



P. O. BOX 252004 LOS ANGELES CA 90025 U.S.A
WWW.MASSIVEAUDIO.COM

© 2016 Massive Audio Inc.
Printed in the P.R.C



TRI-XO

3 WAY ELECTRONIC CROSSOVER + SUBWOOFER CONTROL

PRODUCT SPECS

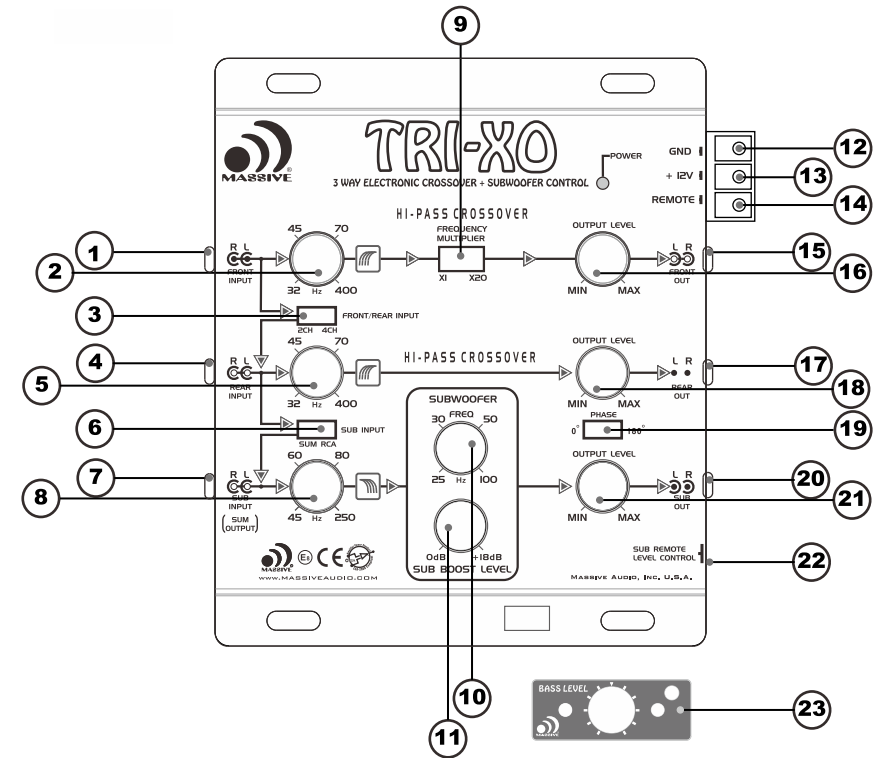
Power Source:	14.4 volts DC negative ground
Input current:	0.5 amp max
Distortion:	0.01% THD at 1V output level
Frequency Response:	10Hz-30kHz-3dB
S/N Ratio:	>100dB
Separation:	60dB
Crossover Slope Rate:	18dB per octave 3rd order butterworth
Input Impedance:	20K Ohms
Output Impedance:	100 Ohms
Output Gain:	1:2(+6db)
Output Voltage level:	5 volts max
Dimensions:	152mmx180mmx43mm

FEATURES

- **EXCLUSIVE INFINITE CROSSOVER DESIGN**
- **ASYMMETRICAL ELECTRONIC CROSSOVER DESIGN**
- **BASS BOOST CIRCUITRY WITH QUASI-PARAMETRIC EQUALIZATION**
A sealed enclosure causes a woofer's frequency response to roll off at a rate of 12 dB per octave below the enclosure's resonant frequency. Our Bass Boost Circuitry with Quasi-Parametric Equalization provides a single octave boost of 18 dB at 45 Hz to ensure smooth and accurate bass response.
- **DC/DC REGULATED SWITCHING POWER SUPPLY**
This power supply design provides constant voltage to the crossover regardless of the battery's voltage to ensure consistent output performance at all times. This design also eliminates switching noise due to voltage fluctuation.
- **FREQUENCY MULTIPLIER**
The front high-pass section is equipped with a frequency multiplier switch that can be used to multiply the crossover Frequency points. With the additional selectable crossover points, system setting becomes an art of precision.
- **PARALLEL INPUT SWITCH**
For a source unit having a single pair of signal outputs, an adapter is needed to split the source signal for the front and rear inputs. With the mobile electronic crossover, by engaging the parallel input feature, an external adapter is no longer necessary.
- **FRONT /REAR INPUTS WITH FRONT /REAR /SUBWOOFER OUTPUTS**
The mobile electronic crossover features front and rear preamp inputs with front and rear outputs, as well as constant subwoofer output that is independent of the front/rear fader position on the source unit.
- **ADJUSTABLE OUTPUT LEVEL STEREO/MONO SUBWOOFER GOLD PLATED RCA CONNECTORS**

