LIMITED ONE YEAR WARRANTY

This warranty from Autotek Corp. remains in effect for a period of one (1) year from date of first purchase.

This warranty will be enforceable by the original owner and any subsequent owners during the warranty period so long as proof of warranty coverage is presented if warranty service is required.

Except as otherwise specified, this warranty covers all defects in material and workmanship in these products. The following are not covered: damage resulting from accident, misuse, abuse, neglect, product modification, improper installation, incorrect line voltage or polarity, unauthorized repair of failure to follow instructions supplied with the product, damage occurring during shipment (claim must be presented to the carrier), elimination of car static or other electrical interferences, tape head cleaning or adjustments, any product purchased outside of the U.S.A., or on which the serial number has been defaced, modified or removed.

We pay all labor and material expense for covered items, but you must pay any labor costs for the removal and / or installation of the product. If the product is shipped for warranty service, you must prepay the initial shipping changes, but Autotek will pay the return shipping charges if the product is returned to an address inside the U.S.A.

LIMITATION OF IMPLIED WARRANTIES
ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WARRANTY.

EXCLUSION OF CERTAIN DAMAGES
AUTOTEK'S LIABILITY IS LIMITED TO THE REPAIR OR REPLACEMENT, AT OUR OPTION, OF ANY DEFECTIVE PRODUCT AND SHALL, IN NO EVENT, INCLUDE INCIDENTAL OR CONSEQUENTIAL COMMERCIAL DAMAGES OF ANY KIND.

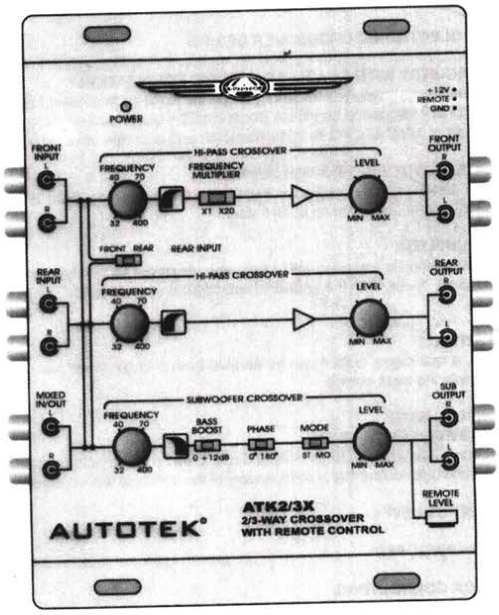
SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS AND/OR DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGE. SO THE ABOVE LIMITATIONS AND EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LECAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FORM STATE TO STATE.

THIS WARRANTY FROM AUTOTEK CORP. REMAINS IN EFFECT FOR A PERIOD OF ONE (1) FROM DATE OF FIRST PURCHASE. **IF INSTALLED BY AN AUTHORIZED AUTOTEK DEALER. AUTOTEK PRODUCTS INSTALLED BY OTHER THAN AUTHORIZED AUTOTEK DEALERS WILL BE WARRANTED FOR 30 DAYS.**

AUTOTEK®

2/3-WAY CROSSOVER WITH REMOTE CONTROL



INSTRUCTION MANUAL

MODEL: ATK2/3X

INTRODUCTON

Thank you for purchasing the new Autotek ATK2/3X-Way Crossover. This model functions as either a 2 or 3-way crossover, with an 18dB/Octave subwoofer crossover and remote gain control.
This unit will provide filtered signals to front and rear amplifiers, and low-pass sub output, using a single pair of inputs.
Please read through the manual before installing your unit, to be certain that you obtain maximum performance.

FEATURES

EXCLUSIVE INFINITE CROSSOVER DESIGN

ASYMMETRICAL ELECTRONIC CROSSOVER DESIGN

BASS BOOST CIRCUITRY WITH QUASI-PARAMETRIC EQUAIZATION
A sealed enclosure causes a woofer's frequency response to roll off at a rate if 12dB per octave below the enclosure's resonant frequency. Our Bass Boost circuitry quasi-parametric equalization provides a single octave boost of 12dB at 45Hz 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.

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 precise.

REAR INPUT SWITCH
Using this switch, a rear signal output can be derived from a single input source without having to use an adaptor to split the input cables.

