Contents

Mission Statement

ZAPCO IS DEDICATED TO THE PURSUIT OF AUDIO FIDELITY.

Our passion, our “Driving Force” is to design and manufacture car audio products of unsurpassed quality, to provide unparalleled support and service for these products and to conduct business in a manner that will enhance the quality of life for all involved. There is absolutely no substitute for experience; that is a simple fact of life. Another simple fact is that for over 30 years, ZAPCO has been the leader in defining quality standards for the car audio industry. These years of experience have led to a thorough understanding of the challenges that are unique to the world of car audio. ZAPCO’s relentless quest for sonic purity consistently yields imaginative designs that utilize the most innovative technologies. The resulting products set the criteria by which all others in the industry are judged. Feel the passion, hear the quality, know the performance and reliability by making ZAPCO the “Driving Force” in your car audio system.

The Quest

For over 30 years, Zapco has been building a reputation that is the envy of the industry. It is a reputation for sound quality, engineering integrity, and product reliability. This reputation has spread throughout the world. And now, wherever you find audio equipment, the person who wants the best in 12-volt audio products knows that Zapco is the only name you need.

In today's market, however, price often becomes as important as any other quality. There are a variety of options competing for your after-market dollar. Today's consumer must balance audio, performance accessories, and appearance accessories in their automotive budget. We at Zapco have been searching for several years to find a product that we could bring to this more price conscious market segment.

We have now found it.

The challenge for Zapco was to bring the market a bulletproof product that sounds on par with the industry's better amps at a price that we knew today's import/performance minded market would demand. We worked closely with one of Asia's most respected manufacturers to develop a product that would meet our sound quality and production quality standards at a price today's consumers could appreciate.

i-FORCE!

A quick look at the following pages will show that we have certainly succeeded. These products proudly wear the Zapco brand, and will deliver the world famous Zapco reliability. To compliment the Zapco performance, we have assured that i-Force provides all the features today's consumer wants and needs. Every i-Force amp provides variable electronic high/low crossovers, RCA and speaker level inputs, auxiliary outputs and variable remote bass control. For maximum convenience, i-Force controls are accessed right from the top of the amp, under the removable Zapco badge.

And all this value is loaded into a package that will excite the most style conscious of buyers. The chassis of i-Force was designed to fit with today's modern import styles and to fit naturally into a customized interior installation. And the bold i-Force styling underscores our intent to make the i-Force amps perform with a "take no prisoners" attitude.

Style, Performance, Value…i-Force

Warnings

Zapco highly recommends that a fuse or circuit breaker be placed within 18" of the battery. Although products have adequate internal protection, it is possible that a pinched power wire between the component and the battery may result in a fire. The protection device should be placed where it can be accessed easily and all wiring should be routed safely and correctly according to the following guidelines:

Do not run wiring close to hot or spinning objects.

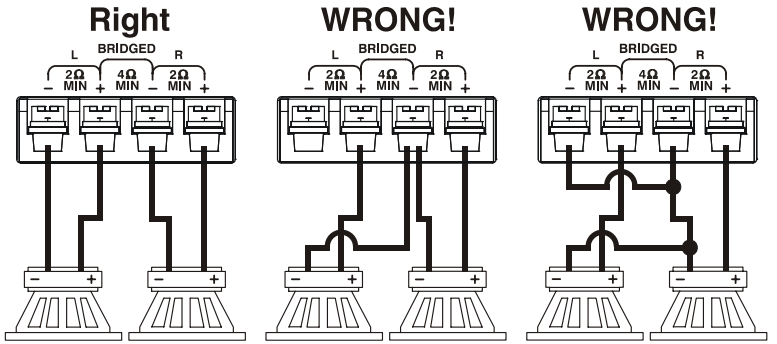
Always use wire grommets when routing wire through the firewall or any other metal panels.

Make sure that the potential for pinched wiring is avoided by routing all wires away from moving hinges and seats. This also includes brake, gas and clutch pedals, hood and trunk hinges, etc.

Caution:
Continuous exposure to excessive sound pressure levels may cause permanent hearing loss. Zapco strongly advises that you use common sense when setting volume levels. If you experience ringing in the ears, it could cause permanent hearing damage!

CAUTION!

When connecting our amplifiers to pre-wired stock speakers, care must be taken that there are no common connections in the speaker wires, i.e. minus to minus or plus to plus connections, as this will cause the amplifier to go into immediate protection or may cause damage to the amplifier. Output connections are not common chassis ground. Please follow the hookup instructions in this owner's manual. Any questions should be directed to your local Zapco dealer or call us at 209-577-4268.



Wire Size

Most people understand the importance of a clean signal source for good sound reproduction. But, what about your 12 volt power source? It's often surprising how many people (even professional car sound people) will obsess about signal wire but routinely provide the amp only a fraction of the current it needs to do its job. The most common wire gauge used in car audio is 10-gauge. The most common location for amplifiers is in the trunk.

Take a look at the chart below. If you want to have any respectable amount of power for your amp, you need an 8-guage wire to the trunk as a **bare minimum.** If you want enough power to drive woofers, your going to need at least a 4-gauge wire to the rear.

	Length of Run							
	0-	**4 -**	**7 -**	**10 -**	**13 -**	**16 -**	**19 -**	**22 -**
Current Demand	**4 Ft**	**7 Ft**	**10 Ft**	**13 Ft**	**16 Ft**	**19 Ft**	**22 Ft**	**28 Ft**
0 - 20 amps	14	12	12	10	10	8	8	8
20 - 35 amps	12	10	8	8	6	6	6	4
35 - 50 amps	10	8	8	6	6	4	4	4
50 - 60 amps	8	8	6	4	4	4	4	2
65 - 85 amps	6	6	4	4	2	2	2	0
85 - 105 amps	6	6	4	2	2	2	2	0
105 - 125 amps	4	4	4	2	2	0	0	0
125 - 150 amps	2	2	2	2	0	0	0	0

Lets just look at a fairly small system. If you use an i-Force 250 (25 amps) for the highs and an i-Force 2100 (40 amps) for the woofers, you need at least a 4-gauge wire to provide 65 amps at the trunk. Anything less and your car won't go boom. It'll just go Blap!

It takes lots of current to make lots of power!

And remember! An electrical circuit is just that…a circuit. For current to travel, you must complete the circuit from the positive terminal to the negative terminal. Whatever you use for power (B+) you must also use for Ground (B-). 4-gauge power…4-gauge ground!

So! Use this chart! Add up your fuses and choose your wire to match the total maximum current draw. And always use the same gauge for the main ground as you do for main power.

