



ST-X SERIES

Owner's Manual

Before operating the unit, please read this manual thoroughly and retain it for future reference.

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Mission Statement

Committed to Excellence

ZAPCO is dedicated to the pursuit of audio fidelity. Our prime objectives are to design and manufacture 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.

Experience

Knowledge from Doing

There is absolutely no substitute for experience; that is a simple fact of life. Another simple fact is that ZAPCO has, for over thirty years, 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.

Zapco

Studio Series Amplifiers

With the studio Series of amplifiers Zapco brings the sound quality and reliability that built the Zapco legend to an amplifier line that everyone can afford.

Zapco has a reputation for sound reproduction and quality that is unsurpassed. It is our dedication to sonic purity and our passion for performance that built that reputation. With all the new amps coming into the market, not one has been any threat to Zapco's standing as the premium amp and processor line. Just check the audio competition scene and the audio forums. The pros know what to use to win.

But not everyone wants to compete. The question was this. Could Zapco put it's 40-years of audio experience to work to develop an amp for every-day use? An amp that all can afford but that will stay true to the Zapco heritage for sound and reliability?.

Absolutely! We can and we have! The new Studio amplifiers are a testament to the fact that you can build a quality product with great sound in an amplifier for every-day use.

The high quality 1% metal film resistors that we used in C2K and Reference amps? They are right here in the Studio X. The high current 5532 Op-Amps from the C2K Competition amps are in the Studio X also, and the Studio X uses high-end KEC outputs just like the Z and ZX series amps.

While sound quality is always the number one factor in a Zapco design, there are other factors in the Studio design that make them "every-day" amps. The extruded aluminum chassis is more compact to make the studio series an easier fit in today's smaller cars.

The feature set of the Studio amps provides you with all the system versatility you need without adding additional components, with everything from crossovers to preamp outputs, so multiple amps don't require extra signal cables.

How about power? The Studio series Class A/B amps may not have the power of our bigger competition amps, but these little powerhouses are certainly not shy. The Studio-X class A/B full range-amps have over 50 watts RMS/ch at 4Ω and about 100 watts RMS/ch at 2Ω. The Studio-X Class D bass amps are 1Ω stable with power from 500W to as much as 2,000W.

Power, price, size, and performance. No it's not designed specifically for competition. This is an amp designed to knock your socks of ... in your car, for your daily use, every day.

Of course, if you do want to jump into the competition lanes with your new ST-X series amp, you probably won't be alone.

So go ahead...Pop in your favorite disk, grab the volume, and see if you don't agree. Dedication to sonic purity is definitely a good thing.

What's next? Only time will tell. But here's one thing you can count on. As ZAPCO finds new ways to improve the state of the art, we will bring them to you immediately, in all our products.

So! Enjoy this manual. We hope you will read it thoroughly. We have tried to include all the necessary information for proper installation and set up so that you can enjoy the full potential of your ZAPCO Studio Series amplifier.

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.

Install Sense

As a manufacturer, Zapco has taken great pains to produce a product that will give you many years of superior performance and reliability. However, certain basic rules need to be followed if you want to achieve the product's potential in your vehicle

It Takes Power to Make Power

The gauge of the power and ground wire is critical to your system. If the wire gauge is too small your amp will never produce its rated power. Even worse... Straining to produce power from insufficient current can over-tax the power supply of your amp and cause amp failure. See the chart below:

Recommended Wire Gauge

Up to	4 Ft	7 Ft	10 Ft	13 Ft	16 Ft	19 Ft	22 Ft	28 Ft
20 A	14	12	12	10	10	8	8	8
35 A	12	10	8	8	4	4	4	4
50 A	10	8	8	4	4	4	4	4
60 A	8	8	4	4	4	4	4	2
85 A	4	4	4	4	2	2	2	0
105 A	4	4	4	2	2	2	2	0
125 A	4	4	4	2	2	0	0	0
150 A	2	2	2	2	0	0	0	0

Be Safe: Add up the fuse recommendations of all the amps in your system. Then see how long a run you will have from the battery to the amplifiers . Now locate the wire gauge on the chart above.

i.e. If your amps need a total of 125 amps and your wire run will be 16ft long you will need to use at least a 2 gauge wire. Anything less and your car won't go boom. It'll just go Blaap! And you can damage your new amplifier.

Ground Matters just as much as power. Electricity travels in a circuit. The ground wire needs to be the same size as the power wire or your current (and power) will be reduced. A weak ground connection will also limit the current flow. You need a good solid ground connection to the vehicle frame. Remember: A body panel is not a frame. Many metal body panels never even make contact with the frame. Make sure you have a

Basic Installation Guidelines

solid ground to the frame, to guaranty you get full performance from your system.

Fusing: In addition to the fuses at the amplifiers, always fuse the main power lead at the battery to protect the vehicle in case of amp or wiring failure. Contact an installation professional for further advice.

Mounting your Studio Series Amplifier is easy. Just 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 any fan and vent end plates 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!

Setting Gains (Input sensitivity)

Proper gain setting is one of the most important factors in setting up a stereo system. At the same time, gain setting is most often done wrong. Turning up the gain of an amp is the very last thing you should ever do to a system. An amplifier is a step up transformer. Period. Any signal you put in is boosted by a fixed factor. Music, hiss, or any other noise, it doesn't matter. A large number of noise problems are simply a matter of improper gain settings. The goal of gain setting is to achieve the maximum amount of musical output from the amplifier while getting the least amount of hiss or noise from the system. Your Studio Series amplifier accepts an extremely wide range of input levels. As little as .25 volts to as much as 8 volts at the RCA inputs. The basic gain setting is very simple and requires no special tools. Whether you have a simple system with a deck and an amp, or a system with a deck, line driver, equalizer, crossover, and amp, the procedure is always the same. First, hook up the system with all gain controls at minimum (turn the gain pots fully counter-clockwise with a small screwdriver). Then turn on the head unit and turn up the volume. If you achieve clean sound, and, more

volume than you want, you don't need to make any adjustments. However, if you turn up the volume and begin to hear distorted sound before it becomes loud, you are clipping (distorting) the deck (probably a little over $\frac{3}{4}$ volume). Turn the deck down just enough to hear clean sound again, and then move to the next component in your system. With the deck playing at "maximum clean volume" adjust the gain of the next component to its "maximum clean volume". If you adjust your gains this way, always starting at the head unit and working down the line to the amplifier, you will get the most performance out of your amplifier(s) with the least amount of unwanted distortion and noise.

Safe Sound

A quick word about very serious safety issue:

Continuous exposure to excessive sound pressure levels may cause permanent hearing loss. It is not unusual for customers new to high-end sound quality to complain that their Zapco amps sound wonderful, but they just don't get "loud".

NOTE: A clean undistorted system simply will not sound loud. Distortion is what makes a system "sound loud", not sound pressure.

Here's the problem: Having properly set gains will allow you to comfortably play your Zapco system at a much higher SPL without sounding "loud". However, the fact that it is now more comfortable to play at a higher SPL does not mean it is safer. The functioning devices in your ear do not have very good pain receptors. So even if it does not "feel" like it hurts, excessively high SPL absolutely will damage your hearing.

So, please practice safe sound!

Install Note For High level OEM Hook-up:

Speaker level input plugs: The 2 channel and 4 channel Studio Amplifiers have speaker level inputs. There are 5 connections for speaker level inputs. The fifth wire is "Signal Ground". For best performance and lowest noise this wire should be grounded at the chassis of the factory head unit. Invest a little time now and you will get better performance for years.