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 a constant subwoofer output that is independent of the front/rear fader position on the source unit.

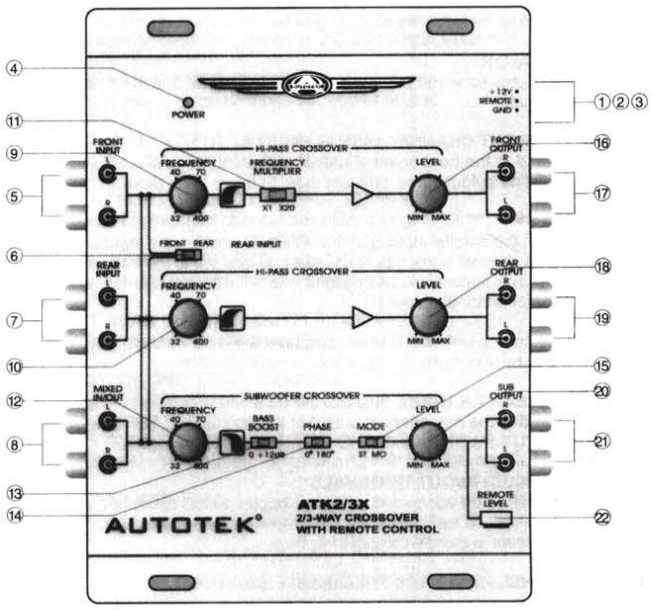
ADJUSTABLE OUTPUT LEVEL

STEREO/MONO SUBWOOFER

GOLD PLATED RCA CONNECTORS

REMOTE LEVEL CONTROL
This remote device permits adjustment of low pass level from the front of your vehicle.

FUNCTION



1. POWER INPUT TERMINAL
To be connected to the positive terminal of your vehicle battery or other constant +12V source.

2. REMOTE TURN-ON INPUT TERMINAL
To be connected to the remote control wire or antenna lead of the source unit for remote ON/OFF.

3. GROUND INPUT TERMINAL
To be connected to the vehicle's chassis ground.

4. POWER INDICATOR
This indicator lights up when the internal switching power supply is activated and the unit is operational.

5. LEFT/RIGHT FRONT CHANNEL SIGNAL INPUTS
To be connected to the front channel output of the source unit. . If the source unit has only one set of line output plugs, connect them to these input jacks.

6. REAR INPUT SWITCH
"FRONT": When the parallel input is at the "FRONT" position the input signals coming in through the front channel signal inputs are split and directed to the front and rear channels simultaneously. [This feature is to be engaged where the source unit has no separate front, rear or subwoofer channel output.]

"REAR": If the source unit has independent front and rear channel outputs, disengage the REAR input by sliding the switch to the "REAR" position.

7. LEFT/RIGHT REAR CHANNEL SIGNAL INPUTS
To be connected to the rear channel output of the source unit. BUT MAKE SURE THAT THE REAR INPUT SWITCH IS AT THE "REAR" POSITION.

8. LEFT/RIGHT MIXED IN/OUT TERMINALS
As input Terminal: To be connected to the subwoofer output of the source unit.
As output Terminal: To be connected to the front channel input terminal of another electronic crossover in a multi-crossover system.

9. FRONT CHANNEL HIGH-PASS FREQUENCY SELECTOR
For selection of front channel high-pass crossover frequency between 32Hz and 400Hz [or 640Hz and 8KHz when its frequency multiplier is at "x20" position].

10. REAR CHANNEL HIGH-PASS FREQUENCY MULTIPLIER
For selection of rear channel high-pass crossover frequency between 32Hz and 400Hz.

11. FRONT CHANNEL HIGH-PASS FREQUENCY MULTIPLIER
Positioning this switch at the "x20" position changes the range of selectable crossover frequency for the front channel high-pass from 32Hz ~ 400Hz to 640Hz ~ 8KHz.

12. SUBWOOFER FREQUENCY SELECTOR
For selection of the low-pass crossover frequency for the subwoofer channel between 32Hz and 400Hz.

13. BASS BOOST SWITCH
When activated, this circuit provides a single octave boost of 12dB at 45Hz to equalize the woofer enclosure.