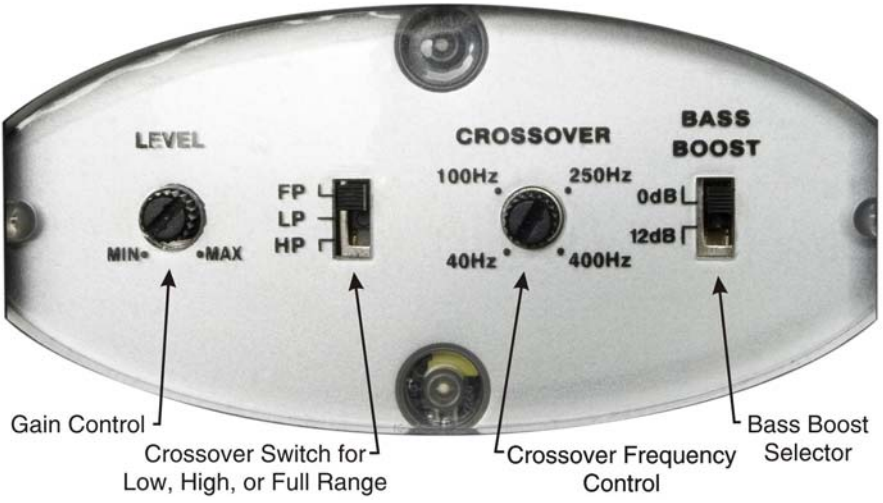
Installation Guidelines

Mounting your i-Force Amplifier is easy. Keep in mind the following guidelines:

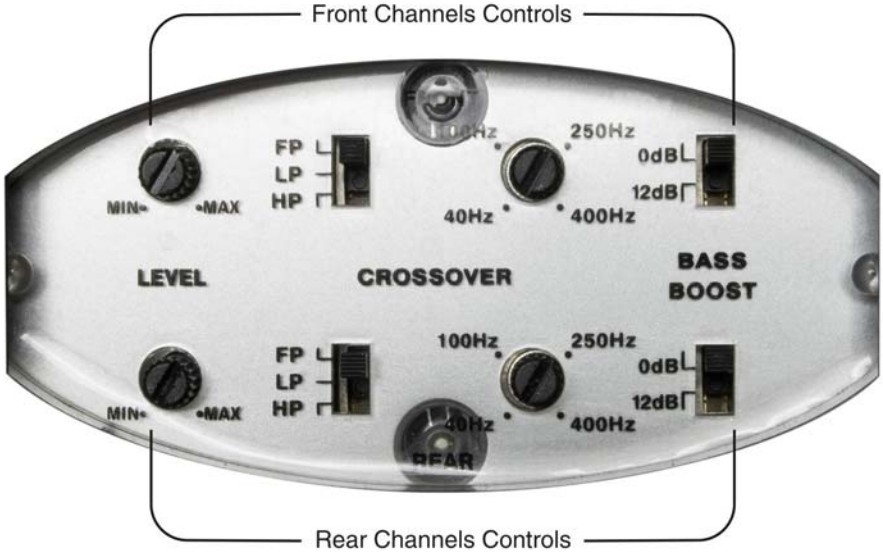
- The amplifier may be mounted in any direction, on wood, metal or carpet.
- The metal case of the amplifier may be grounded or left isolated.
- The amplifier requires adequate ventilation. Position the amplifier with sufficient surrounding area for proper cooling.
- Keep top and vents clear for proper internal cooling.
- Keep the amplifier out of the engine compartment and other locations that may cause excessive heat or moisture.
- **Do not mount the amplifier to a subwoofer enclosure or any other place that may have excessive vibration!**

i-FORCE Controls

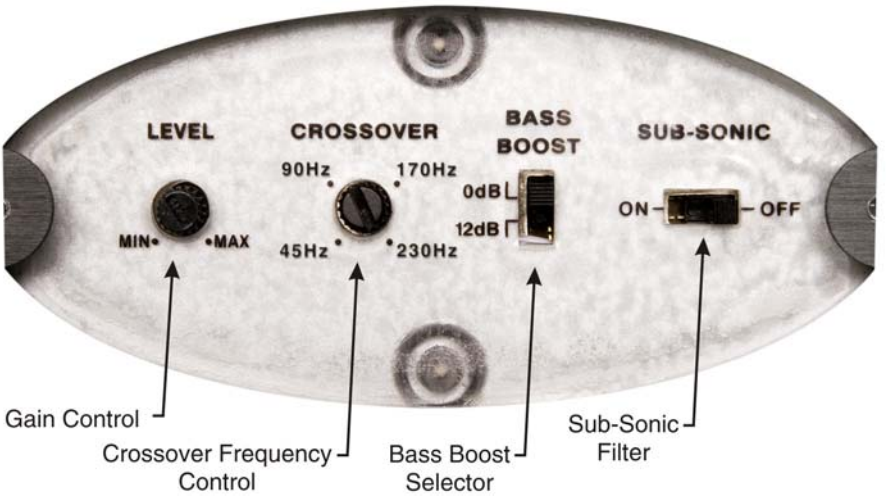
Remove the Zapco name badge in the center of your i-Force amplifier to reveal the system controls. Below are the layouts for the 2 channel and 4 channel and Mono i-Force amps.



2 Channel Controls



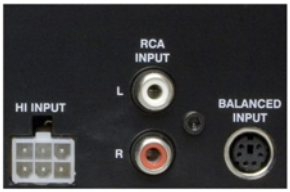
4 Channel Controls



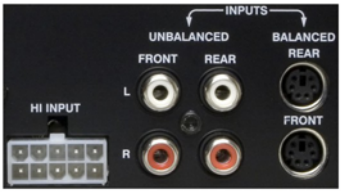
Mono Controls

i-FORCE Inputs

To provide maximum versatility, i-Force amplifiers provide both RCA and SymbiLink™ inputs. They also provide Balanced High Level inputs that can hook directly to your speaker outputs of your factory system.



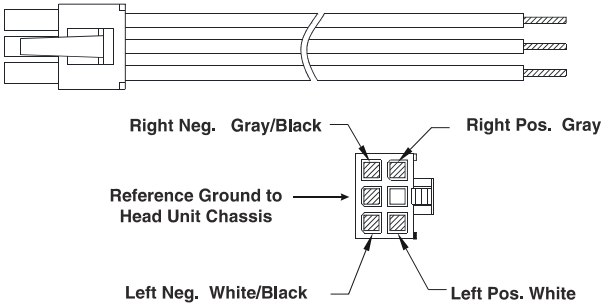
Mono and 2 Channel Input Section



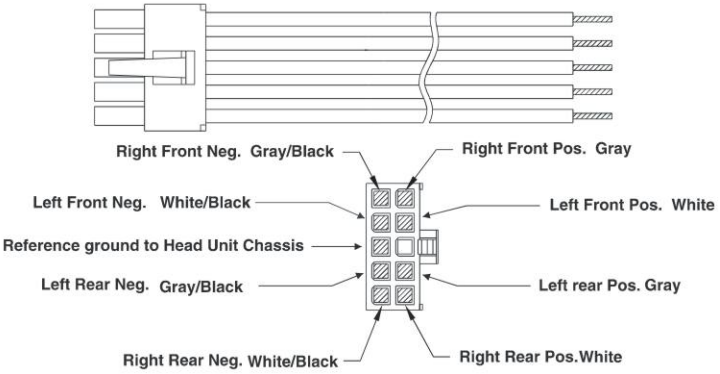
4 Channel Input Section

Below are the wire codes for the Balanced High Level input plugs.