INPUT/OUTPUT CONNECTIONS AND AUDIO CONTROLS

The top panel of Massive Audio TRI-XO contains the controls for the crossover and output levels as shown below.

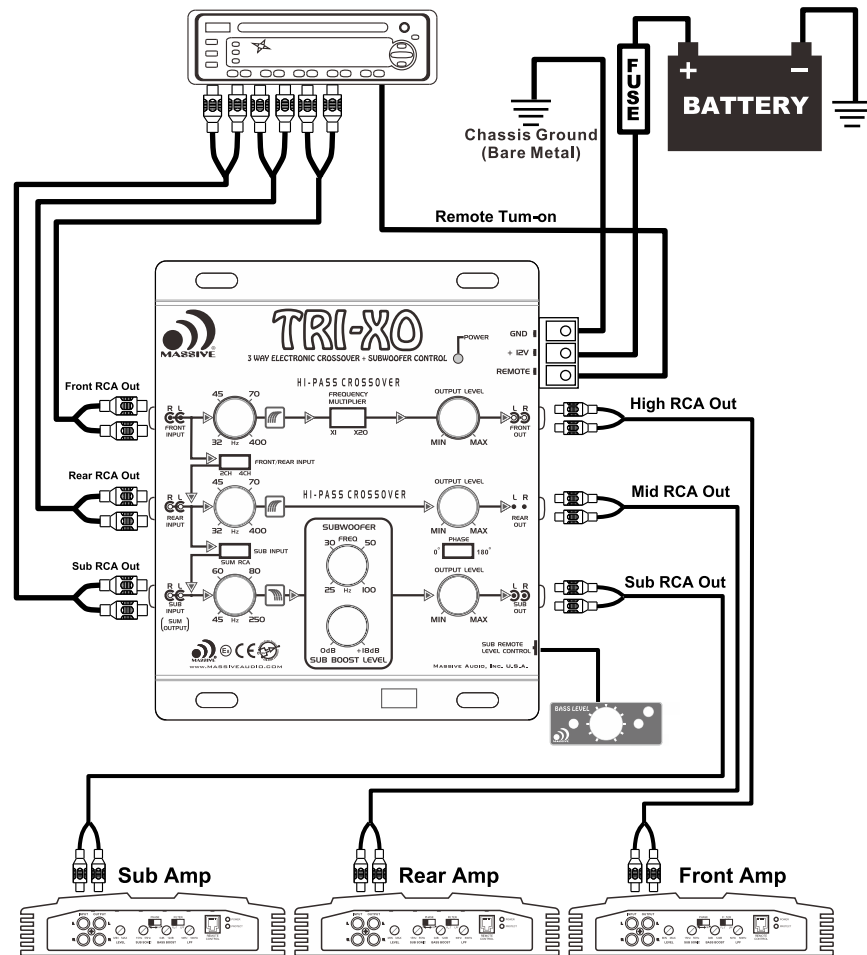


- | | |
|--------------------------------------|----------------------------------|
| 1. Front RCA Input | 13. Battery +12V Input Connector |
| 2. Front Crossover Frequency Control | 14. Remote Turn-On Input |
| 3. Front/Rear Input Selection Switch | 15. Front RCA Output |
| 4. Rear RCA Input | 16. Front Output Level |
| 5. Rear Crossover Frequency Control | 17. Rear RCA Output |
| 6. Sub Input Selection Switch | 18. Rear Output Level |
| 7. Sub RCA Input | 19. Phase Switch |
| 8. Sub Crossover Frequency Control | 20. Sub RCA Output |
| 9. Frequency Multiplier Switch | 21. Sub Output Level |
| 10. Sub Bass Boost Frequency | 22. Remote Sub Level Connector |
| 11. Sub Bass Boost Level | 23. Remote Sub Level Control |
| 12. Ground Input Connector | |