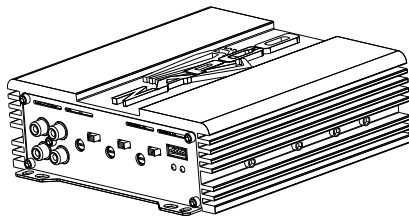
The Studio-X Amplifiers

Full range Class A/B Compact Chassis Amplifiers

The full range Studio X amps combine class A/B sound quality with a compact chassis. These amps use top quality internal parts like 5532 op-amps and KEC output devices for top quality sound. These amps are available in 2 channel, 4 Channel, and 5 Channel models.

ST-2X

The ST-2X is where the studio line starts. This is a full featured stereo amplifier with plenty of power for Co-Ax's or small separates at the front stage or even for a small woofer wired mono.



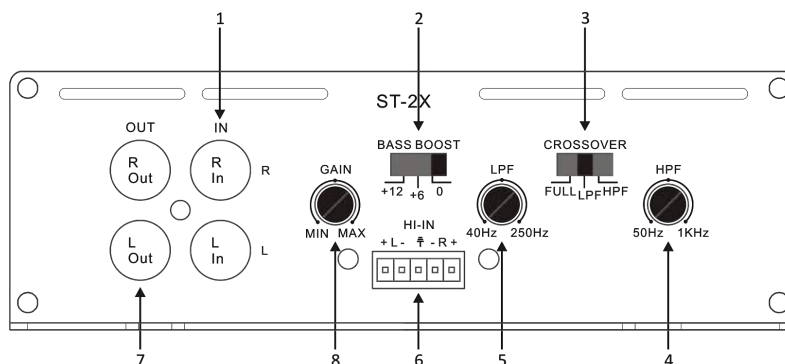
- 2 Channel
- Compact Chassis
- Class A/B
- 160 Watts RMS
- 80 watts RMS/Ch @ 2Ω

ST-2X Features

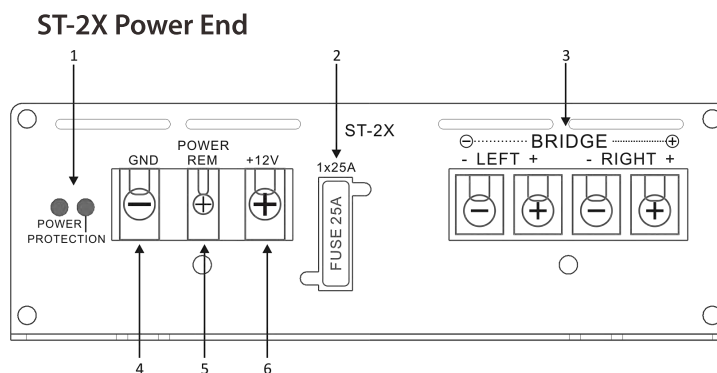
- Variable LP/HP/Full Electronic Crossover
- Variable bass boost
- RCA pass through outputs
- Hi level inputs
- Switchable Auto-On Function

The ST-2X Controls and Connections

ST-2X Control End



1. RCA IN: connectors are to connect the ST-2X to an aftermarket head unit
2. Bass Boost: allows 6dB or 12dB boost of bass frequencies
3. Crossover selector: determines high pass, low pass, or full range
4. HPF: If you use high pass, this control determines frequency between 50Hz-1KHz
5. LPF: If you use low pass, this control determines frequency between 40Hz to 250Hz
6. HI In: is the speaker level input plug. (See install note)
7. RCA Out: connects to another amp to "daisy chain" two amplifiers from a single RCA head unit output.

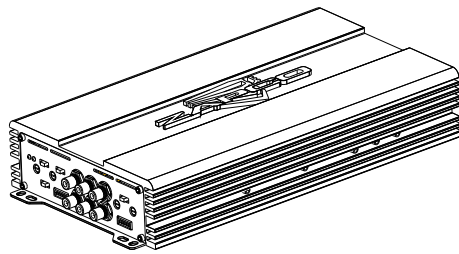


1. LED Indicators: let you know the status of the amplifier. The green LED tells you the amp is on. The Red LED lets you know the amp is in "protection" because of some problem with the system.
2. Fuse: The fuse protects the car should a catastrophic problem occur in the amp. Always replace with the same size fuse
3. Speaker connections: The heavy duty terminal block provides positive speaker connections. Simple insert the wire and cinch down the set screw. Note that the Mono bridge positions here are L - to R +
4. **GND:** The amp should have a firm connection the car frame.
* See section "Install Sense"
5. **REM:** The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
6. **+12V:** The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section "Install Sense"

ST-4X II

This is the amplifier for what matters most to you. There are three levels of ST-4X amplifiers.

- **The ST-4X** is the standard studio series amplifier. An overall balance of sound, power, and afford ability.
- **The ST-4XSQ** is for the listener who wants the most transparent sound and the most refined sound stage. The "SQ" version gets the upgraded caps and op-amps, and panel mount RCAs like the Z-series competition amps.
- **The ST-4XP** is for the listener who wants that extra punch at the bottom end and who likes to rock out at high sound levels. The "P" version gets top quality internals with higher voltage output devices for rock solid power.



- 4Channel
- Compact Chassis
- Class A/B
- 400 Watts RMS

ST-4X II Features

- Variable Electronic Crossover
- RCA pass through outputs
- Switchable Auto-on Function
- Variable bass boost
- Hi level inputs

ST-4X P

As above but high Voltage output devices are added for an extra boost on power

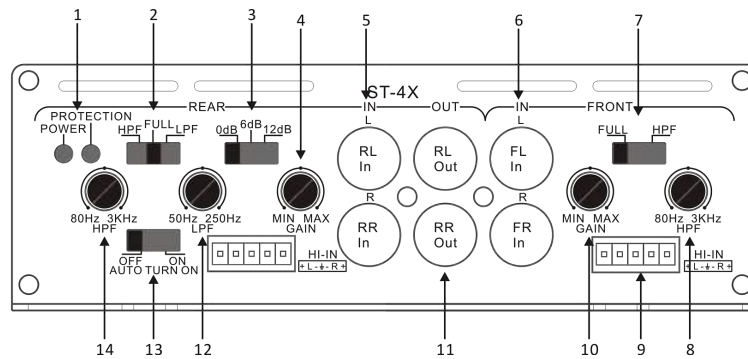
ST-4X SQ

Adds Upgraded Caps and Op-amps for top sound quality and Tiffany style RCA connectors for perfect signal transfer

The layout of the controls on the input and output ends of the ST-4X amps are all the same, so the illustrations below will serve all three versions

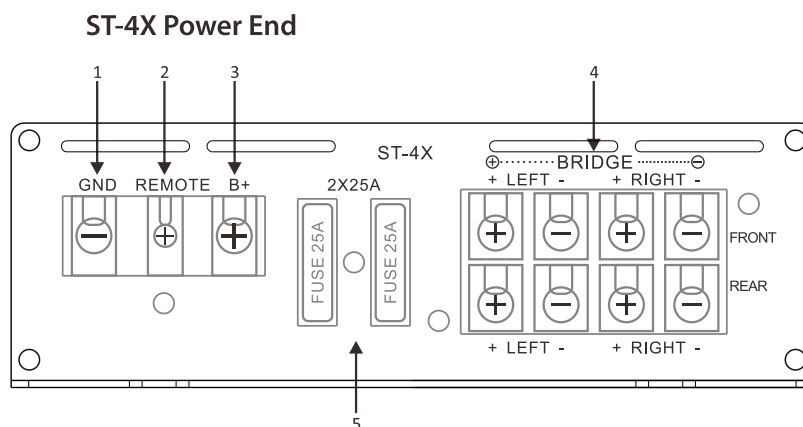
The ST-4X Controls and Connections

ST-4X Control End



1. Power and protection LEDs: show the operating condition
2. Rear Crossover selector: determines high pass, low pass, or full range for the rear channels
3. Bass Boost: allows 6dB or 12dB boost of bass frequencies in the rear channels
4. Rear Gain: This control balances output of the head unit to the input of the amp and with the front amp channels
5. Rear RCA IN: connectors are to connect the ST-4X to an aftermarket head unit rear outputs
6. Front RCA IN: connectors are to connect the ST-4X to an aftermarket head unit front outputs
7. Front Crossover selector: determines high pass or full range for the front outputs
8. HPF: If you use High Pass crossover, this control determines frequency between 80Hz to 3Khz
9. Speaker Level input: The ST-4X has Hi-level input plugs for front and rear speaker level inputs. *See Install notes of ST-2X
10. Front Gain: This control balances output of the head unit to the input of the amp and with the rear amp channels
11. Rear Pass-through Outputs: These provide an RCA output to drive the front channels if the head unit has only one RCA out.
(Connect a short RCA between the Rear out and the Front In)
12. LPF: If you use the rear low pass crossover, this control determines frequency 20Hz to 1KHz