14. PHASE INVERTER
Positioning the switch to the "180" position shifts the subwoofer output signals 180 degree out-of-phase relative to the front and rear output signals.

15. SUBWOOFER STEREO/MONO SWITCH
For selection of stereo or mono mode subwoofer output.

16. FRONT CHANNEL OUTPUT LEVEL CONTROL
For adjusting the front channel output signal level.

17. LEFT/RIGHT FRONT CHANNEL OUTPUT TERMINALS
To be connected to the front channel amplifier left/right inputs.

18. REAR CHANNEL OUTPUT LEVEL CONTROL
For adjusting the rear channel output signal level.

19. LEFT/RIGHT REAR CHANNEL OUTPUT TERMINALS
To be connected the rear channel amplifier left/right inputs.

20. SUBWOOFER OUTPUT LEVEL CONTROL
For adjusting the subwoofer channel output signal level.

21. LEFT/RIGHT SUBWOOFER OUTPUT TERMINALS
To be connected to the subwoofer channel amplifier left/right inputs.

22. REMOTE LEVEL CONTROL
To adjust the low pass level from the front of your vehicle.

MOBILE FOUR CHANNEL AUDIO SYSTEM

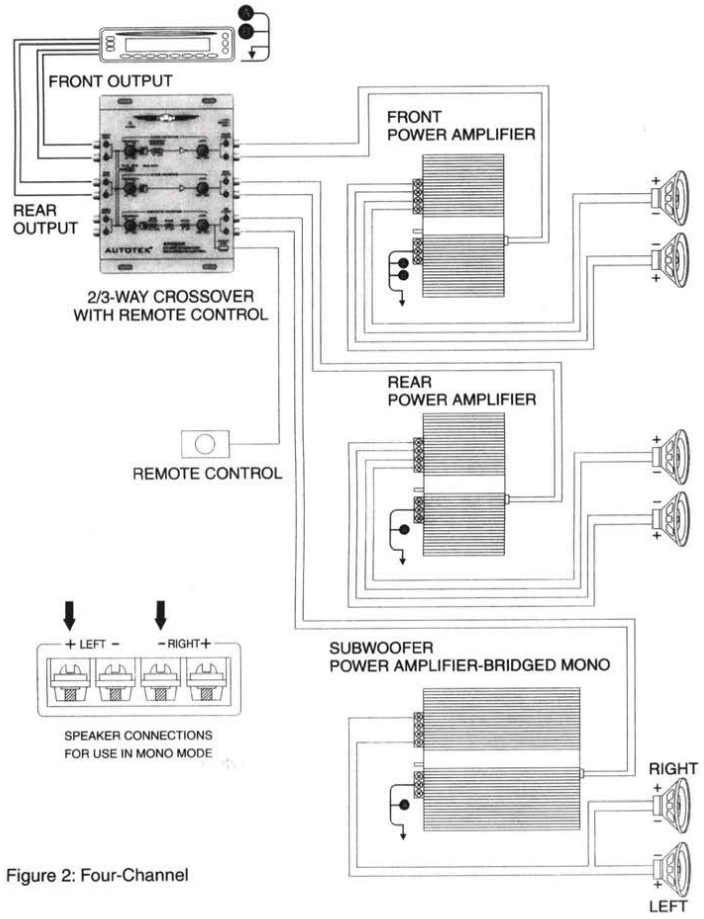


Figure 2: Four-Channel

MOBILE TWO CHANNEL AUDIO SYSTEM

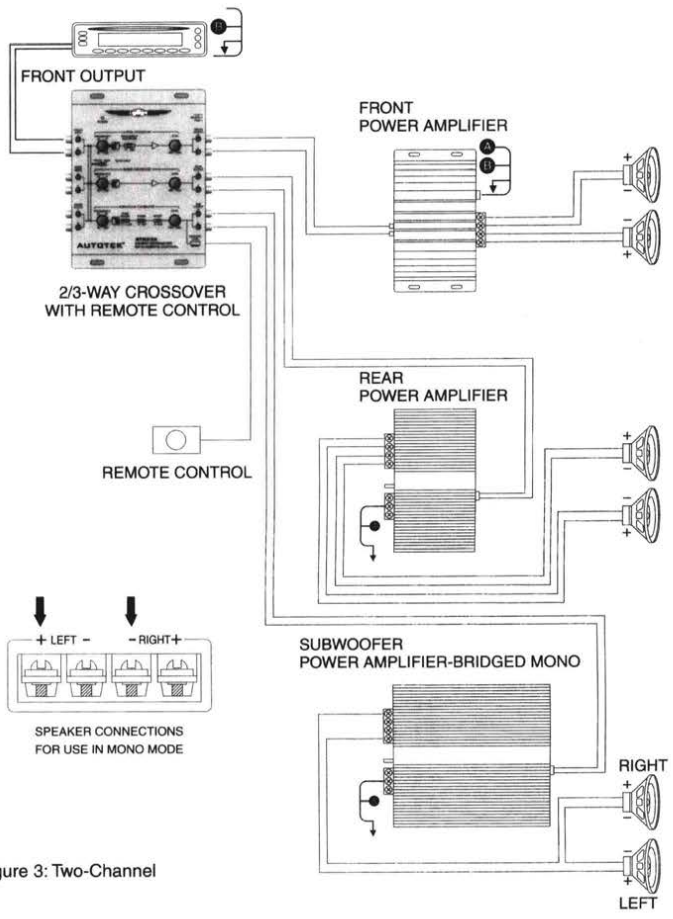


Figure 3: Two-Channel

MOUNTING INSTRUCTIONS

We suggest that you connect the wiring and confirm that this unit operates properly with your system before you actually mount it in your vehicle.
However you should choose the mounting location first. Then, when the 2/3-way crossover is connected and working properly, you can mount it without rearranging the wires.
Please read the following installation procedures carefully so that you can keep this unit working properly.

Crossover Terminal	Connected To	Terminal
Left/Right Front Inputs	Source Unit	Front Pre-amp Outputs
Left/Right Rear Inputs	Source Unit	Rear Pre-amp Outputs
Left/Right Mixed In/Out [as input]	Source Unit	Subwoofer Pre-amp Outputs
Left/Right Mixed In/Out [as output]	Another Compatible Electronic Crossover	Front Inputs
Left/Right Front Outputs	Front Amplifier	Left/Right Inputs
Left/Right Rear Outputs	Rear Amplifier	Left/Right Inputs
Left/Right Subwoofer Outputs	Subwoofer Amplifier	Left/Right Inputs
Power Input Terminal (B+)	Battery	Positive Terminal
Ground Input Terminal [GND]	Vehicle Chassis	Bare Metal Spot
Remote Turn-On Input Terminal	Source Unit	Remote Control Wire or Power Antenna Lead
Remote Level Control	Crossover Unit	Remote Level In