APPLICATIONS

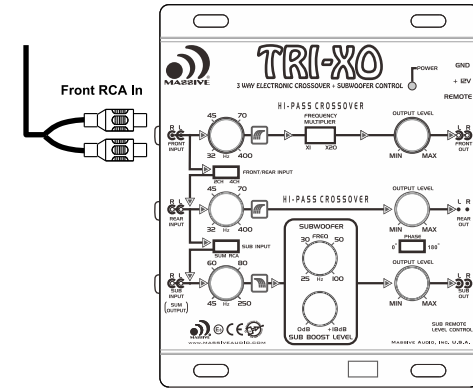
Massive Audio TRI-XO allows you to design either a 2-way system with front and rear output or a full 3-way system. After determining which system best fits your requirements, thoroughly read and follow the directions below for your system type.

2-Way System with Front and Rear Output

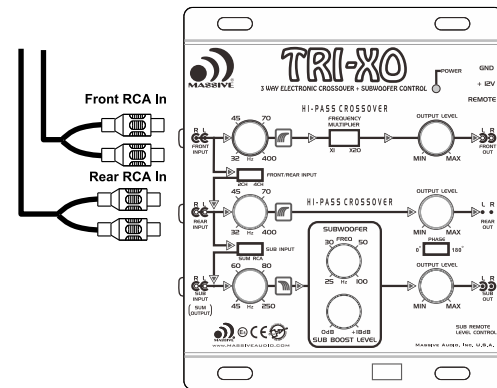


TRI-XO is configured for two channel input with dedicated amplifiers for front speakers, rear speakers and subwoofer(s). See Figure switch settings.

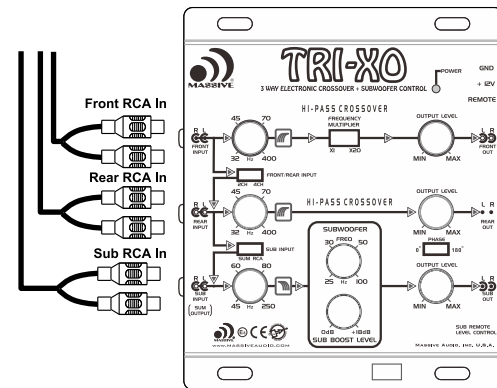
APPLICATIONS



For 2 channel input, configure switches as shown.



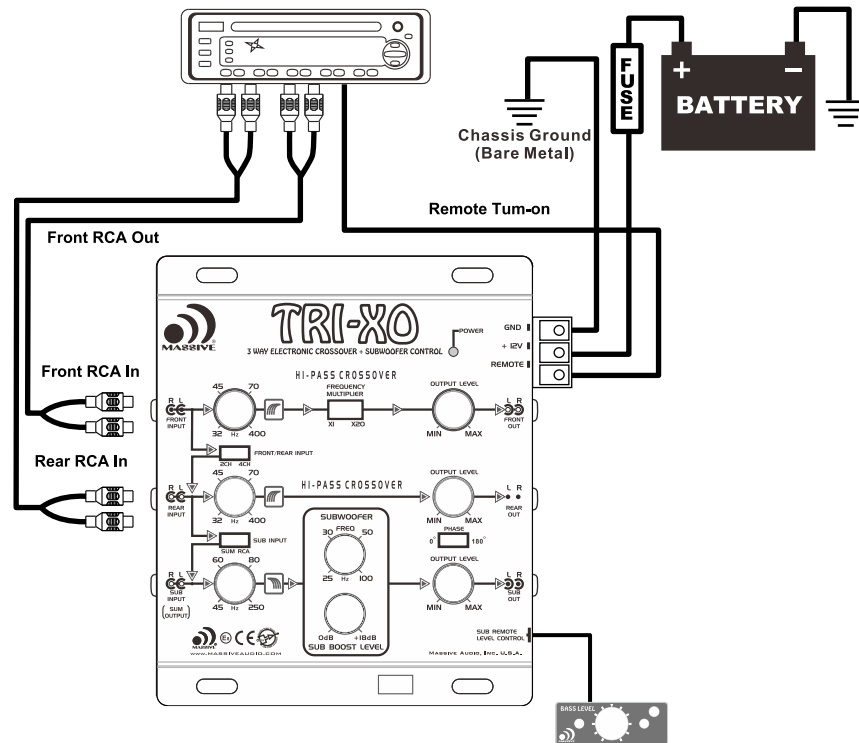
For 4 channel input with front and rear fade, configure switches as shown.



