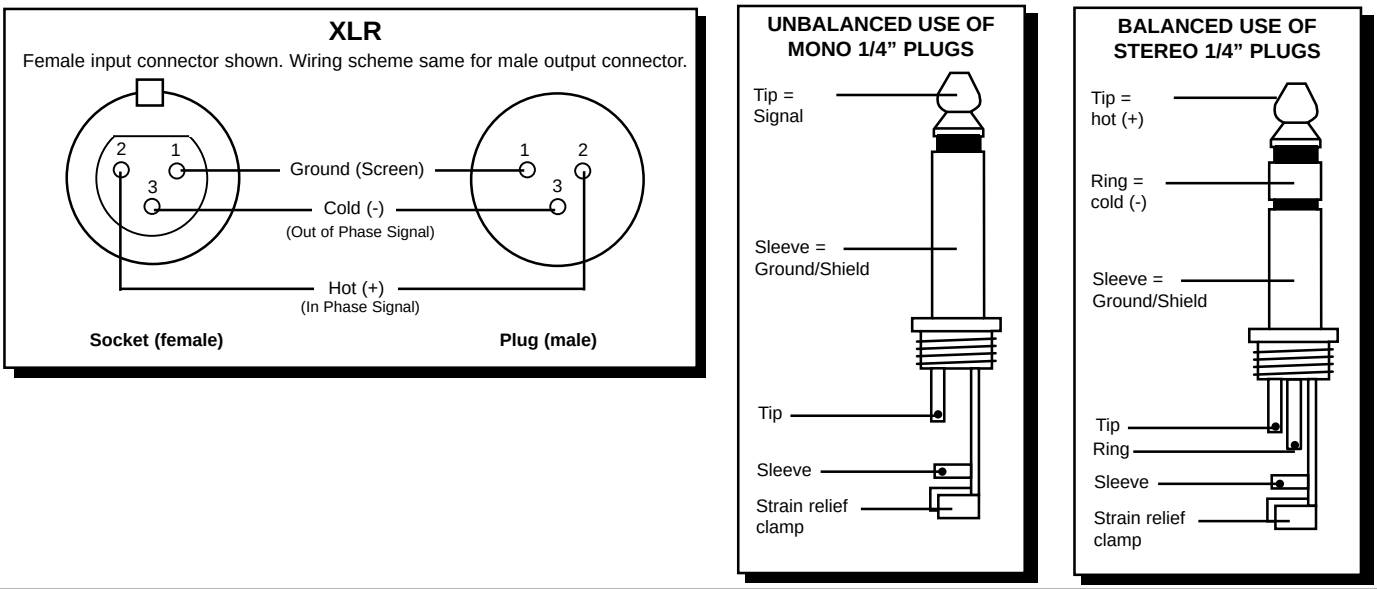
ON(FX10): 800Hz-10000Hz

OFF(FX1): 80Hz-1000Hz

LOW/ MID/ HIGH PHASE INVERSION SWITCH

These switches invert the phase between the speakers. Use them when you hear a bad sound continuity between the LOW,MID and HIGH ranges.

