

KICKER®

IX254, IX404, IX704 Four-Channel Power Amplifier

Congratulations! You have just purchased one of the latest in a long line of exceptional car audio power amplifiers from Stillwater Designs. Your KICKER Impulse was designed and engineered by the same team which created many other international award winning KICKER components like the ZR, ZX, and XS-Series amps. It contains a number of cutting-edge features to give you outstanding performance.

Thanks for buying KICKER. Enjoy.

KICKER IMPULSE AMPLIFIER FEATURES

A set of RCA output jacks on your KICKER Impulse four-channel amplifier allows you to build multiple amplifier systems without using RCA splitter cords to distribute the signal. Now it is simply a matter of bringing one set of RCA cables into the first amplifier, then using the output RCA jacks as a feed to the next amplifier. A rear channel input switch allows four-channel output operation from either one or two inputs.

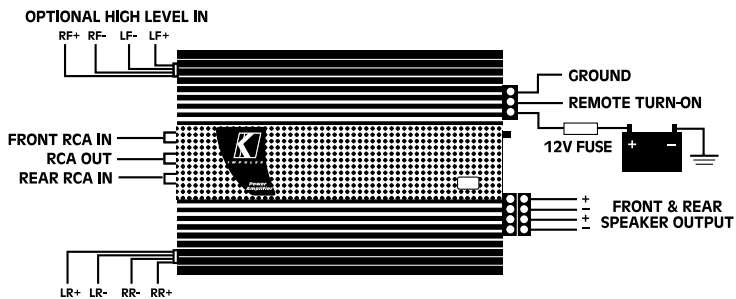
Amplifiers are stable at 2 Ohms stereo and as low as 4 Ohms in mono.

Input connections are included for high and low level signals for use with radios that have either RCA or speaker level outputs.

An electronic crossover is built in for convenience and allows you to select high pass for satellite speakers, low pass for subwoofers, or bypass for full range operation. In full range configuration the KICKER Impulse amplifiers will operate stereo and mono and at the same time.

Auto-resetting short circuit and overthermal protection circuits are incorporated to protect the amplifier from failure due to extreme conditions.

State of the art circuit including MOSFET power supply and glass epoxy circuit boards are used to ensure many years of trouble free operation.



AMERICA'S MUSIC MACHINESSM

Wiring Instructions

The preferred method of bringing input signal in to the amplifier is with RCA cables from a quality tape or CD player. A high (speaker) level input signal may also be used if your factory deck or aftermarket source does not have low level RCA jacks. Regardless of which input is used the output RCA jacks on your KICKER Impulse amplifier will provide a low level signal for multiple amplifier configurations.

Some of the system possibilities are shown in the System Diagrams section of this manual.

When working with power connections always hook up the ground wire first and disconnect the ground wire last. Never make any wiring changes with the amplifier powered up.

The chassis mounted fuse(s) are in place to protect the circuitry of the amplifier in the event of major trouble. An in-line fuse must be installed within 18 inches of the battery to protect the power wire used to supply current to the amplifier. This fuse has to be at least as high of a value as the amplifier is supplied with. In-line fuse and recommended wire size are as follows:

| | | |
|---------------|-------------|------------------|
| IX 254 | 10Ga | 10A fuse |
| IX 404 | 8Ga | 30 A fuse |
| IX 704 | 4Ga | 60A fuse |

Any time that power wire goes through a metal panel such as the firewall, or if there is any chance of abrasion, it is necessary to use a grommet or other suitable form of protection to avoid shorts.

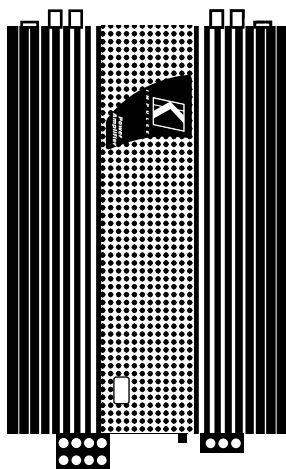
The ground wire should be as short as possible and attached to the body of the vehicle. The ground point must be free from paint and corrosion. Use the same size wire for ground connection as is used for power.