Warning: The black reference ground wire must be hooked up to the head unit's chassis ground or performance will be seriously degraded!

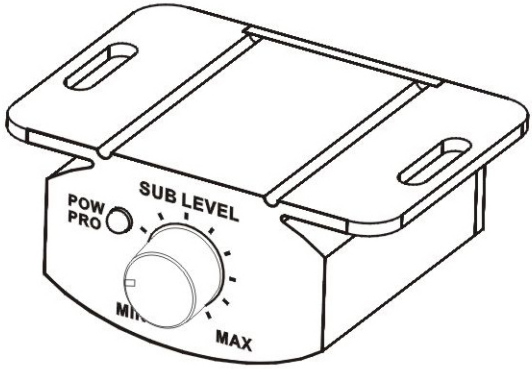


Mono and 2 Channel Input Plug



4 Channel Input Plug

Bass Boost Control



To provide more of the control you want with your system, we have developed a unique wired remote gain control for i-FORCE amplifiers.

The i-Force remote is included with every i-Force amplifier and is activated whenever the crossover is switched to low pass mode. The upper limit of volume, for the remote, is controlled by the gain control on the amp itself.

To set up for bass control, simply turn the remote fully clockwise, set the amp gain for the maximum you want the bass volume to be, then turn down the remote. You can now use the remote as your primary bass control.

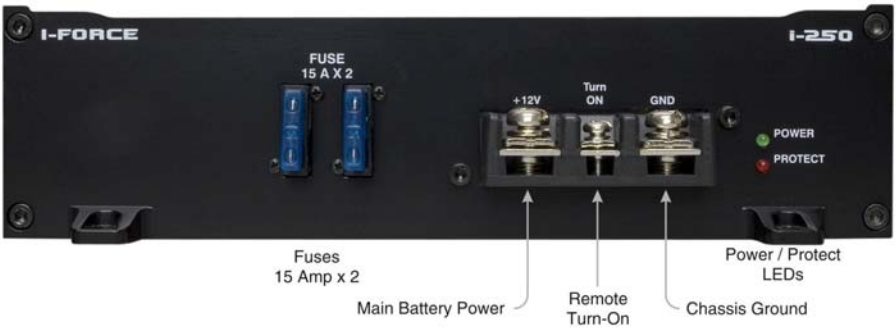
i-FORCE

i-250

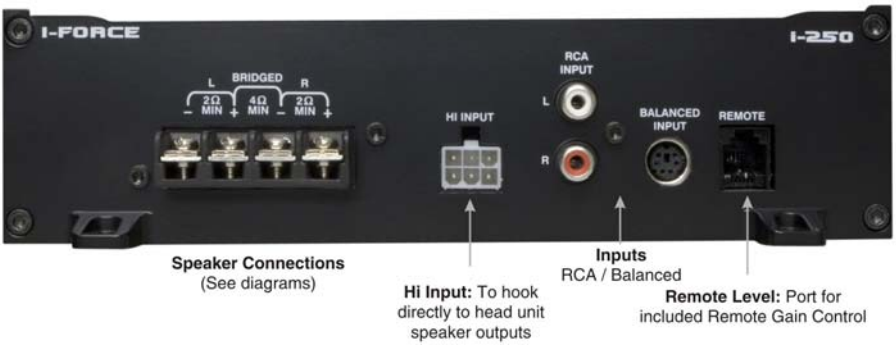
- **300 watts** Total Music Power
- 2 Channel Stereo Amplifier / Bridgeable / 3 Channel Capable
- RCA Inputs, SymbiLink™ inputs, or Speaker Level Inputs
- Remote Level Control with Wired Remote
- Top Mount System Controls for Easy Access.
- Highly Efficient Compact Design for Easy Mounting
- Switchable Bass Boost Circuit
- Variable Crossover

i-250 Hookup

Power End



Signal End



i-250 Specifications

Output Power Rating	Power
Stereo Output 4 ohm @ 14.4V (0.05%)	2 x 75W
Stereo Output 2 ohm @ 14.4V (0.05%)	2 x 125W
Bridged Output 4 ohm @ 14.4V (0.05%)	1 x 250W
Channel separation (Full Rated Power)	> 50dB
THD Distortion with 22k Filter	0.10%
Frequency Response (-3dB)	10 - 25KHz
S/N Ratio (A-Weighted)	> 90dB
Input Gain Control	
Low Level Input	150mV – 4V
High Level Input	450mV – 12V
Input Impedance	20kΩ
Features	
Battery Voltage Range for Operating	10.5V – 16V
LED Indicator	Red/Green
Protection (Short, Thermal, Overcurrent)	Yes
Crossover	HP/FULL/LP
Variable Hi-Low Pass	40Hz – 400Hz
Crossover Slope	12dB/Octave
Bass EQ at FULL/LP at 45Hz	12dB
Dimensions mm / in.	
Length	194mm / 7.625 in.
Width	273mm / 10.75 in.
Height	57mm / 2.25 in.

i-FORCE

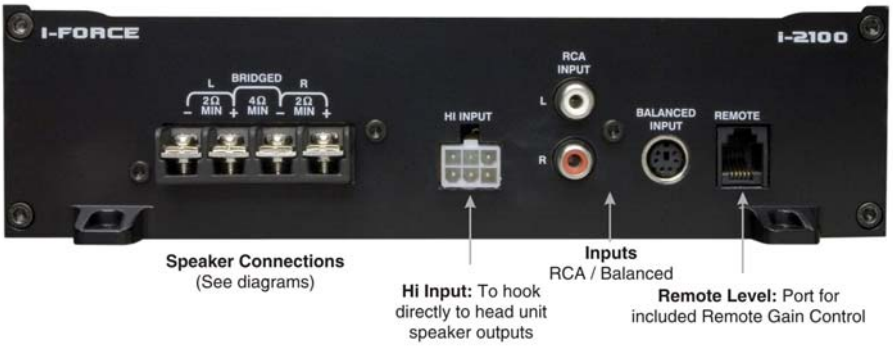
i-2100

- **500 watts** Total Music Power
- 2 Channel Stereo Amplifier / Bridgeable / 3 Channel Capable
- RCA Inputs, SymbiLink™ inputs, or Speaker Level Inputs
- Remote Bass Level Control with Wired Remote
- Top Mount System Controls for Easy Access.
- Highly Efficient Compact Design for Easy Mounting
- Switchable Bass Boost Circuit
- Variable Crossover