For front and rear fade with dedicated subwoofer input, configure switches as shown.

WIRING PRECAUTIONS

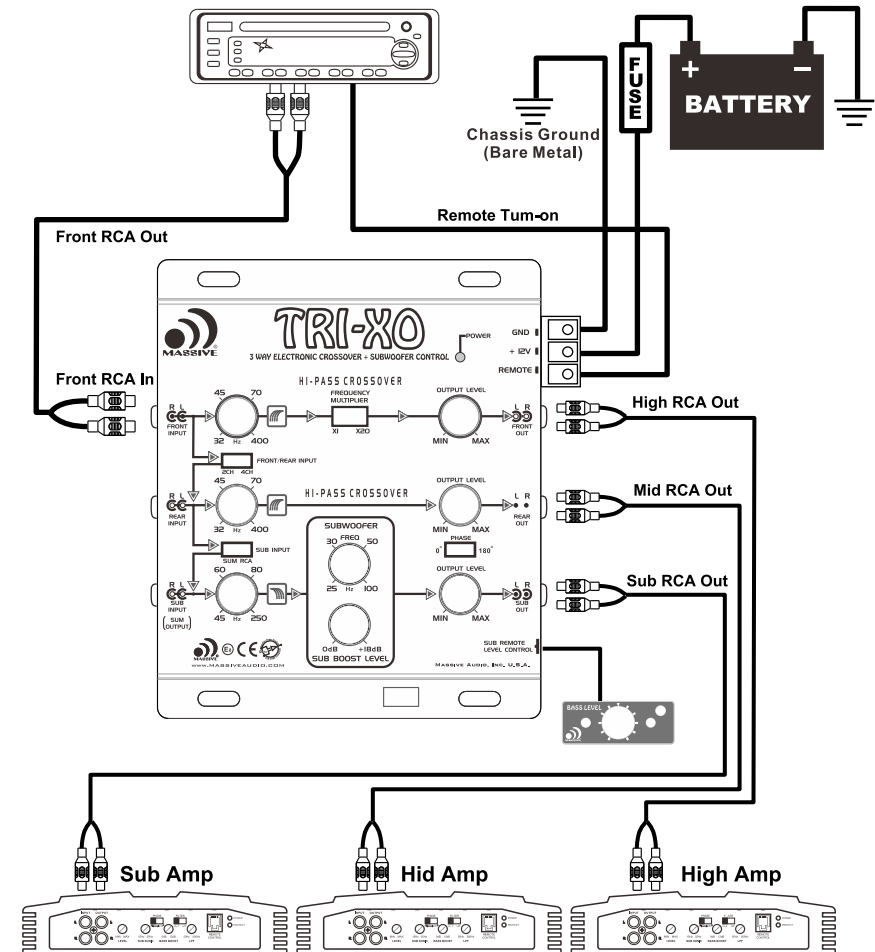
TRI-XO contains the controls for the crossover and output levels as shown below.



Electrical connections for the TRI-XO

APPLICATIONS

3-Way System



TRI-XO is configured for single channel input with dedicated amplifiers for tweeters, midranges and subwoofer(s).

FINAL SYSTEM CHECK

A. Pre-Setting

- 1.Preset front, rear and subwoofer amplifier input gain to half of their maximum.
- 2.Preset the crossover frequencies and output Levels as follows.

Bi-Amp System

Front Frequency Selector:	32Hz-400Hz
Frequency Multiplier:	X 1
Rear Frequency Selector:	32Hz-400Hz
Subwoofer Frequency Selector:	40Hz-250Hz
Front Output Level:	10 o' clock position
Rear Output Level:	10 o' clock position
Subwoofer Output Level:	12 o' clock position

Tri-Amp System

Front Frequency Selector:	640Hz-8KHz
Frequency Multiplier:	X 20
Rear Frequency Selector:	32Hz-400Hz
Subwoofer Frequency Selector:	45Hz-250Hz
Front Output Level:	10 o' clock position
Rear Output Level:	10 o' clock position
Subwoofer Output Level:	12 o' clock position

- 3.Preset the volume of the source unite to its minimum (otherwise, when the source unit is turned on, the sudden surge of high power from the amplifier might cause damage to the audio components).