Mounting the IMPULSE Amplifier

After determining an appropriate mounting location which provides good air circulation and access to the end panel controls, use the supplied screws and washers to firmly mount the amplifier. The amplifier chassis can be used as a template for the screw locations. Check to make sure that the mounting screws will not damage any components on the back side of the chosen mounting surface.

If a vertical mounting surface is chosen, we recommend that the heatsink fins run vertically as shown for improved cooling.

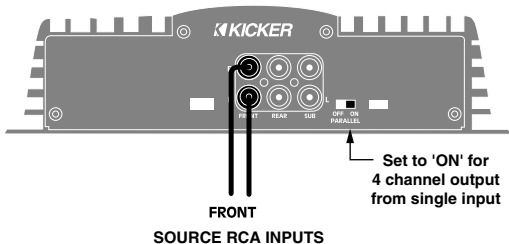
For chassis isolation and to prevent engine noise from entering your system, it is important to use the plastic stepped washers and rubber isolators when mounting this amplifier.



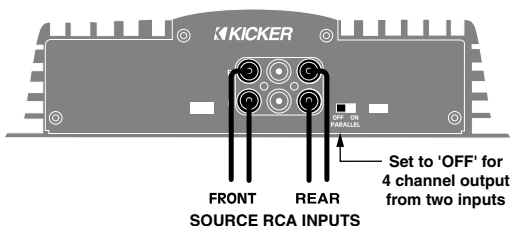
Input Options for the IMPULSE Four-Channel Amplifiers

The Rear Input Selector switch allows you to select one or two inputs (low level or high level).

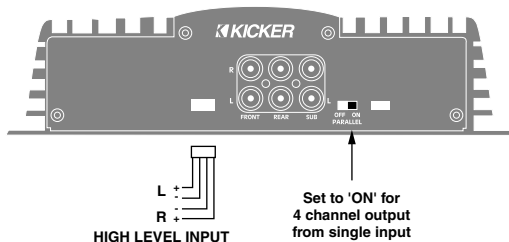
Input Option 1: Using One Pair of RCA Cables



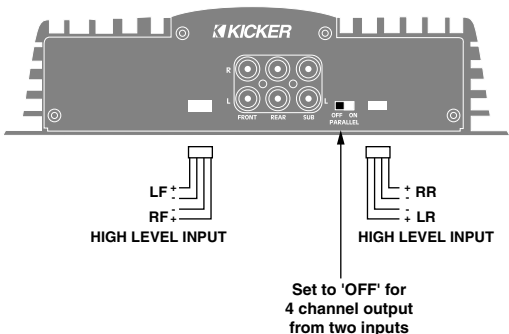
Input Option 2: Using Two Pairs of RCA Cables