i-2100 Hookup

Power End

Signal End



i-2100 Specifications

Output Power Rating	Power
Stereo Output 4 ohm @ 14.4V (0.05%)	2 x 125W
Stereo Output 2 ohm @ 14.4V (0.05%)	2 x 200W
Bridged Output 4 ohm @ 14.4V (0.05%)	1 x 400W
Channel separation (Full Rated Power)	> 50dB
THD Distortion with 22k Filter	0.10%
Frequency Response (-3dB)	10 - 25KHz
S/N Ratio (A-Weighted)	> 95dB
Input Gain Control	
Low Level Input	150mV – 4V
High Level Input	450mV – 12V
Input Impedance	20kΩ
Features	
Battery Voltage Range for Operating	10.5V – 16V
LED Indicator	Red/Green
Protection (Short, Thermal, Overcurrent)	Yes
Crossover	HP/FULL/LP
Variable Hi-Low Pass	40Hz – 400Hz
Crossover Slope	12dB/Octave
Bass EQ at FULL/LP at 45Hz	12dB
Dimensions mm / in.	
Length	343mm / 13.5 in.
Width	273mm / 10.75 in.
Height	57mm / 2.25 in.

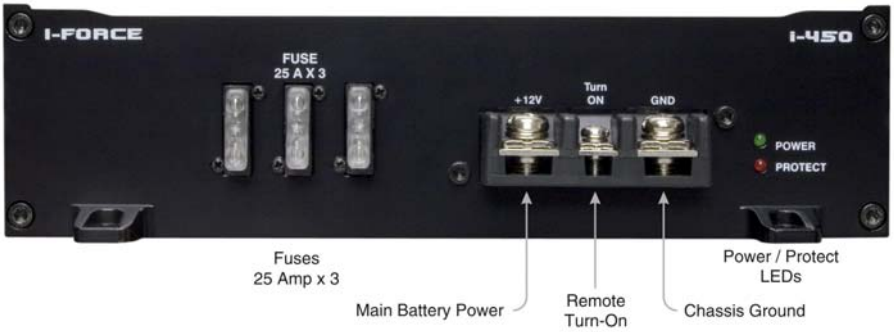
i-FORCE

i-450

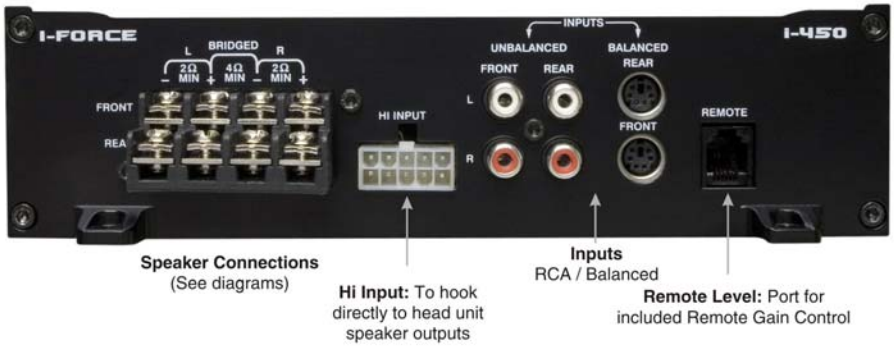
- **500 watts** Total Music Power
- 4 Channel Stereo Amplifier / Bridgeable / 2 or 3 Channel Capable
- RCA Inputs, SymbiLink™ inputs, or Speaker Level Inputs
- Remote Bass Level Control with Wired Remote for Rear Channels
- Top Mount System Controls for Easy Access.
- Highly Efficient Compact Design for Easy Mounting
- Switchable Bass Boost Circuit
- Variable Crossover

i-450 Hookup

Power End



Signal End



i-450 Specifications

Output Power Rating	Power
Stereo Output 4 ohm @ 14.4V (0.05%)	4 x 75W
Stereo Output 2 ohm @ 14.4V (0.05%)	4 x 125W
Bridged Output 4 ohm @ 14.4V (0.05%)	2 x 250W
Channel separation (Full Rated Power)	> 50dB
THD Distortion with 22k Filter	0.10%
Frequency Response (-3dB)	10 - 25KHz
S/N Ratio (A-Weighted)	> 95dB
Input Gain Control	
Low Level Input	150mV – 4V
High Level Input	450mV – 12V
Input Impedance	20kΩ
Features	
Battery Voltage Range for Operating	10.5V – 16V
LED Indicator	Red/Green
Protection (Short, Thermal, Overcurrent)	Yes
Crossover	HP/FULL/LP
Variable Hi-Low Pass	40Hz – 400Hz
Crossover Slope	12dB/Octave
Bass EQ at FULL/LP at 45Hz	12dB
Dimensions mm / in.	
Length	359mm / 14.125 in.
Width	273mm / 10.75 in.
Height	57mm / 2.25 in.

i-FORCE

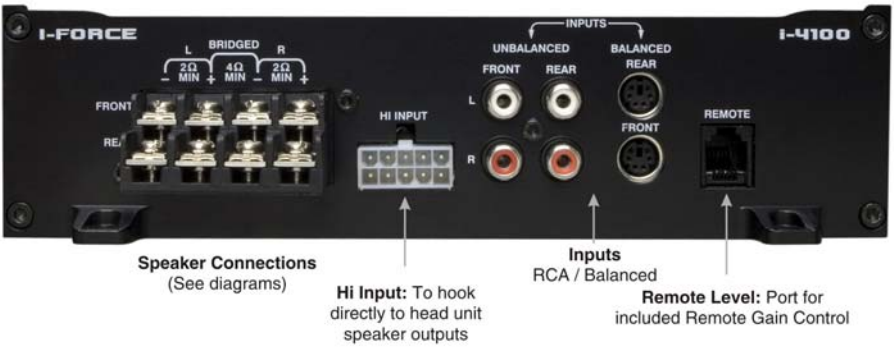
i-4100

- **1000 watts** Total Music Power
- 4 Channel Stereo Amplifier / Bridgeable / 2 or 3 Channel Capable
- RCA Inputs, SymbiLink™ inputs, or Speaker Level Inputs
- Remote Bass Level Control with Wired Remote for Rear Channels
- Top Mount System Controls for Easy Access.
- Highly Efficient Compact Design for Easy Mounting
- Switchable Bass Boost Circuit
- Variable Crossover

i-4100 Hookup

Power End

Signal End



i-4100 Specifications

Output Power Rating	Power
Stereo Output 4 ohm @ 14.4V (0.05%)	4 x 100W
Stereo Output 2 ohm @ 14.4V (0.05%)	4 x 150W
Bridged Output 4 ohm @ 14.4V (0.05%)	2 x 300W
Channel separation (Full Rated Power)	> 50dB
THD Distortion with 22k Filter	0.10%
Frequency Response (-3dB)	10 - 25KHz
S/N Ratio (A-Weighted)	> 95dB
Input Gain Control	
Low Level Input	150mV – 4V
High Level Input	450mV – 12V
Input Impedance	20kΩ
Features	
Battery Voltage Range for Operating	10.5V – 16V
LED Indicator	Red/Green
Protection (Short, Thermal, Overcurrent)	Yes
Crossover	HP/FULL/LP
Variable Hi-Low Pass	40Hz – 400Hz
Crossover Slope	12dB/Octave
Bass EQ at FULL/LP at 45Hz	12dB
Dimensions mm / in.	
Length	445mm / 17.5 in.
Width	273mm / 10.75 in.
Height	57mm / 2.25 in.