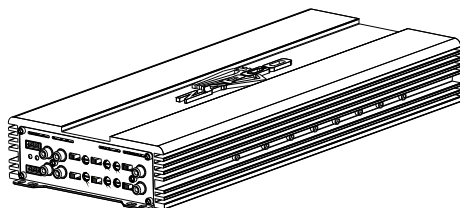
13. Auto-on Switch: lets you choose to have the amp on automatically when you turn on a factory head unit
- 14.HPF: If you use the rear high pass crossover, this control determines frequency 80Hz to 3KHz



1. GND : The amp should have a firm connection the car frame. * See section "Install Sense"
2. REM: The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
3. +12V : The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section "Install Sense"
4. Speaker connections: The heavy duty terminal block provides positive speaker connections. Simple insert the wire and cinch down the set screw. Note that the Mono bridge positions are L+ to R -, for both front and rear speaker sets
5. Fuses: The fuses protect the car should a catastrophic problem occur in the amp. Always replace fuses with the same size fuse

ST-5X

A Full System in One Chassis



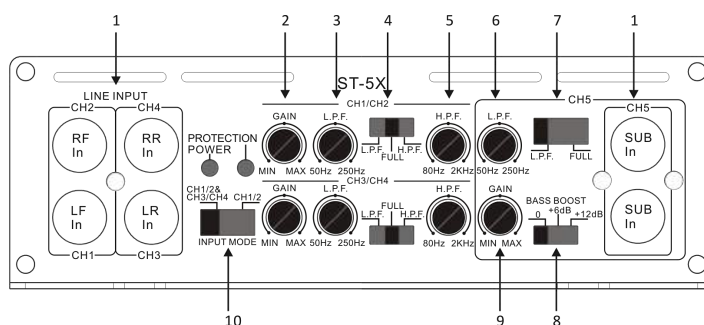
- 5 Channel
- Compact Chassis
- Class A/B
- 820 Watts RMS

ST-5X Features

- Variable Electronic Crossover
- Internal Mono Bass amp
- Variable bass boost
- 2 ch/4 ch input mode selection

The ST-5X Controls and Connections

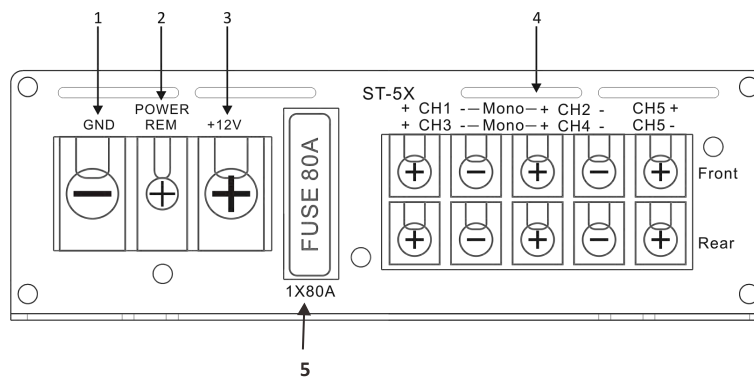
ST-5X Control End



1. RCA IN: connectors for Front, Rear, and Sub are to connect the ST-5X to an aftermarket head unit 's outputs (See also item 9)
2. Front and Rear Gain: These controls balances the output of the head unit to the input of the amp and balance the front-to-rear-to-sub levels.
3. Front and Rear LPF: controls set the crossover point when using the low pass crossover filters.
4. Front and Rear Crossover: selectors determine high pass, low pass, or full range for the front and rear channels.
5. Front and Rear HPF: controls set the frequency of the high pass crossover
6. Subwoofer LPF: control sets the sub crossover frequency

7. Crossover switch: chooses low pass or full range for the sub output
8. Bass Boost: allows 6dB or 12dB boost of bass frequencies in the sub channel
9. Gain setting: for input level for the subwoofer section
10. Input Mode selector: allows you to choose to use separate input RCAs for the front and rear inputs, or to have channels 1 and 2 serve both front and rear

ST-5X Power End



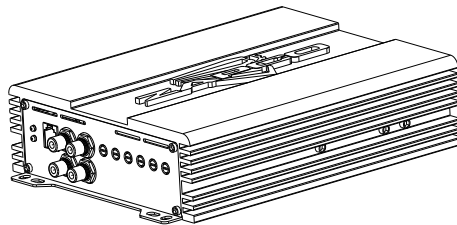
1. GND: The amp should have a firm connection the car frame. * See section "Install Sense"
2. REM: The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
3. +12V: The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section "Install Sense"
4. Speaker connections: The heavy duty terminal block provides positive speaker connections. Simple insert the wire and cinch down the set screw. Note that the Mono bridge positions are L+ to R -, for both front and rear speaker sets
5. Fuses: The fuses protect the car should a catastrophic problem occur in the amp. Always replace fuses with the same size fuse

The Studio-XM

Class D Bass Amplifiers

The Studio-XM amps are Class D bass amps designed for maximum efficiency to put big power in a small, light weight chassis to fit today's smaller vehicles as well as larger vehicles where you don't want stereo equipment to use up all that room for skis, boards, and all the other stuff that makes life fun. The Studio-XM amps range from 500 watts to 2,000 watts. They are all 1-ohm stable, but two are designed for maximum efficiency at 2-ohms so you can find the right amp for the right speaker every time.

ST-500XM II



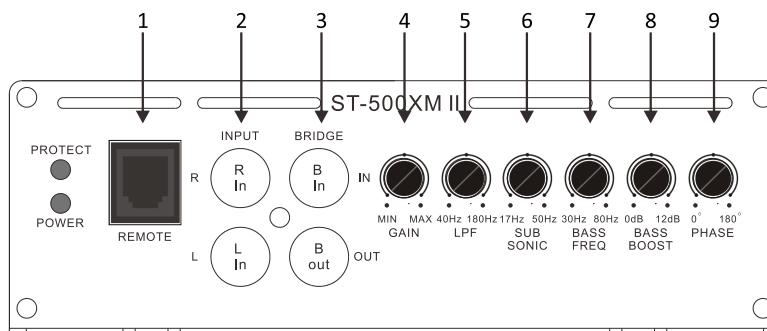
- Single channel
- Compact Chassis
- Class D
- 500 Watts RMS @ 1Ω

ST-500XM II Features

- Variable Electronic Crossover
- Variable Subsonic Filter
- Dash Remote Level Control
- Variable Gain Control
- Strappable (To run 2 amps on a single voice coil)