Input Option 3: Using Stereo Pair of High Level Inputs

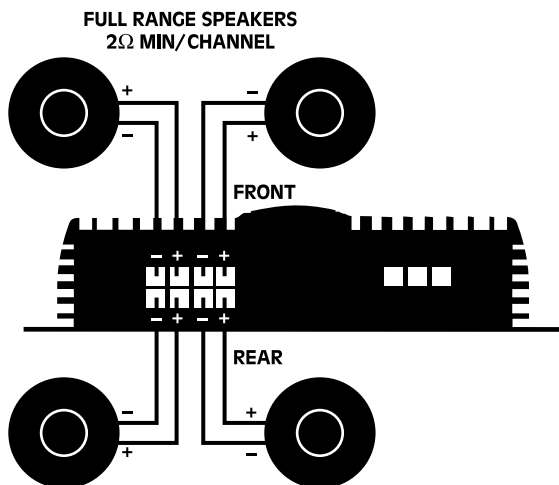


Input Option 4: Using Two Stereo Pairs of High Level Inputs

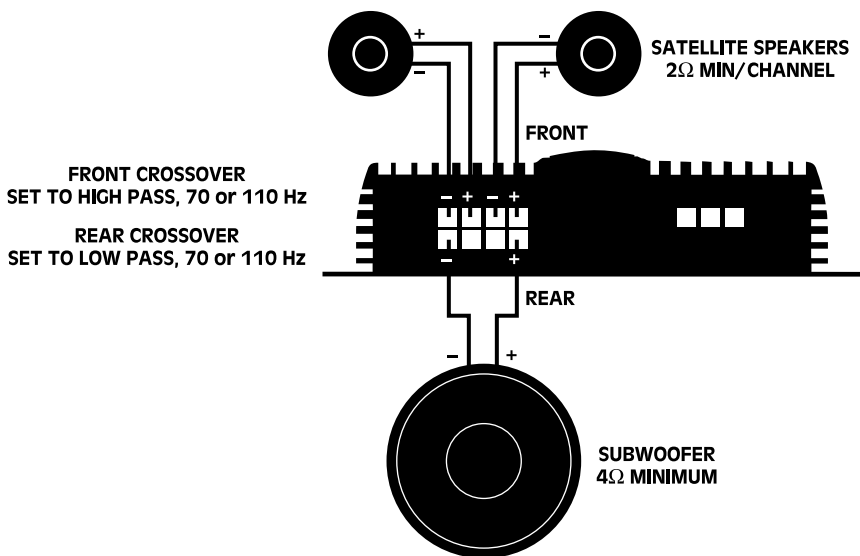


Basic Systems for the IMPULSE Four-Channel Amplifier

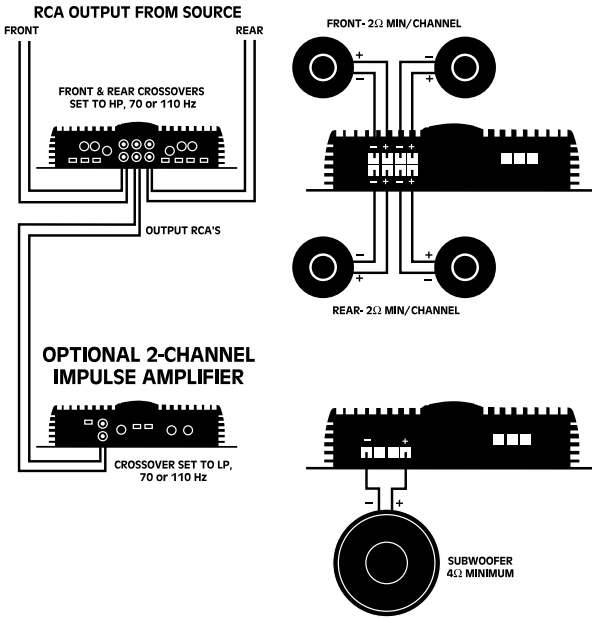
*Stereo Four Channel
Internal Crossovers Off*



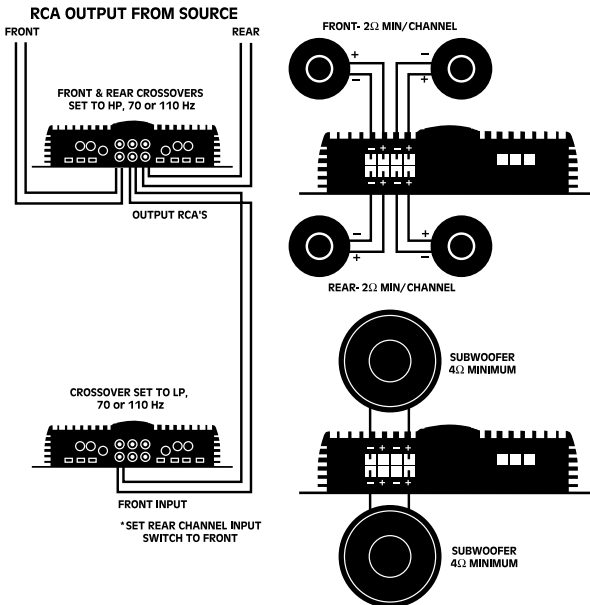
*Bi-Amp Hookup
using Internal Crossovers*



BI-AMP SYSTEM WITH FOUR-CHANNEL AND TWO-CHANNEL AMPS



BI-AMP SYSTEM WITH TWO FOUR-CHANNEL AMPS



Troubleshooting

The LED mounted on the end panel of the amplifier lights up in two different colors depending on the condition of the amplifier. Green indicates that the amplifier is turned on and no trouble exists. When it turns red this indicates that the protection circuit has been engaged. The LED on the top of the amplifier chassis indicates that the amplifier is on. When the protection circuit is engaged, this LED turns off.