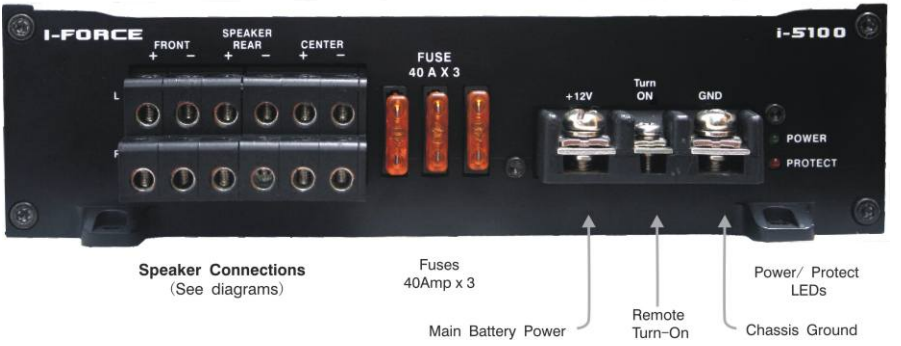
i-FORCE

i-5100

- **1500 watts** Total Music Power
- 7 Channel Stereo Amplifier / Bridgeable / 4,5,or 7 Channel Capable
- RCA Inputs, SymbiLink™ inputs, or Speaker Level Inputs
- Remote Bass Level Control with Wired Remote for Rear Channels
- Top Mount System Controls for Easy Access.
- Highly Efficient Compact Design for Easy Mounting
- Switchable Bass Boost Circuit
- Variable Crossover

i-5100 Hookup

Power End



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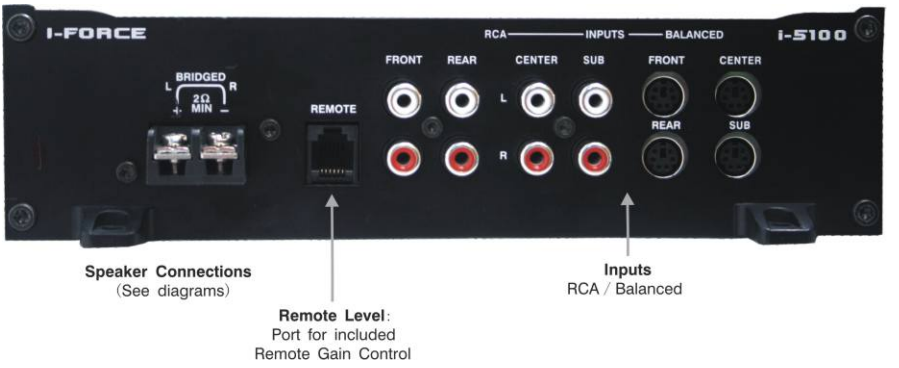


i-5100 Specifications

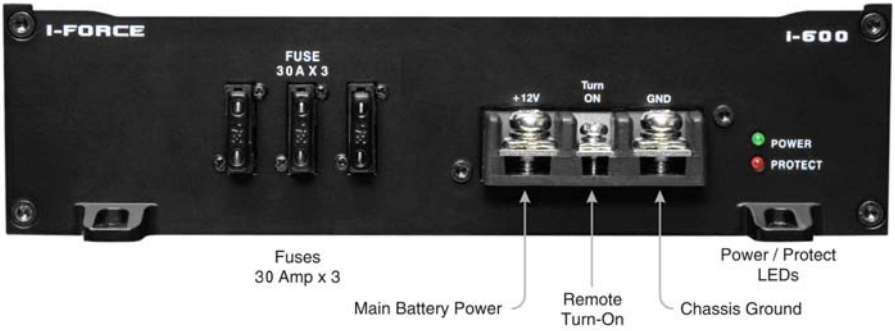
Output Power Rating	Power
Stereo Output 4 ohm @ 14.4V (0.05%)	4 x 50 / 2 x 25 / 1 x 400 W
Stereo Output 2 ohm @ 14.4V (0.05%)	4 x 80 / 2 x 35 / 1 x 600 W
Bridged Output 4 ohm @ 14.4V (0.05%)	2 x 175 / 1 x 78 / 1 x 600 W
Channel separation (Full Rated Power)	> 50dB
THD Distortion with 22k Filter	0.10%
Frequency Response (-3dB)	10 - 25KHz
S/N Ratio (A-Weighted)	> 90dB
Input Gain Control	
Low Level Input	150mV – 4V
High Level Input	450mV – 12V
Input Impedance	20kΩ
Features	
Battery Voltage Range for Operating	10.5V – 16V
LED Indicator	Red/Green
Protection (Short, Thermal, Overcurrent)	Yes
Crossover	HP/FULL/LP
Variable Hi-Low Pass	40Hz – 400Hz
Crossover Slope	12dB/Octave
Bass EQ at FULL/LP at 45Hz	12dB
Dimensions mm / in.	
Length	817mm / 24.5 in.
Width	273mm / 10.75 in.
Height	57mm / 2.25 in.

i-600

- **750 watts** Total Music Power
- Single Channel Class D Amplifier
- RCA Inputs, SymbiLink™ inputs, or Speaker Level Inputs
- Remote Bass Level Control with Wired Remote
- Top Mount System Controls for Easy Access.
- Highly Efficient Compact Design for Easy Mounting
- Switchable Bass Boost Circuit
- Variable Crossover
- Subsonic Filter

i-600 Hookup

Power End



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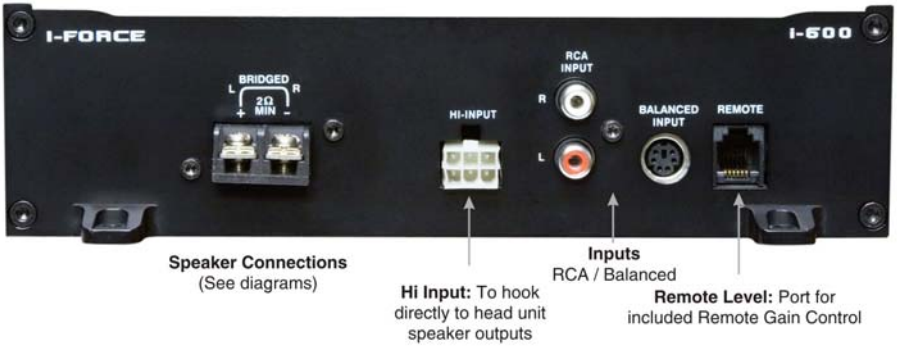


i-600 Specifications

Output Power Rating	Power
Mono Output 4 ohm @ 14.4V (3.0%)	1 x 430W
Mono Output 2 ohm @ 14.4V (3.0%)	1 x 610W
THD Distortion with 22k Filter	< 1.5%
Frequency Response (-3dB)	10 - 230Hz
S/N Ratio (A-Weighted)	> 85dB
Input Gain Control	
Low Level Input	150mV – 4V
High Level Input	450mV – 12V
Input Impedance	20kΩ
Features	
Battery Voltage Range for Operating	10.5V – 16V
LED Indicator	Red/Green
Protection (Short, Thermal, Overcurrent)	Yes
Crossover	Lowpass
Crossover Slope	24dB/Octave
Bass EQ at FULL/LP at 45Hz	12dB
Dimensions mm / in.	
Length	343mm / 13.5 in.
Width	273mm / 10.75 in.
Height	57mm / 2.25 in.