XLR & 1/4" Connectors Wiring



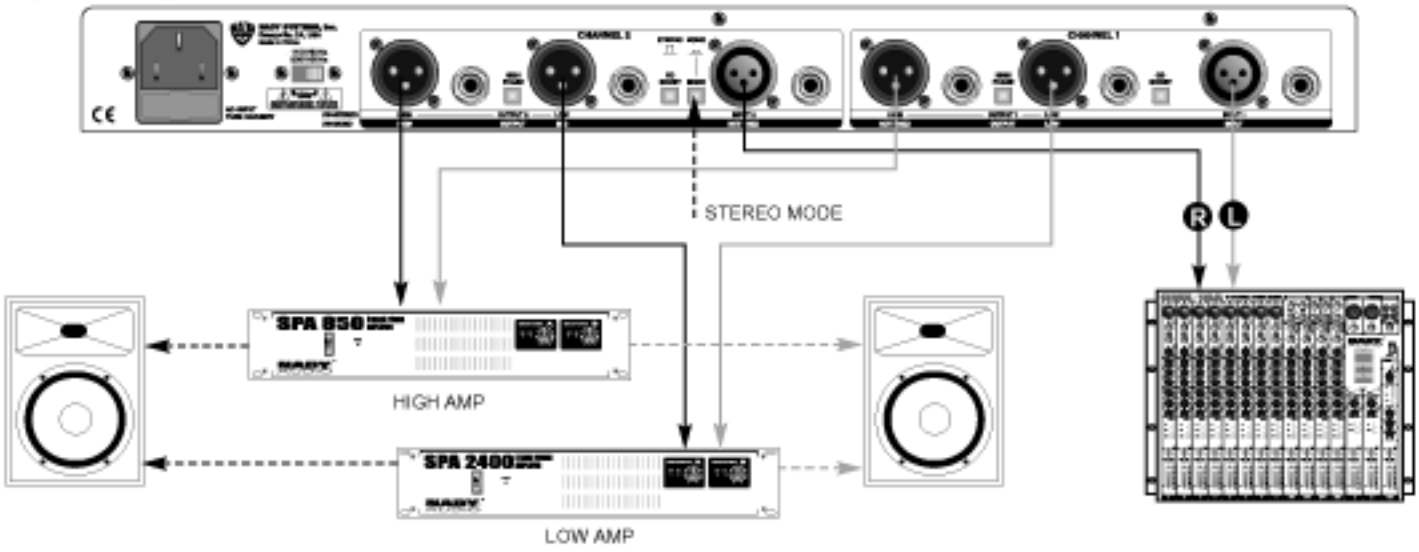
TYPICAL SETUP

2-WAY STEREO CONNECTION

For stereo two-way operation with the CX-2213, no patch cords are required.

- Set Mode switch to stereo Mode
- Plug the left line-in and the right line-in to INPUT 1 and INPUT 2 respectively
- Connect the LOW OUT 1 and LOW OUT 2 attach a cable to the input of the left and right low frequency amplifiers
- Connect the HIGH OUT 1 and HIGH OUT 2 attach a cable to the input of the left and right high frequency amplifiers
- Set the CROSSOVER FREQ 1 and the CROSSOVER FREQ 2 to x10 — LOW-HIGH Crossover control

No patch cord required.