B. Turn the source unit on and slowly turn the volume up:

■No Sound At All

- 1.Turn the system off immediately.
- 2.Check if connections are made properly (refer to subsection titled CONNECTION for details).
- 3.Use a Volt /Ohm meter to make sure good chassis ground established for each Component that needs to be grounded.
- 4.Check if the power input of all system components are properly connected to 12 volt positive power Supply.
- 5.Check if the remote on/off terminal of all system components are properly connected to positive 12 volt source.
- 6.If everything is order, turn the power on again, If the problem persists, refer to section titled TROUBLE SHOOTING GUIDE for assistance.

■Obvious Distortion

Turn the system off and refer to section titled TROUBLE SHOOTING GUIDE for assistance.

■Out-of-Phase Problem (i.e. Abnormal Bass)

Turn the system off and refer to section titled TROUBLE SHOOTING GUIDE for assistance.

C. NOISE CHECK

Before mounting the mobile electronic crossover and other audio components permanently, conduct the following check:

- 1.Start the engine and turn on power of the source unit.
- 2.Rev the engine and vary the audio volume to check for radiated engine noise. If there is an alternator whining noise or tic-tic noise, refer to the TROUBLE SHOOTING GUIDE for assistance. If the problem persists, consult your local dealer directly.
- 3.If no unwanted noise is detected, double check all the wiring and cables for safe placement. Then securely tighten the mounting screws of all the audio components.

TROUBLE SHOOTING GUIDE

A.No power

- 1.Check all the ground, B+ and remote terminals for tight connection.
- 2.Check all fuses.
- 3.Use a Volt/Ohm meter to check all power wire connected to see if the system is receiving +12 V.

B. "Motorboating" : The mobile electronic crossover power indicator going off repeatedly when the audio system is on.

- 1.Check if the mobile electronic crossover B+ power input is connected directly to the +12V power source.
- 2.Check the battery voltage: if low, recharge or replace it.
- 3.Check if the mobile electronic crossover has a good ground connection (i.e. Whether the ground wire is making good contact with a bare metal spot of the vehicle chassis).

C.The mobile electronic crossover heats up quickly even when the audio system is at moderate volume.

- 1.Check all ground connections of the entire system for good contact with bare metal
- 2.Check for speaker short: Disconnect speaker wire from amplifier, test speaker and wire with a Volt/Ohm meter, if there is speaker and meter contact, slightly enlarge the speaker mounting holes, if there is a short in the speaker wiring, replace the entire speaker wire or re-insulate any exposed wire with electrical tape.

D.When the engines is running, the audio system has a whining noise that remains unchanged or disappears with the increase of audio volume.

- 1.Check all the power wires to see if they are all connected directly to the battery.
- 2.Check all the ground connections of the entire system for good contact with bare metal of the vehicle chassis.
- 3.Check if the source unit and the mobile electronic crossover are ground at the same reference point.

E.When the engine is running, the audio system has a whining noise that increases or decreases with the volume of all program sources (whether radio, tape or CD).

- 1.Install a 10 amp in-line filter on the red power wire of the mobile electronic crossover.
- 2.If the whining noise persists, check the alternator diodes and the voltage regulator.

F. When the engine is running. The audio system has a whining noise that increases or decreases with the tape mode volume ONLY.

- 1.This is commonly known as "radiated" noise. It is NOT caused by the mobile electronic crossover and thus is beyond the scope of this manual. Please contact your local retailer / installer for assistance.

G.Obvious distortion at low volume.

- 1.Output level of various channels not compatible, refer to section titled FINAL SYSTEM CHECK.

H.Over all sound effect good, but bass abnormal (more bass at the two extreme settings of the balance control than at the center setting).

- 1.The subwoofers are "out-of-phass" with each other, thus canceling the bass when the balance control is at the center position. Check the wiring from the amplifier to the subwoofers (positive "+" and negative "-" to negative "-").