

***Digital  
Fusion™ Mobile Audio***

***DXS™***  
24 dB Stereo 3-way  
Digital Crossover

***Owner's Enjoyment Manual***

**AudioControl®**

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***Owner's Enjoyment Manual***

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*Owner's Enjoyment Manual*

## **Congratulations!**

You have just purchased one of the most innovative mobile audio products available - The DXS Digital Crossover. This *Digital Fusion* product from AudioControl will help make your stereo system sound it's best. By combining over 25 years of experience designing Bullet-Proof audio components with the latest digital technologies, AudioControl has created a fusion of knowledge and power. You benefit from Digital Fusion with this kick-butt car audio crossover.

Please take a moment to chill out, reflect on things and read this manual before starting with the installation.

## **Key Features of the DXS**

- Digital Crossover Frequency Control
- Cool blue digital display
- Sharp 24dB/Octave Electronic Crossover
- Linkwitz-Riley Alignment For Superior Sound Imaging
- Programmable Frequency Match Filter
- Optimum output level indicator LED's
- Selectable power supply ground isolation

## **IMPORTANT**

For the best product performance and the lowest use of a pain reliever; nothing is better than a professional system installation. Your authorized AudioControl Performance Match autosound dealer has the training and equipment to take care of the job quickly and to get the best sound out of your system. If you are a solid do-it-yourselfer then this manual should give you all the information you need to successfully make music with the DXS. Happy listening.

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## Tour de Features

### Digital Control

The DXS gives you the power to control your mobile sound system with the unerring accuracy of digital. The bright blue LCD display keeps you fully informed on your crossover's settings. The current crossover frequency settings are available at a glance. A dual-level brightness adjustment on the display backlight keeps that blue glow just right.

### Programmable 24dB/Octave Three-way Crossover

With digital programmability, the three-way electronic crossover in the DXS easily configures to almost any high-performance mobile audio system. By simply pressing a few buttons, you select almost any crossover frequency imaginable. The 24dB/Octave Linkwitz-Riley (a couple of real nice audio engineers) design is normally reserved for the best home and professional systems, but now this state-of-the-art crossover is yours also.

### Programmable Frequency Match (PFM) Filter

This programmable low cut filter allows the system designer to custom tune the bass response of the speaker system. Smaller woofers can be

protected against the voice-coil-charring bass they are too small to reproduce. Tuned (Ported) subwoofers benefit by having the frequencies below their tuning cut off to reduce distortion and save system power.

## A BRIEF TOUR OF THE DXS

### The Outside

❶ **Digital Status Display** - A window into the digital world of the DXS. This luminous blue LCD display shows all of the current crossover and subsonic filter settings. The dual-level brightness adjustment lets you to set the display to match your tastes.

❷ **Digital Control Buttons** - These three buttons give you the power of digital at your fingertips. All of the crossover frequency adjustments are done with these controls.

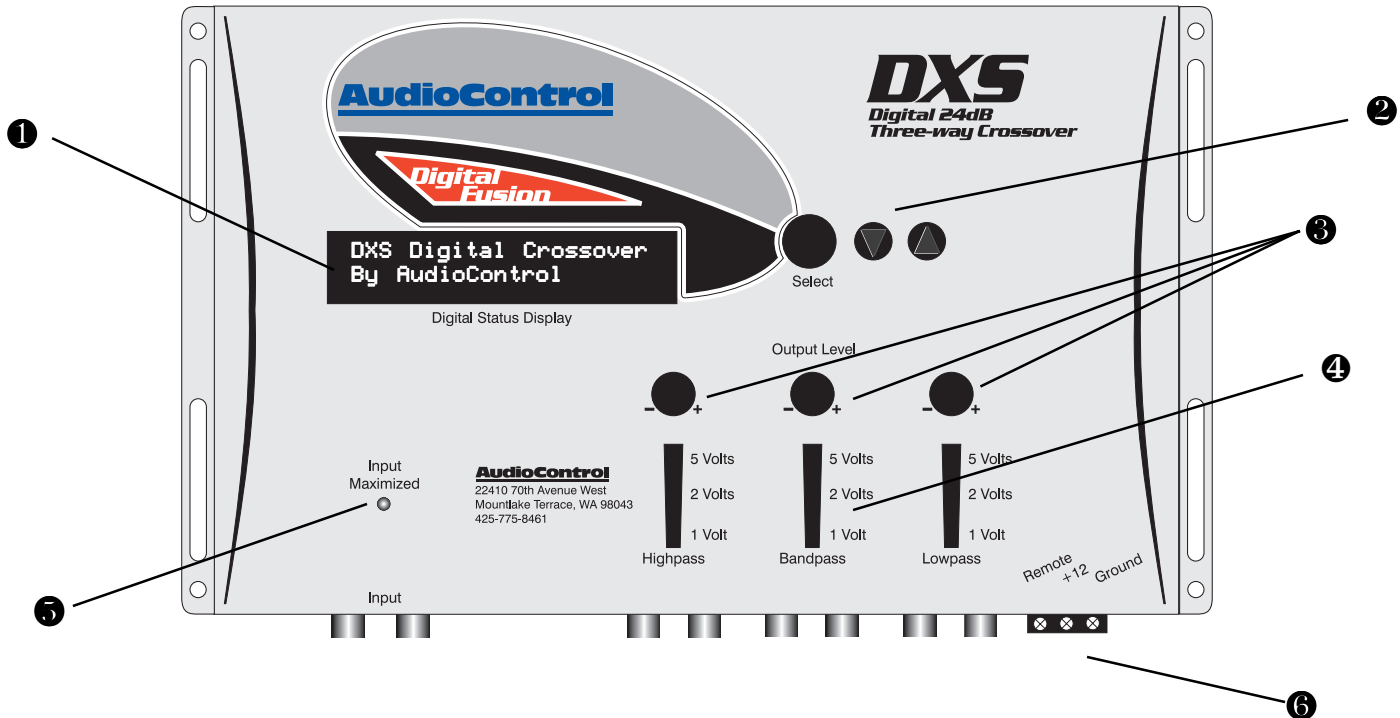
❸ **Output Level Controls** - These variable gain controls adjust the high pass and low pass output signal voltage levels independently. This enables optimum signal matching for superior low-noise performance.