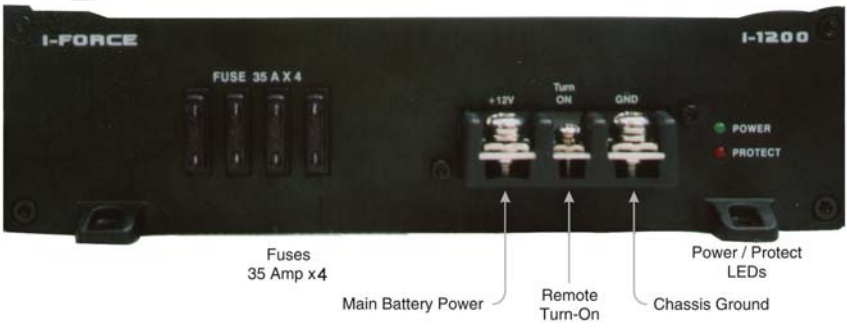
i-FORCE

i-1200

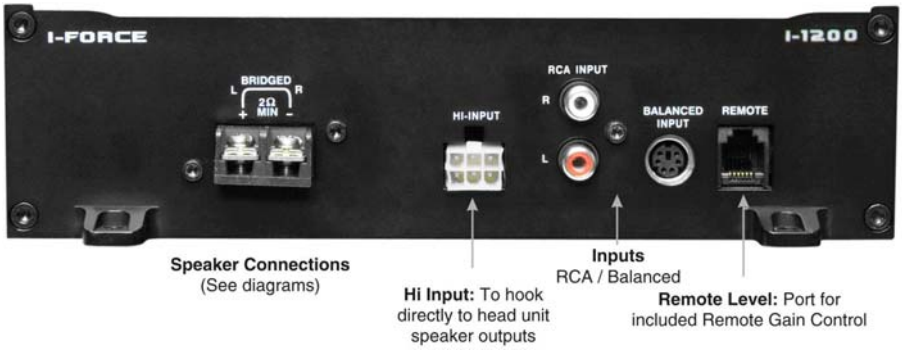
- **1200 watts** Total Music Power
- Single Channel Class D Amplifier
- RCA Inputs, SymbiLink™ inputs, or Speaker Level Inputs
- Remote Bass Level Control with Wired Remote
- Top Mount System Controls for Easy Access.
- Highly Efficient Compact Design for Easy Mounting
- Switchable Bass Boost Circuit
- Variable Crossover
- Subsonic Filter

i-1200 Hookup

Power End



Signal End



i-1200 Specifications

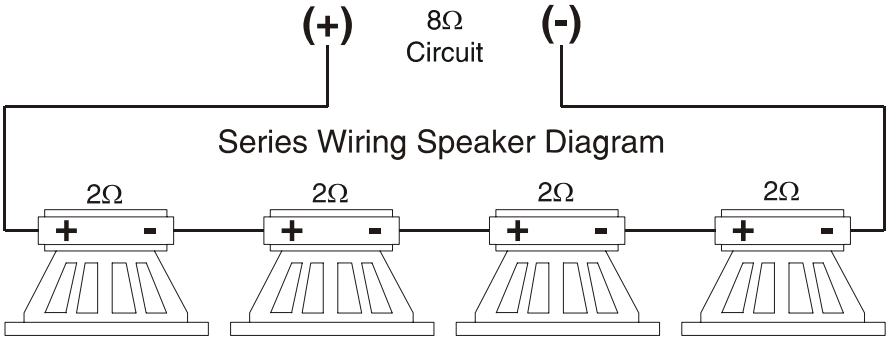
Output Power Rating	Power
Mono Output 4 ohm @ 14.4V (0.1%)	1 x 980W
Mono Output 2 ohm @ 14.4V (0.1%)	1 x 1200W
THD Distortion with 22k Filter	< 0.1%
Frequency Response (-3dB)	10 - 250Hz
S/N Ratio (A-Weighted)	> 95dB
Input Gain Control	
Low Level Input	150mV – 4V
High Level Input	450mV – 12V
Input Impedance	20kΩ
Features	
Battery Voltage Range for Operating	9V – 16V
LED Indicator	Red/Green
Protection (Short, Thermal, Overcurrent)	Yes
Crossover	Lowpass
Crossover Slope	12dB/Octave
Bass EQ at LP at 45Hz	12dB
Dimensions mm / in.	
Length	425mm / 16.75 in.
Width	273mm / 10.75 in.
Height	57mm / 2.25 in.

Speaker Wiring

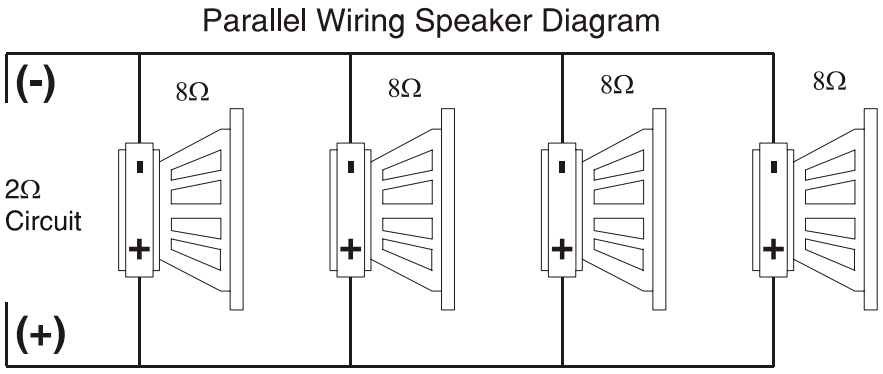
To properly connect your system, it is critical that you understand the load your speakers will put on the amplifier.

To this end you should know how your hookup affects the load. You can hook multiple speakers to a single output in three ways.