Green power indicator off, no output:

- With Volt Ohm Meter (VOM) check:
 1. +12v power terminal
 2. Ground terminal
 3. Remote turn-on lead

Green power indicator on, no output:

- Check RCA connections
- Test speaker outputs with known good speaker
- Check function of source unit
- With VOM in AC volts position check RCA for signal

No output from one channel:

- Check RCA and speaker connections for that channel
- Swap RCA connections from left to right
- Swap speaker connections between channels

Red LED protection indicator is lit and there is no output:

Case 1: Amp is very hot

- Thermal protection is engaged. Check for proper impedance at speaker terminals. Also check location of amplifier to ensure proper air flow around heatsink.

Case 2: Output resumes momentarily when system is turned off and back on.

- Short circuit protection is engaged. With VOM check for short between speaker positive and negative, and between speaker terminals and ground.

Alternator noise (a whining that varies with engine RPM)

- Make sure that the ground for the source is as short as possible and connected to bare chassis metal. The stock radio ground may not be sufficient.
- Check RCA cable routing and condition. Keep RCA cables away from all power wires.

Adjustments and Controls Setting Gain Control

The gain control is provided for level matching purposes. The control **does not** give the amplifier any more power by turning it up. Its purpose is to adjust the sensitivity of the amplifier in relation to the output level provided by the source.

Start with the amp gain set to minimum by turning the control counterclockwise. Turn the source level up until distortion is barely audible. Then turn it down slightly. This will typically be about 85% to 95% of full volume. Raise the amplifier gain until distortion is just audible. The gain is now set correctly. Check the level with cd/tape and tuner to make sure the adjustment is correct for all sources.

Setting KICKEQ™ Controls

The Bass and Treble controls on your Impulse Amplifier are provided to help tune your system for ideal sound quality. After the system is installed and the vehicle is put back together, do the listening test with music that is typical of the type you normally listen to.

Initially set the tone controls on the source unit to flat and turn the KICKEQ™ controls fully counter-clockwise. Depending on your personal taste and the speakers used in the system, you may want to increase the high or low frequencies by turning the KICKEQ™ controls clockwise. Remember that once the vehicle is in motion there will be apparent loss of bass due to the masking effect of road noise. **Do not attempt to make adjustments while the vehicle is in motion.** It is safer to pull off the road to make changes.

Never change the crossover settings while the amplifier is on. A loud pop will result which could destroy speakers or cause hearing loss.

SPECIFICATION

| | Model | IX704 | IX404 | IX254 |
|--|--|-----------|-----------|----------|
| RMS Power (Watts/Channel) @12.5V, 4Ω Stereo | | 70 x 4 | 40 x 4 | 25 x 4 |
| 0.085% THD, All Channels Driven | | | | |
| RMS Power (Watts/Channel) @12.5V, 2Ω Stereo | | 105 x 4 | 60 x 4 | 35 x 4 |
| 0.2% THD, All Channels Driven | | | | |
| RMS Power (Watts/Channel) @12.5V, 4Ω Bridged Mono, 0.2% THD | | 210 x 2 | 120 x 2 | 65 x 2 |
| Dynamic Power (Watts/Channel) @14.4V, 4Ω Stereo, 0.085% THD, All Channels Driven | | 100 x 4 | 55 x 4 | 30 x 4 |
| Dynamic Power (Watts/Channel) @14.4V, 2Ω Stereo, 0.2% THD, All Channels Driven | | 140 x 4 | 80 x 4 | 42 x 4 |
| Dynamic Power (Watts/Channel) @14.4V, 4Ω Bridged Mono, 0.2% THD | | 280 x 2 | 160 x 2 | 85 x 2 |
| Dimensions (In., MM) | | 13.8, 350 | 11.4, 289 | 7.8, 198 |
| (All Models 2.5"H x 9.5"W x ..."L, 63mmH x 241mmW x ...mmL) | | | | |
| Frequency Response | 20Hz-20kHz ±0.5dB | | | |
| Input Sensitivity | High Level 1V-10V, Low Level 150mV-3.0V | | | |
| Signal-to-noise Ratio | >95dB, a-weighted, re: rated power | | | |
| Active Electronic Crossover | 18dB/ octave, selectable @70Hz or 110Hz; | | | |
| KICKEQ™ Bass Boost | Variable to +18dB, centered @ 40Hz | | | |
| KICKEQ™ Treble Boost | Variable to +12dB, centered @ 18kHz | | | |