ELECTRICAL WIRING DIAGRAM

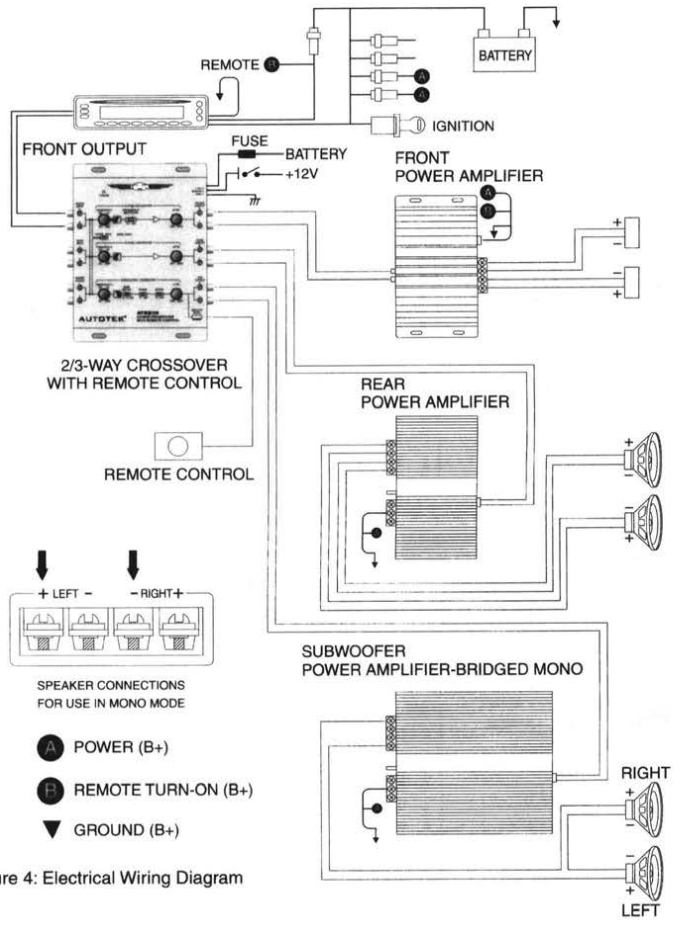


Figure 4: Electrical Wiring Diagram

FINAL SYSTEM CHECK

1. Pre-Setting

a. Preset front, rear and subwoofer amplifier input gain to half of their maximum.
b. Preset the crossover frequencies and output levels as follows:

Bi-Amp System	
Front Frequency Selector:	160Hz
Frequency Multiplier	x 1
Rear Frequency Selector:	160Hz
Subwoofer Frequency Selector:	160Hz
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:	200Hz
Frequency Multiplier:	x 20
Rear Frequency Selector:	120Hz
Subwoofer Frequency Selector:	120Hz
Front Output Level:	10 o'clock position
Rear Output Level:	10 o'clock position
Subwoofer Output Level:	12 o'clock position

c. Preset the volume of the source unit to its minimum [otherwise, when the source unit is turned on, the sudden surge of high power from the amplifiers might cause damage to the audio components]

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

a. No Sound At All.
i) Turn the system off immediately.
ii) Check if connections are made properly (refer to subsection tiled CONNECTION for details)
iii) Use a Volt/ Ohm meter to make sure good chassis ground established for each component that needs to be grounded.
iv) Check if the power input of all system components are properly connected to 12 volt positive power supply.
v) Check if the remote on/off terminal of all system components are properly connected to positive 12 volt source.
vi) If everything is in order, turn the power on again. If the problem persists, refer to section titled TROUBLE SHOOTING GUIDE for assistance.
b. Obvious Distortion
Turn the system off and refer to section titled TROUBLE SHOOTING GUIDE for assistance.
c. Out-of-Phase Problem [i.e. Abnormal Bass]
Turn the system off and refer to section titled TROUBLE SHOOTING GUIDE for assistance.

3. NOISE CHECK

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

a. Start the engine and turn on the power of the source unit.
b. 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 TROUIBLE SHOOTING GUIDE for assistance. If the problem persists, consult your local dealer directly.
c. 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

SYMPTOM	PROBABLE CAUSE
1.No Power	• Check all the ground, B+ and remote terminals for tight connection. • Check all fuses. • Use a Volt/Ohm meter to check all power wire connection to see if the system is receiving +12V
2." Motorboating": The mobile electronic crossover power indicator going off repeatedly when the audio system is on	• Check if the mobile electronic crossover B+ power input is connected directly to the • Check the battery voltage: if low, recharge or replace it. • 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)
3. The mobile electronic crossover heats up quickly even when the audio system is at moderate volume.	• Check all ground connections of the entire system for good contact with bare metal. • 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.
4. When the engine is running, the audio system has a whining noise that remains unchanged or disappears with the increase of audio volume.	• Check all power wires to see if they are connected directly to the battery. • Check all the ground connections of the entire system for good contact with bare metal of the vehicle chassis. • Check if the source unit and the mobile electronic crossover are grounded at the same reference point.
5. When the engine is running, the audio system has a whining noise has increases or decreases with the volume o all program sources [Whether radio, tape or CD]	• Install a 10 A in-line filter on the red power wire of the mobile electronic crossover. • If the whining noise persists, check the alternator diodes and the voltage regulator.
6. When the engine is running, the audio system has a whining noise that increase or decrease with the tape mode volume ONLY.	• This is commonly known as "radiated" noise. It is NOT caused by the mobile electronic crossover and thus is beyond the scope of the manual. Please contact your local retailer/installer for assistance.
7. Obvious distortion at low volume.	• Output level of various channel not compatible, refer to section titled FINAL SYSTEM CHECK.
8. Over all sound effect good, but bass abnormal [more bass at the two extreme settings of the balance control than at the center setting]	• The subwoofers are "out-of-phase" 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 "-"]