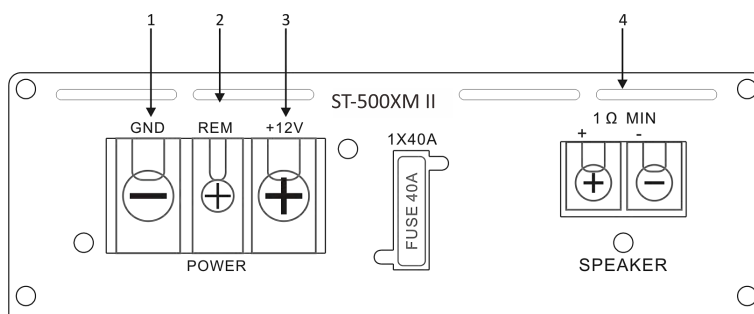
The ST-500XM II Controls and Connections

The ST-500XM II Control End



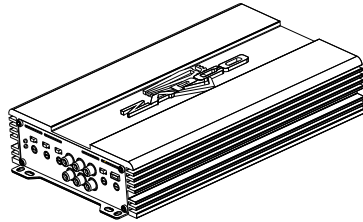
1. Remote each ST-X bass amp includes a wired dash remote for the bass output
2. RCA inputs accept the input signal from the head unit
3. Bridge in and Bridge out are used to "strap" to ST-X mono amps so they can work together to drive a single speaker (see following section on strapping mono amps)
4. Gain control is used to balance the output of the head unit to the input of the amplifier
5. LPF Being a bass amp, the STx has full time low pass bass crossover that can vary from 40Hz to 180Hz
6. Subsonic To protect your woofers from sub sonic frequencies and to conserve amplifier power, a variable subsonic filter can be set from 50Hz own to Off

ST-500XM II Power End



1. GND The amp should have a firm connection the car frame.
* See section Install Sense
2. REM The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
3. +12V The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section Install Sense
4. Speaker connections The terminal block provides positive speaker connections. Simple insert the wire and cinch down the set screw.
5. Fuse The ST-500XM II has an internal fuse. If needed replace only with the same value fuse. An additional fuse should be installed in the main power lead near the battery

ST-850XM



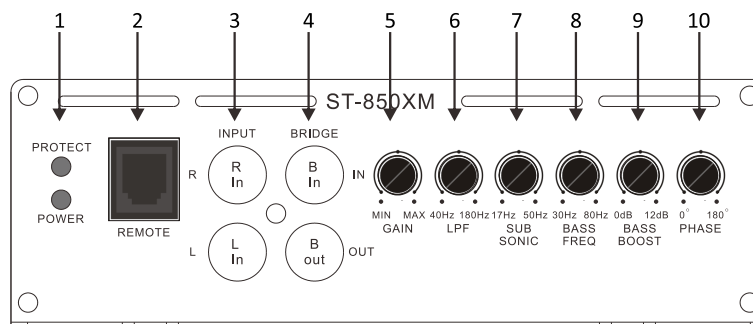
- Single channel
- Compact Chassis
- Class D
- 600 Watts @ 2 Ω
- 850 Watts RMS @ 1 Ω

ST -850XM Features

- Variable Electronic Crossover
- Variable Subsonic Filter
- Dash Remote Level Control
- Variable Bass Boost/Frequency Control
- Strappable
- Variable Phase Control

The ST-850XM Controls and Connections

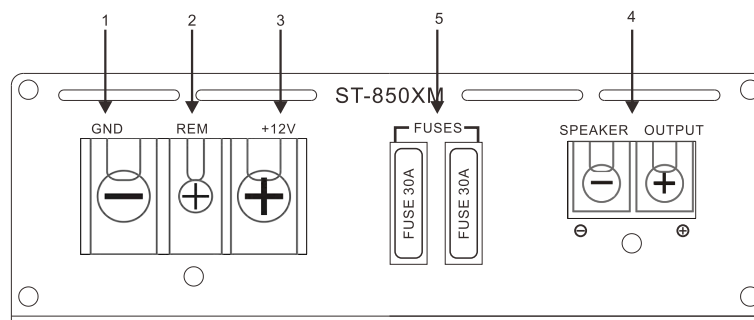
ST-8500XM Control End



1. Power/Protect LEDs: show the operating condition of the Amplifier
2. Remote: each ST-X bass amp includes a wired dash remote for the bass output
3. RCA inputs: accept the input signal from the head unit
4. Bridge in and Bridge out: are used to "strap" to ST-X mono amps so they can work together to drive a single speaker (see strapping Ppxx
5. Gain control: is used to balance the output of the head unit to the input of the amplifier
6. Low Pass: Being a bass amp, the ST-X has a full time low pass bass crossover that can vary from 40Hz to 180Hz
7. Subsonic: To protect your woofers from sub sonic frequencies and to conserve amplifier power, a variable subsonic filter can be set from 50Hz own to Off

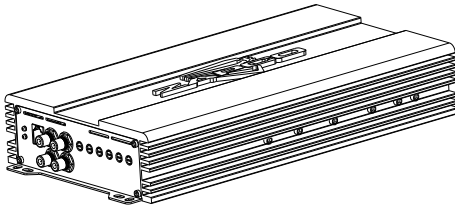
8. Bass Boost frequency: control sets the center point of the boost
9. Bass Boost level : control sets the amount of boost
10. Phase control: to adjust the subwoofer from 0 ~180°

ST-850XM Power End



1. GND: The amp should have a firm connection the car frame.
* See section Install Sense
2. REM: The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
3. +12V: The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section Install Sense
4. Speaker connections: The heavy duty terminal block provides positive speaker connections. Insert the wire and cinch down the set screw.
5. Fusing: Note the value of the ST- 850XM has internal fuses. If needed replace with the same value fuses. An additional fuse should be installed in the main power lead near the battery

ST-1000XM II



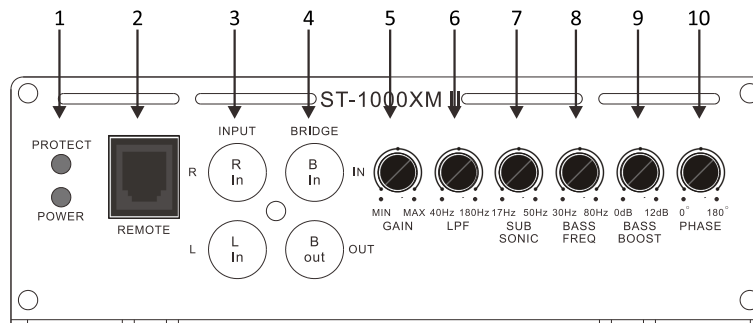
- Single channel
- Compact Chassis
- Class D
- 1,000 Watts RMS @ 1Ω

ST-1000XM II Features

- Variable Electronic Crossover
- Dash Remote Level Control
- Strappable (To run 2 amps on a single voice coil)
- Variable Subsonic Filter
- Variable Bass Boost/Frequency control

The ST-1000XM II Controls and Connections

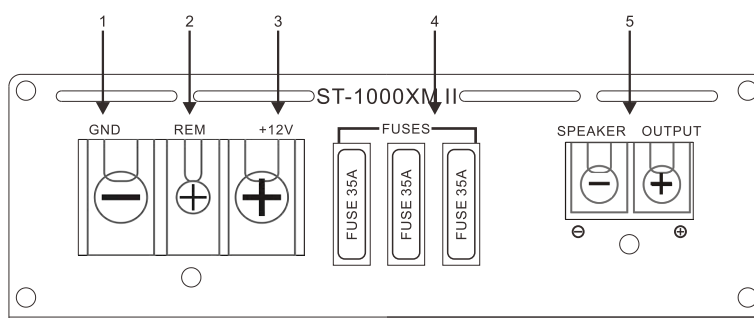
ST-1000XM II Control End



1. Power/Protect LEDs: show the operating condition of the Amplifier
2. Remote: each ST-X bass amp includes a wired dash remote for the bass output
3. RCA inputs: accept the input signal from the head unit
4. Bridge in and Bridge out: are used to "strap" to ST-X mono amps so they can work together to drive a single speaker (see strapping Pp xx)
5. Gain control: is used to balance the output of the head unit to the input of the amplifier
6. Low Pass: Being a bass amp, the ST-X has a full time low pass bass crossover that can vary from 40Hz to 180Hz