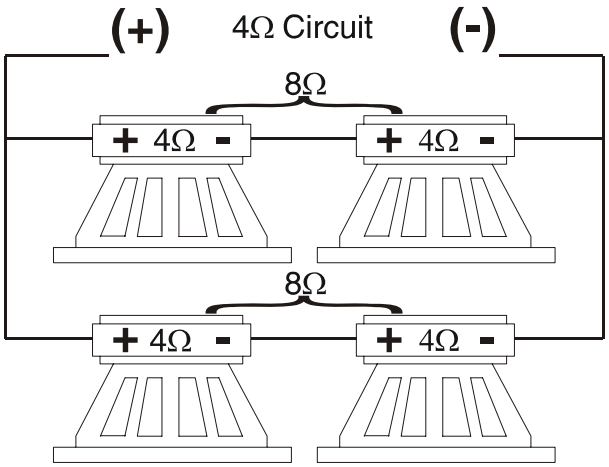
The first is a Series Circuit. A Series Circuit adds the loads together.



The second is a Parallel Circuit. A Parallel Circuit reduces the load.



Series/Parallel Wiring Speaker Diagram



Even Numbers of speakers can be connected in series parallel circuits to achieve the correct load for your amplifier.

Example: The above drawing shows four 4-ohm loads. In series you would have 16 ohms. This high impedance would reduce effective amp power. In parallel they would create a 1-ohm load, and seriously damage your amplifier.

Solution: The top pair is wired in series to make an 8-ohm load. The bottom pair is also wired to 8 ohms. The two 8-ohm loads are then wired in parallel for a total load of 4 ohms.

Your local Zapco dealer can help you with series parallel circuits to match your speakers to your amp.

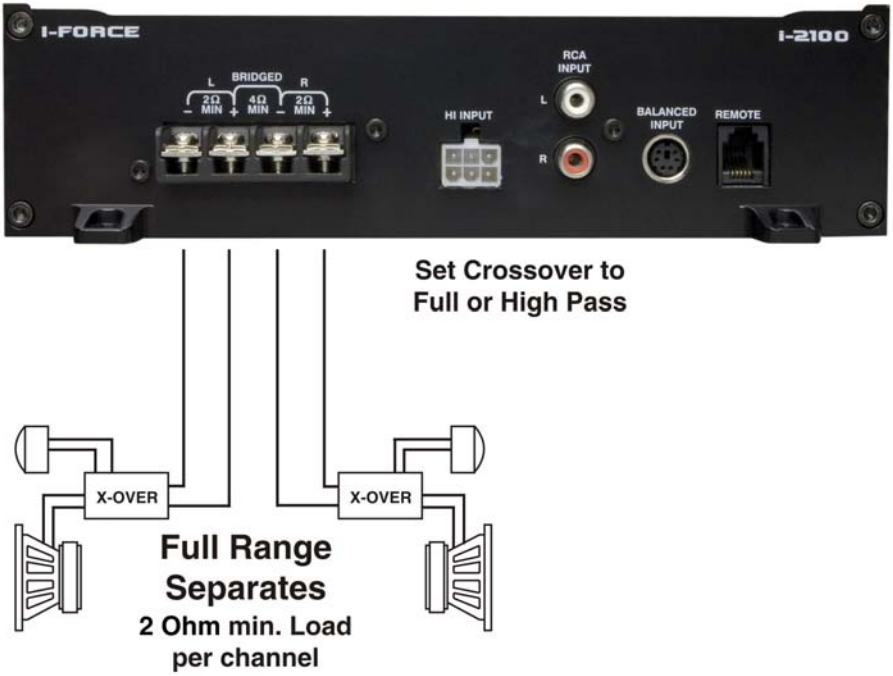
The chart on the following page will give you a quick reference for the most common combinations.

Speaker Impedance Table

Speaker Impedance	# of Speakers	How Connected	Overall Impedance
2 Ohms	1	-	2 Ohms
2 Ohms	2	Series	4 Ohms
2 Ohms	2	Parallel	1 Ohm
2 Ohms	3	Series	6 Ohms
2 Ohms	4	Series	8 Ohms
2 Ohms	4	Series/ Parallel	2 Ohms
4 Ohms	1	-	4 Ohms
4 Ohms	2	Series	8 Ohms
4 Ohms	2	Parallel	2 Ohms
4 Ohms	3	Series	12 Ohms
4 Ohms	3	Parallel	1.3 Ohms
4 Ohms	4	Series	16 Ohms
4 Ohms	4	Parallel	1 Ohm
4 Ohms	4	Series/ Parallel	4 Ohms
8 Ohms	1	-	8 Ohms
8 Ohms	2	Series	16 Ohms
8 Ohms	2	Parallel	4 Ohms
8 Ohms	3	Parallel	2.6 Ohms
8 Ohms	4	Parallel	2 Ohms
8 Ohms	4	Series/ Parallel	8 Ohms