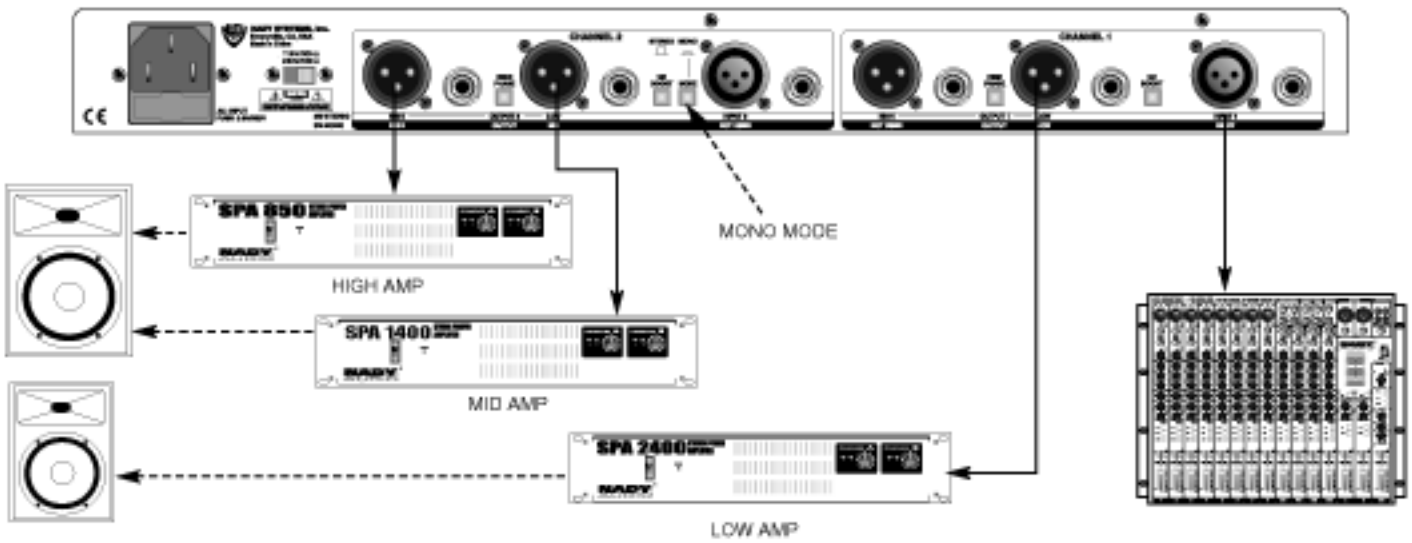
3-WAY MONO CONNECTION

For mono three-way operation with the CX-2213, no patch cords are required.

- Plug the line-in into INPUT 1. Attach cable from LOW OUT 1 to the low frequency amplifier.
- Do not plug anything into HIGH OUT 2 or INPUT 2. Set the mode switch to mono . These jacks are automatically normalled when nothing is plugged into them.
- Attach a cable from LOW OUT 2 to the midrange amplifier.
- Attach a cable from HIGH to the high frequency amplifier.

(CAUTION: FIRST SET THE MODE SWITCH TO MONO.)

INPUT 1	MAIN INPUT LEVEL CONTROL	INPUT 2	SET TO 0
LOW 1	LOW FREQUENCY AMPLIFIER LEVEL CONTROL	LOW 2	MID FREQUENCY AMPLIFIER LEVEL CONTROL
HIGH 2	SET TO 0 AND HIGH MUTE	HIGH 2	HIGH FREQUENCY AMPLIFIER LEVEL CONTROL
FREQUENCY 1	SET TO "X1" LOW/MID FREQ. CONTROL	FREQUENCY 2	SET TO "X10" MID/HIGH FREQ. CONTROL



SPECIFICATIONS

Frequency Response
- Low Frequency Output .....10HZ +/- 0.5dB
- High Frequency Output.....20KHz +/-1.0dB

Total Harmonic Distortion
- RL .....>2kΩ
- Low Frequency Output .....< 0.01% THD
- High Frequency Output.....<0.02% THD

Maximum Output Level
- RL .....>2kΩ +21dBu (6.2 volts) @ < .05% THD 20Hz - 20kHz

Maximum Voltage Gain 6dB

Constant-Directivity Correction ..... +3dB @ 3.5kHz rising at 6 dB/octave to 22.5kHz

Power Supply ..... 115V(60Hz) / 230V(50Hz) selectable

Fuse ..... 0/5A/250V, 5x20 mm

Frequency Range
- Low Mid (X1).....80Hz to 1000Hz
- Mid-High (X10) .....800Hz to 10kHz

Hum and Noise (20Hz- 20kHz) .....Av=0 dB. fc=800Hz

Low Frequency Section
- Output @0dB ..... <-106dBu

High Frequency Section
- Output @ 0dB ..... <-97dBu

Signal-To-Noise Ratio.....118dB

Controls
- Input Level.....Continuously variable
- Output Level .....Low, High Cont. Variable
- CD Boost..... Rear panel switch
- Mute .....Front panel switch
- Channel link .....Rear panel switch
- Phase .....Rear panel switch

Dimensions .....19” x 7.7” x 1.7” (483 x 194.5 x 44 mm)

Weight .....5.5 lbs (2.5 Kg)

The specifications above are correct at the time of printing of this manual. For improvement purposes, all specifications for this unit, including design and appearance, are subject to change without prior notice.

NOTES

SERVICE FOR YOUR NADY AUDIO PRODUCT

(U.S.) Should your NADY AUDIO product require service, please contact the Nady Service Department via telephone at (510) 652-2411, or e-mail at service@nadywireless.com.

(International) For service, please contact the NADY AUDIO distributor in your country through the dealer from whom you purchased this product.

DO NOT ATTEMPT TO SERVICE THIS UNIT YOURSELF AS IT CAN BE DANGEROUS AND WILL ALSO VOID THE WARRANTY.

NADY™
AUDIO

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