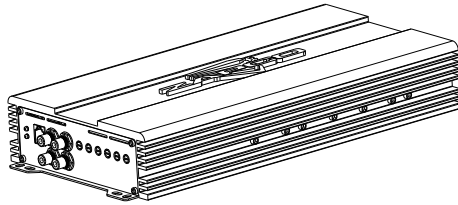
7. Subsonic: To protect your woofers from sub sonic frequencies and to conserve amplifier power, a variable subsonic filter can be set from 50Hz down to Off
8. Bass Boost frequency: control sets the center point of the boost
9. Bass Boost level: control sets the amount of boost

ST-1000XM II Power End



1. GND: The amp should have a firm connection the car frame.
* See section Install Sense
2. REM: The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
3. +12V: The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section Install Sense
4. Speaker connections: The heavy duty terminal block provides positive speaker connections. Insert the wire and cinch down the set screw.
5. Fusing: Note the value of the ST- 1000XM II has internal fuses. If needed replace with the same value fuses. An additional fuse should be installed in the main power lead near the battery

ST-1350XM II



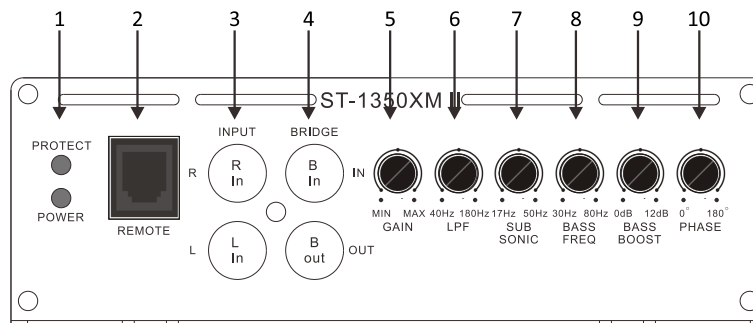
- Single channel
- Compact Chassis
- Class D
- 1,000 Watts RMS @ 2 Ω
- 1,350 Watts RMS @ 1 Ω

ST-1350XM II Features

- Variable Electronic Crossover
- Dash Remote Level Control
- Strappable
- Variable Subsonic Filter
- Variable Bass Boost/Frequency control
- Variable Phase control

The ST-1350XM II Connections and Controls

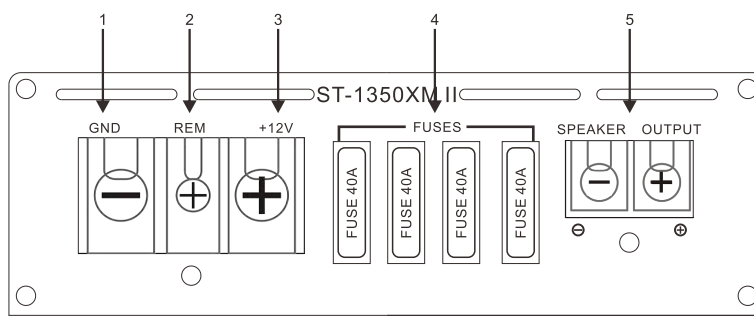
ST-1350XM II Control End



1. Power/Protect LEDs: show the operating condition of the Amplifier
2. Remote: each ST-X bass amp includes a wired dash remote for the bass output
3. RCA inputs: accept the input signal from the head unit
4. Bridge in and Bridge out: are used to "strap" to ST-X mono amps so they can work together to drive a single speaker (see strapping Pp xx)
5. Gain control: is used to balance the output of the head unit to the input of the amplifier
6. Low Pass: Being a bass amp, the ST-X has a full time low pass bass crossover that can vary from 40Hz to 180Hz
7. Subsonic: To protect your woofers from sub sonic frequencies and to conserve amplifier power, a variable subsonic filter can be set from 50Hz down to Off

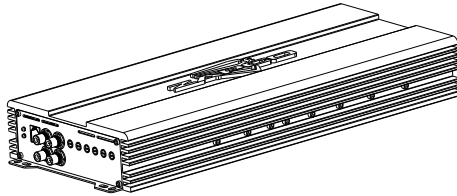
8. Bass Boost frequency: control sets the center point of the boost
9. Bass Boost level: control sets the amount of boost
10. Phase control: to adjust the subwoofer from 0 ~180°

The ST-1350XM II Power End



1. GND: The amp should have a firm connection the car frame. * See section Install Sense
2. REM: The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
3. +12V: The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section Install Sense
4. Speaker connections: The heavy duty terminal block provides positive speaker connections. Just insert the wire and cinch down the set screw.
5. Fusing: Note the value of the ST- 1350XM has internal fuses. If needed replace with the same value fuses. An additional fuse should be installed in the main power lead near the battery

ST-1650XM II



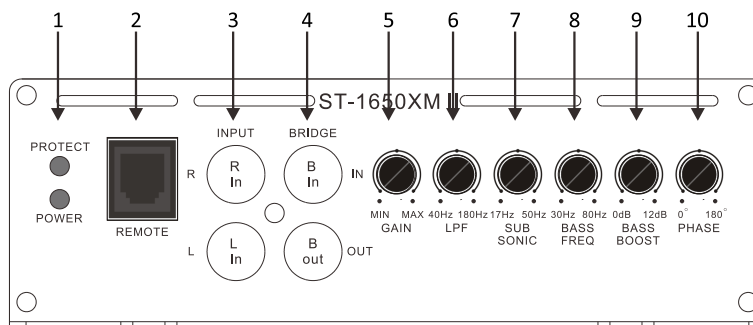
- Single channel
- Compact Chassis
- Class D
- 1,500 Watts RMS @ 1 Ω

ST-1650XM II Features

- Variable Electronic Crossover
- Dash Remote Level Control
- Strappable
- Variable Subsonic Filter
- Variable Bass Boost/Frequency control
- Variable Phase control

The ST-1650XM II Connections and Controls

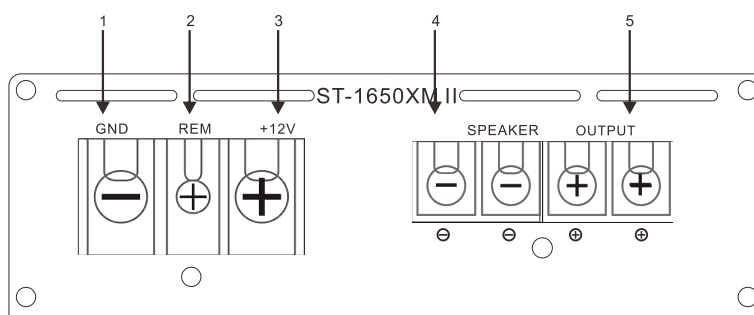
ST-1650XM II Control End



1. Power/Protect LEDs: show the operating condition of the Amplifier
2. Remote: each ST-X bass amp includes a wired dash remote for the bass output
3. RCA inputs: accept the input signal from the head unit
4. Bridge in and Bridge out: are used to "strap" to ST-X mono amps so they can work together to drive a single speaker (see strapping Pp xx)
5. Gain control: is used to balance the output of the head unit to the input of the amplifier
6. Low Pass: Being a bass amp, the ST-X has a full time low pass bass crossover that can vary from 40Hz to 180Hz

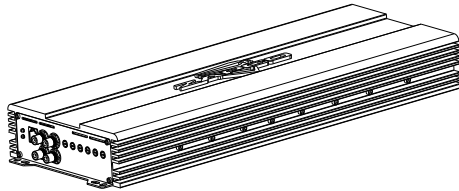
7. Subsonic: To protect your woofers from sub sonic frequencies and to conserve amplifier power, a variable subsonic filter can be set from 50Hz down to Off
8. Bass Boost frequency: control sets the center point of the boost
9. Bass Boost level: control sets the amount of boost
10. Phase control: to adjust the subwoofer from 0 ~180°

The ST-1650XM II Power End



1. GND: The amp should have a firm connection the car frame. * See section Install Sense
2. REM: The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
3. +12V: The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section Install Sense
4. Speaker connections: The heavy duty terminal block provides positive speaker connections. Just insert the wire and cinch down the set screw.
5. Fusing: Note that the ST- 1650XM II has no internal fuses. An external fuse of **xxx** Amps must be installed in the main power wire near the amp. An additional fuse should be installed in the main power lead near the battery.