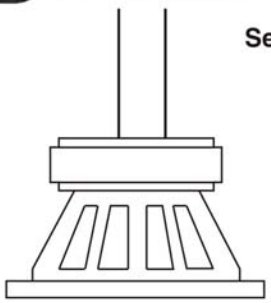
System Diagrams

Basic Stereo using Separates



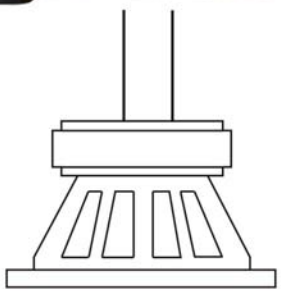
Basic Mono System w/ Stereo Bass Amp

Set Crossover to Low Pass
and set Frequency



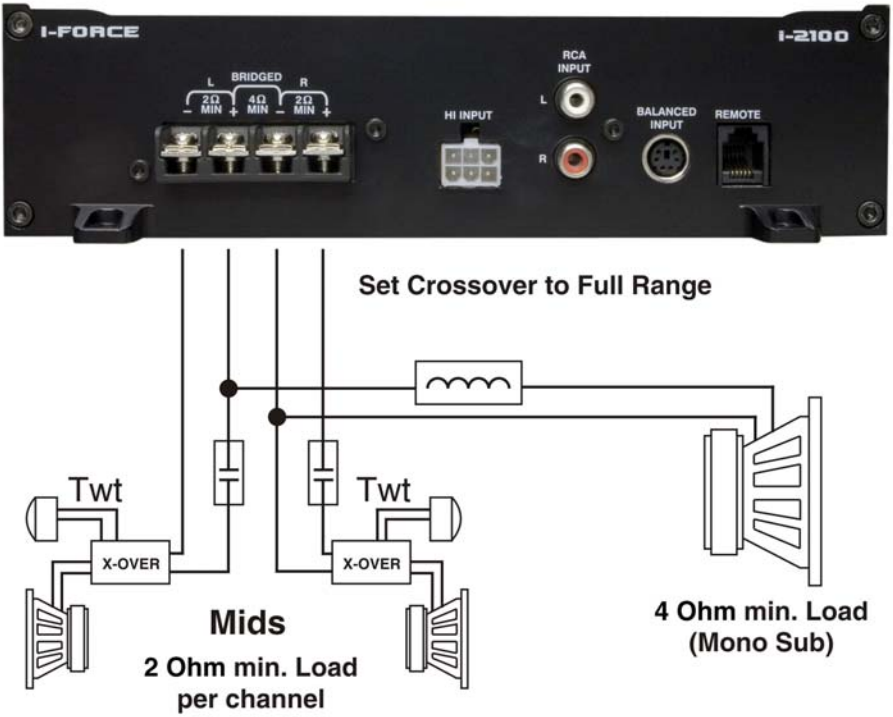
Woofer
4 Ohm min. Load

Basic Mono Bass Amp



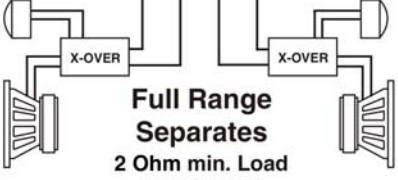
Woofer
2 Ohm min. Load

Basic 3 Channel System



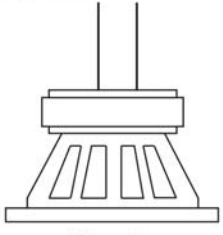
Basic Two Way Active w/ Mono Bass Amp

Set Crossover to High Pass



Full Range Separates

2 Ohm min. Load per channel

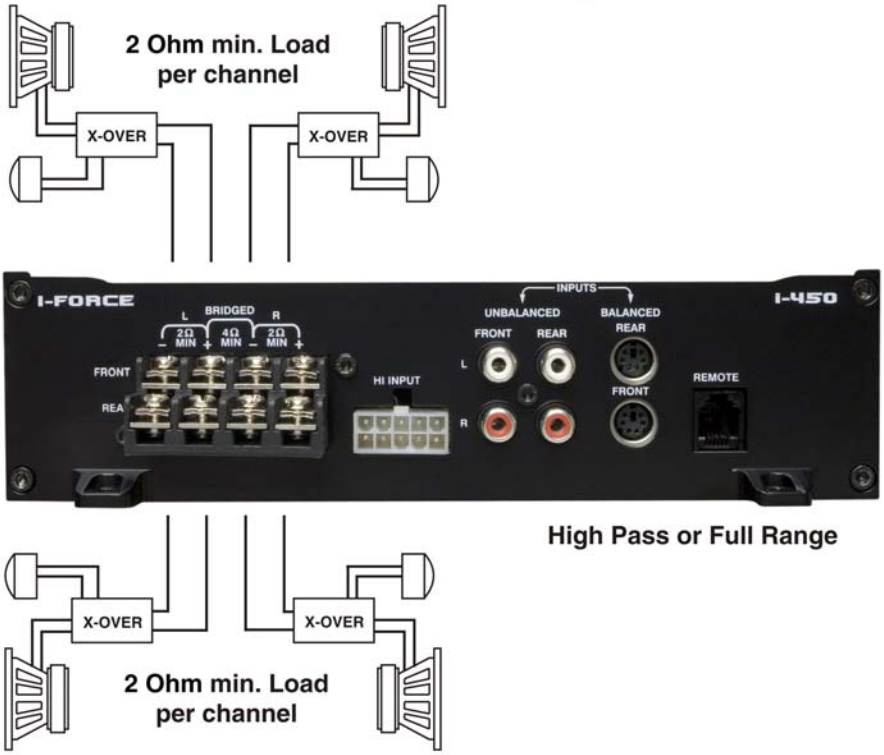


Woofer

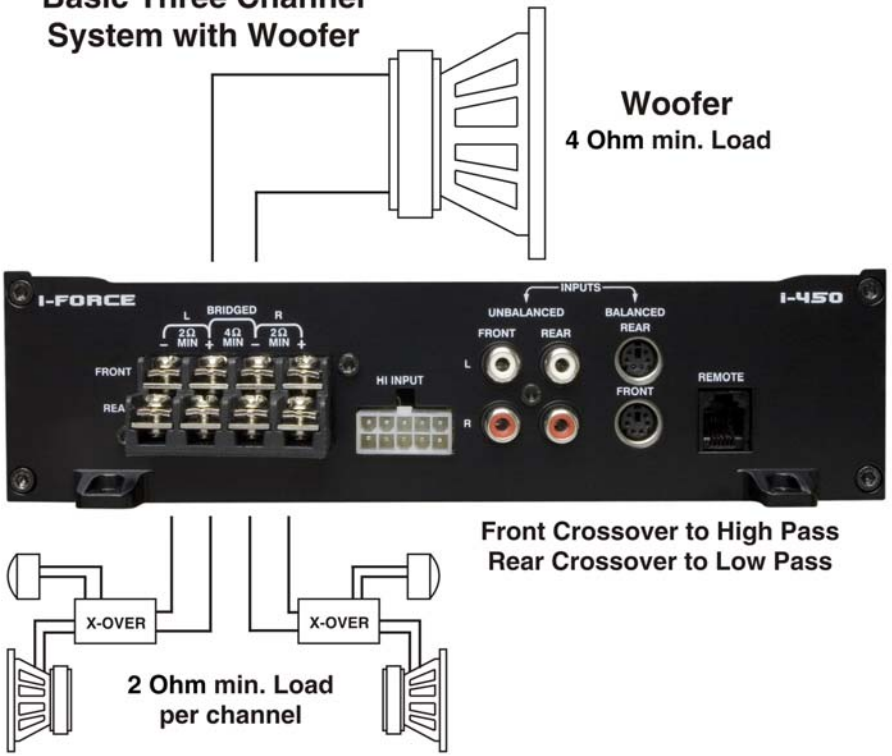
2 Ohm min. Load

Basic Four Way Active w/ Mono Bass Amp

Basic Four Channel System



Basic Three Channel System with Woofer



Technical Assistance

Should you experience a problem with your **i-Force** amplifier, please contact the dealer that sold you this product. If your dealer is unable to solve your problem, you may contact the factory service department directly.

Phone: (209) 577-4268 Monday - Friday, 8AM - 5PM Pacific Time
FAX: (209) 577-8548

Also, check our web page, www.zapco.com, for tips. You can also e-mail technical help directly from our web page or engineer@zapco.com.

If you need to return this product for repair, please call the factory for a Return Materials Authorization (RMA) number. We will ask you for information that will include your name, return shipping address, daytime phone number, model and serial number, and a detailed description of your problem. A photocopy of your original purchase receipt is necessary to determine warranty status and should also be included. Once we issue you an RMA, please write it in a highly visible area on the package. ZAPCO will not accept any packages that do not have a valid RMA number clearly marked on the outside of the package.

Once you have a valid RMA number, send all repairs to:

A.R.P.A. of America Corp.
D.b.a. Zapco
Attn.: Service Department
413 S. Riverside Drive
Suite D
Modesto, California, 95354