ELECTRONICS LIMITED WARRANTY

Stillwater Designs warrants this product to be free from defects in material and workmanship under normal use for a period of **three (3) years from date of original purchase when installed by an Authorized KICKER Dealer or one (1) year from date of original purchase if not installed by an Authorized KICKER Dealer.** If this product is labeled "B Stock", it is warranted for one (1) year from date of purchase, regardless of place of installation. Should service be necessary under this warranty for any reason due to manufacturing defect or malfunction during the warranty period, Stillwater Designs will replace or repair (at its discretion) the defective merchandise with equivalent merchandise at no charge. Warranty replacements on "B-Stock" merchandise may have cosmetic scratches and blemishes. Discontinued products may be replaced with equivalent products.

This warranty is valid only for the **original purchaser** and is not extended to owners of the product subsequent to the original purchaser. Any applicable implied warranties are limited in duration to a period of the express warranty as provided herein beginning with the date of the original purchase at retail, and no warranties, whether express or implied, shall apply to this product thereafter. Some states do not allow limitations on implied warranties, therefore these exclusions may not apply to you.

This warranty gives you specific legal rights; however you may have other rights that vary from state to state.

WHAT TO DO IF YOU NEED WARRANTY OR SERVICE

Defective merchandise must be returned to your local Authorized Stillwater Designs (Kicker/Impulse) Dealer for warranty. Assistance in locating an Authorized Dealer can be obtained by writing or calling Stillwater Designs direct. You can confirm that a dealer is authorized by asking to see a current authorized dealer window decal.

If it becomes necessary for you to return defective merchandise, call the Kicker Customer Service Department at (405)624-8510 for a Return Authorization (RA) number. Package all defective items in the original container or in a package that will prevent shipping damage, and return to

Stillwater Designs, 5021 North Perkins Road, Stillwater, OK 74075

The RA number must be clearly marked on the outside of the package. Return only defective components. Non-defective items received will be returned freight collect.

Include a **dated proof-of-purchase** from an Authorized Dealer. Warranty expiration on items returned without proof-of-purchase will be determined from the manufacturing date code. Coverage may be invalidated if this date is greater than one (1) year previous to the date item is sent in. Freight must be prepaid; items received freight collect will be refused.

Failure to follow these steps may void your warranty. Any questions can be directed to the Kicker Customer Service Department at (405)624-8510.

WHAT IS NOT COVERED?

This warranty is valid only if the product is used for the purpose for which it was designed. It does not cover:

- Products purchased from an unauthorized dealer.
- Damage due to improper installation
- Damage caused by exposure to water, excessive heat, chemical cleaners, and/or UV radiation.
- Damage through negligence, misuse, accident or abuse. Repeated returns for the same damage may be considered abuse.
- Freight damage.
- The cost of shipping product to Stillwater Designs.
- Items previously repaired or modified by any unauthorized repair facility.
- Items returned from unauthorized individuals or dealers.
- Return shipping on non-defective items.
- Products with tampered or missing barcode labels.
- Products returned without a Return Authorization (RA) number.

HOW LONG WILL IT TAKE?

Stillwater Designs maintains a goal of 24-hour service for all returns. Delays may be incurred if lack of replacement inventory or parts is encountered.

INTERNATIONAL WARRANTY

Contact your International Stillwater Designs dealer or distributor concerning specific procedures for your country's warranty policies



P.O. BOX 459 • STILLWATER, OKLAHOMA 74076 • 405 624-8510

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WARNING:

KICKER components are capable of producing sound levels that can permanently damage your hearing! Turning up a system to a level that has audible distortion is more damaging to your ears than listening to an undistorted system at the same volume level. The threshold of pain is always an indicator that the sound level is too loud and may permanently damage your hearing. **Please use common sense when controlling volume!**

FEBRUARY 2000