ST-2000XM II



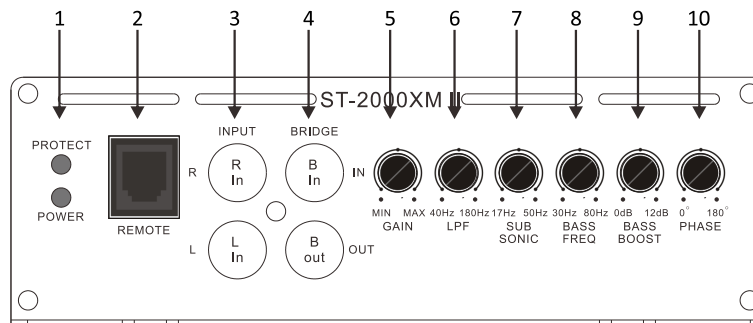
- Single channel
- Compact Chassis
- Class D
- 2,000 Watts RMS @ 1 Ω

ST2000XM IFeatures

- Variable Electronic Crossover
- Dash Remote Level Control
- Strappable
- Variable Subsonic Filter
- Variable Bass Boost/Frequency control
- Variable Phase control

The ST-2000XM II Connections and Controls

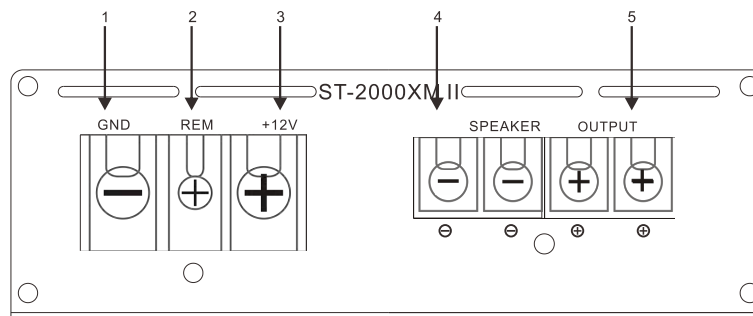
ST-2000XM II Control End



1. Power/Protect LEDs: show the operating condition of the Amplifier
2. Remote: each ST-X bass amp includes a wired dash remote for the bass output
3. RCA inputs: accept the input signal from the head unit
4. Bridge in and Bridge out: are used to "strap" to ST-X mono amps so they can work together to drive a single speaker (see strapping Pp xx)
5. Gain control: is used to balance the output of the head unit to the input of the amplifier
6. Low Pass: Being a bass amp, the ST-X has a full time low pass bass crossover that can vary from 40Hz to 180Hz
7. Subsonic: To protect your woofers from sub sonic frequencies and to conserve amplifier power, a variable subsonic filter can be set from 50Hz down to Off

8. Bass Boost frequency: control sets the center point of the boost
9. Bass Boost level: control sets the amount of boost
10. Phase: control to adjust the subwoofer from 0 ~180°

The ST-2000XM II Power End

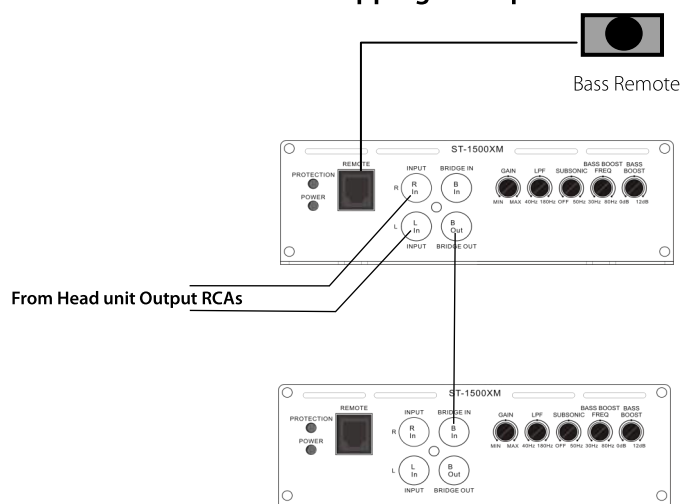


1. GND: The amp should have a firm connection the car frame. * See section Install Sense
2. REM: The remote terminal connects to the head unit remote out, or to some other switched 12 volt source to turn on the amplifier.
3. +12V: The main 12 volt must be connected directly to the vehicle's battery using wire of the proper gauge. * See section Install Sense
4. Speaker connections: The heavy duty terminal block provides positive speaker connections. Just insert the wire and cinch down the set screw.
5. Fusing: Note that the ST- 2000XM II has no internal fuses. An external fuse of **xxx** Amps must be installed in the main power wire near the amp. An additional fuse should be installed in the main power lead near the battery.

Strapping Studio X Mono Amps

Studio X mono amps are true mono units and you can double their power by “strapping” to units of the same model together to drive a single voice coil; Always keep in mind that each amp must see a minimum load of 1Ω; A “strapped” pair of amps must see a minimum load of 2Ω (1V per amp)

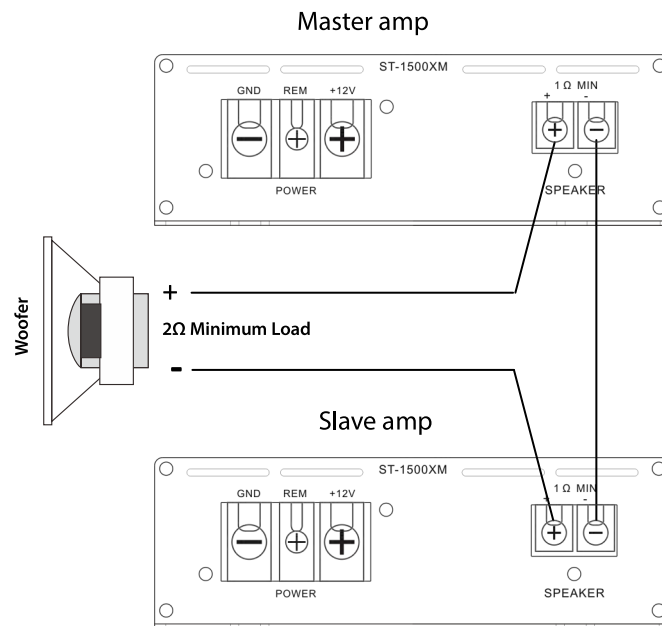
Strapping the Inputs



1. Decide which amp will be the ‘master’ amp and which will be the “slave” amp
2. Connect the head units bass output or full range output RCA cables to the R and L RCA inputs of the first (Master) amplifier
3. Connect the “Bridge Out” of the master amp to the “Bridge In” of the salvaged amp with a single RCA Cable; Do not connect anything to the regular R and L inputs of the slave amp;
4. Connect the Bass Remote to the Remote in of the master amp;

****The master amp is now the control amp;** All adjustments you make to the bass remote and to the master amp’s other controls will be transferred to the slave amp and the Slave amp will be driving the negative side of the signal, and have no control functions of its own

Strapping the Outputs of the Studio X Mono Amps



As Shown Above

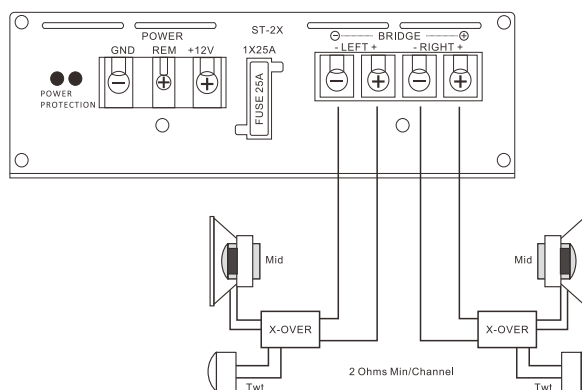
1. Connect the master amplifier's speaker output + terminal to the + (positive) terminal of the woofer.
2. Connect the slave amplifier's speaker output + Terminal to the - (negative) terminal of the woofer
3. Connect the Connect the two amplifier's speaker output - (negative) terminals together

Note: You are creating a much more powerful amplifier in this way and doubling the output; Make sure your speaker wire can transfer the power; We recommend a minimum of 12 gauge speaker lead, and for best performance you should use 10 gauge or 8 gauge;

Speaker Connectons

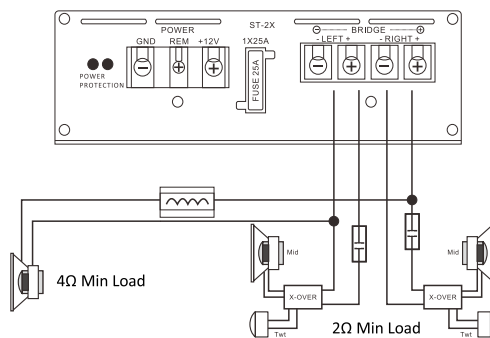
ST-2X

Standard stereo hook -up connects + and - leads from the correct terminal to each speaker, taking care that no wire or speaker terminal makes contact with the metal vehicle body.



A bridged 3 channel "mixed mono" mode can be used to run Mids/Highs in stereo and a Sub in Mono from the same stereo outputs; To maintain proper impedance you must use passive crossovers (see below) when in mixed mono configuration; A simple Cap/Coil crossover will work for this set-up, placing a coil in the woofer + lead and caps in the mid/highs + leads;

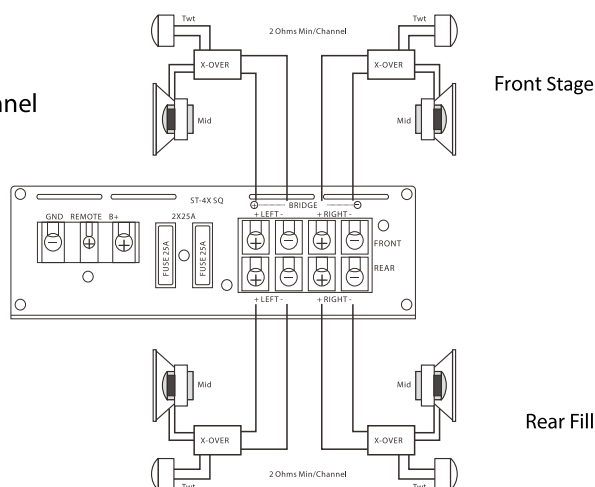
See your Zapco authorized dealer for more informaton on mixed mono set-ups



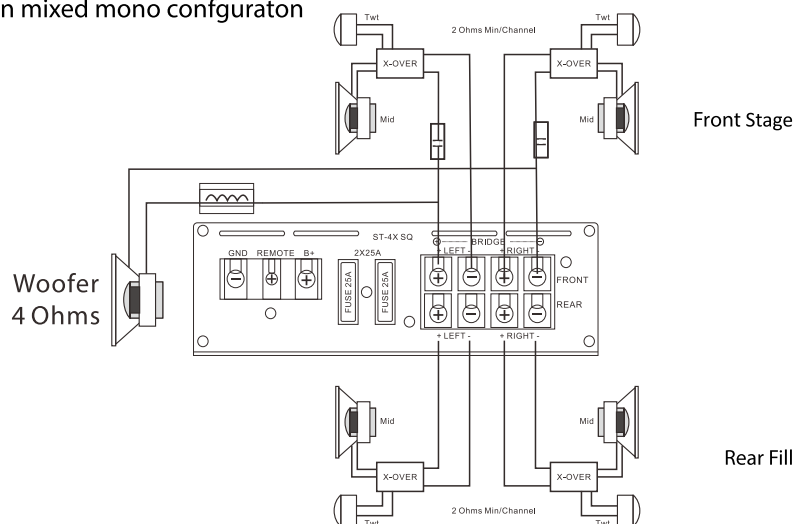
ST-4X SQ

Like the ST-2X, the ST-4X will drive 4Ω or 2Ω loads and can be hooked in 3 channel mixed mono mode; Although the + and - terminals are located slightly differently, the hook-ups are similar

Standard 4 channel system hookup

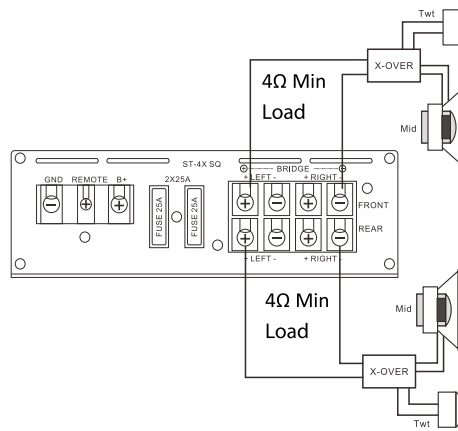


Three way system with front stage, rear stage and subwoofer in mixed mono configuration

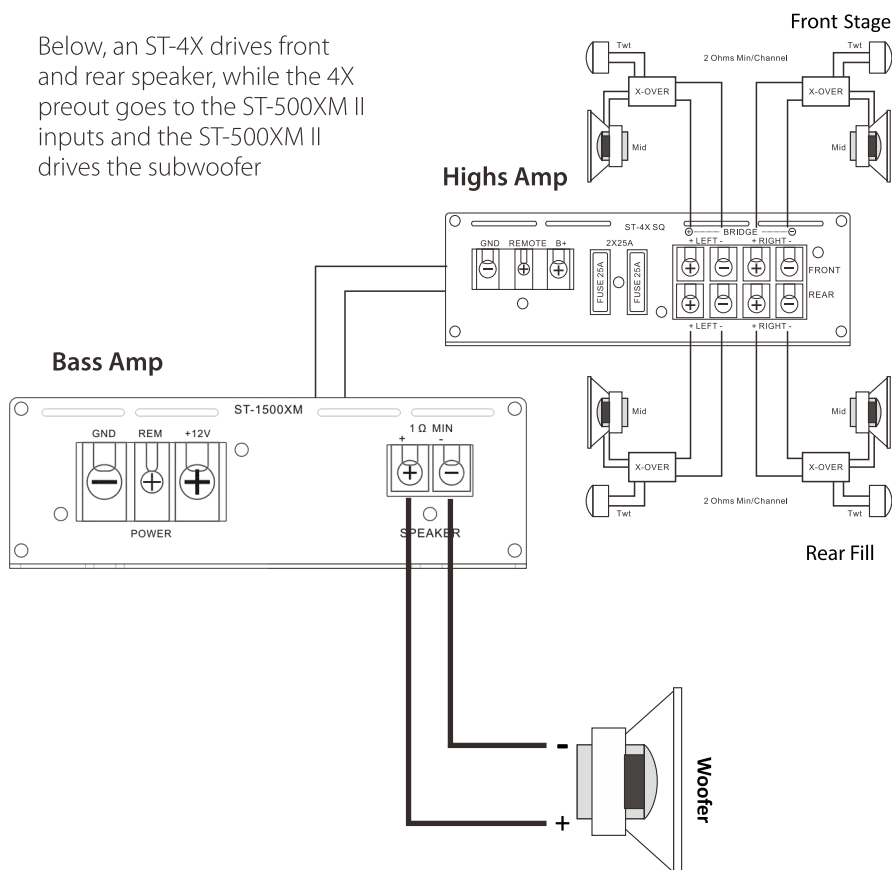


You can create a high power stereo amp by using the ST-4X in Dual Mono mode where the front amp powers one channel and the rear amp powers the other;

You will use Y-adapters to put the left input into both front channels and the right input into both rear channels

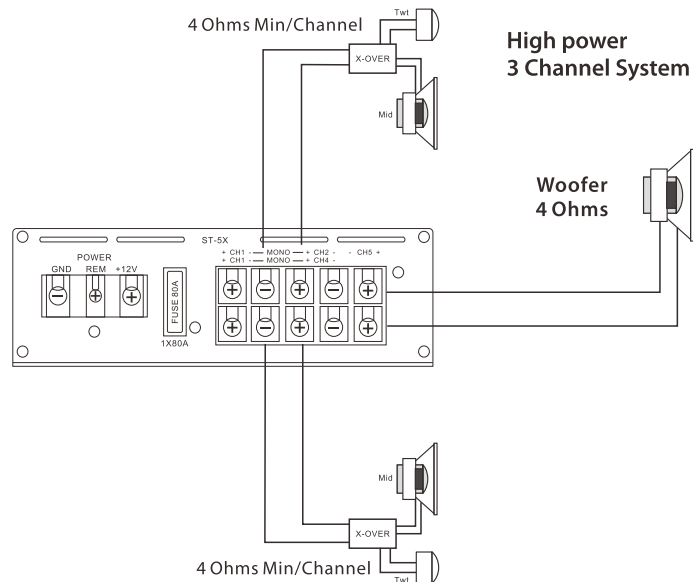
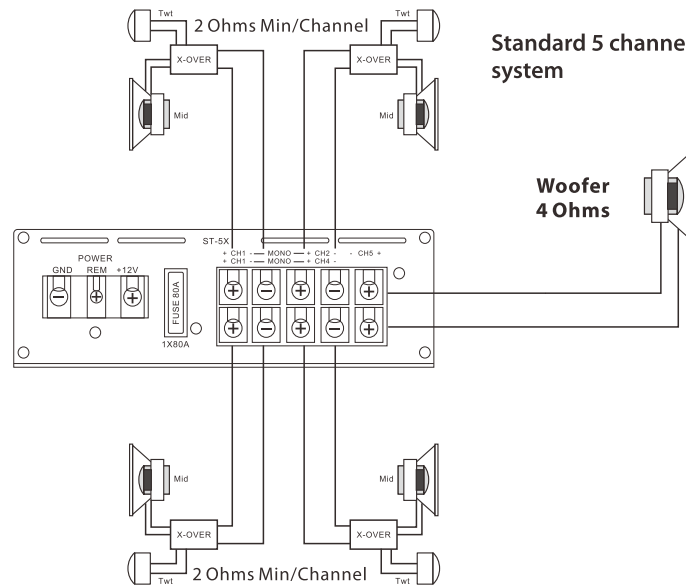


Below, an ST-4X drives front and rear speaker, while the 4X preout goes to the ST-500XM II inputs and the ST-500XM II drives the subwoofer



ST-5X

The ST-5X puts everything together in one do all amplifier



Zapco Studio-X / Studio-XM Series Amplifier Specifications

Full Range Models				
Class	AB	AB	AB	AB
Rms Power/Channel @4Ω	50W/Ch	50W/Ch	83W/Ch	60WX4+160WX1
At 2Ω	80W/Ch	80W/Ch	100W/Ch	100WX4+350WX1
Bridged At 4Ω	160W	160WX1	200WX2	160WX2+350WX1
Frequency Response	15Hz~30KHz	15Hz~30KHz	15Hz~30KHz	15Hz~30KHz
THD at rated power	0.05%	0.05%	0.05%	0.05%
Signal to Noise	85dB	85dB	85dB	85dB
Tested Voltage	14.4V	14.4V	14.4V	14.4V
Channel Separation	60dB	60dB	60dB	60dB
Dimensions(mm) W/H/L/	145X47X155	286X47X155	300X52X160	394X47X155
Length/Inc. Feet/Terminals				
Flass D Mono Models ST-500XMII ST-850XM ST-1000XM II ST-1350XM II ST-1650XM II ST-2000XM II				
Class	D	D	D	D
Rms Power/Channel @4Ω	150W	350W	400W	450W
At 2Ω	280W	600W	750W	870W
At 1Ω	435W	850W	1022W	1250W
Strap ped(2 amps)as 1@2Ω				
Efficiency	85%	85%	85%	85%
Frequency Response	10Hz~150Hz	10Hz~200Hz	10Hz~150Hz	10Hz~150Hz
THD at rated power	0.3%	0.3%	0.3%	0.3%
Signal to Noise	83dB	70dB	83dB	83dB
Damping				
Dimensions(mm) W/H/L/	200X52X160	284X52X160	290X52X160	310X52X160
Length/Inc. Feet/Terminals				

The pursuit of perfection never ends!

No sooner do we produce an new amplifier, then we're looking for a way to make an even better one.

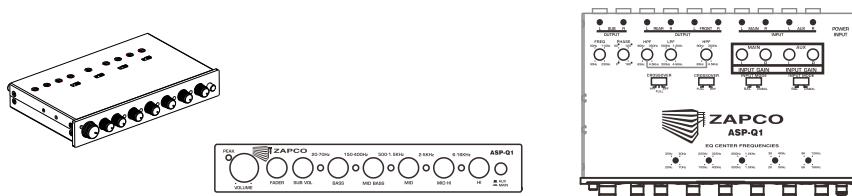
In the same way, you're going to find yourself listening to your system and wondering how you can make it sound even better.

So, here's your next step: Equalization! Your car changes the sound of your system. The shape of the car, the interior, even the number of passengers. Here's another fact. No two cars are identical. What's this mean?

That means that to sound it's very best, every system must be matched to the vehicle through Equalization.

To get the very best sound from the system in your car on your music, you need an equalizer.

The Zapco ASP-Q1 is the quickest way to get exactly what you want from your system in your car.



The Zapco ASP-Q1 give you 5 bands of parametric equalization so you can adjust exactly the frequencies needed to tune your system in your car. It also gives you a choice of 2-way or 3-way crossovers, an Auxiliary input, input gains for each channel of each input, a phase control to perfectly match the woofer to the car, a dedicated subwoofer level control, and a system volume control.

To make sure you get that custom tuned sound without added noise, we wrapped the ASP-Q1 in a genuine copper chassis for maximum noise rejection, and we gave it a remote mounted power supply in it's own copper chassis.

The ASP-Q1 is a full system preamp for tuning your system to your car.

Audition a Zapco ASP-Q1 Equalizer at your Zapco dealer today



zapco.com