❹ **Output Voltage Indicators** - 1, 2 and 5 Volts: Shows the audio output signal levels at the RCA jacks. Use these to match the output of the

DXS to your amplifiers. Don't guess on this spec., check your amp's owner's manual to be certain.

**5 Input Maximized Indicator** - Shows when the Input signal voltage levels are within 3dB of clipping. In normal use, this display should flicker occasionally.

**6 Power Connector** - A wonderful, removable connector that allows you to hook up all the power wires in the convenience of daylight and then plug them into the DXS in the dark recesses of your trunk.



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## INSTALLING THE DXS

### **The Most Important Instruction of all**

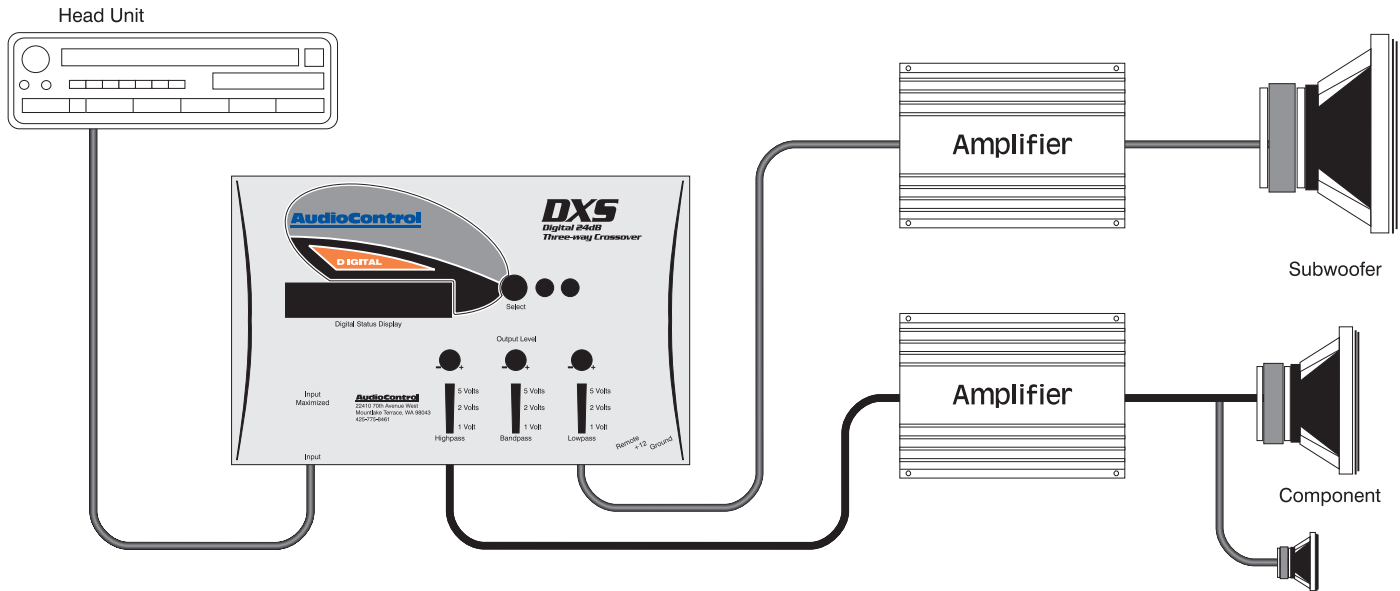
FILL OUT AND SEND IN YOUR WARRANTY CARD! Also, save your invoice or sales slip as proof of purchase. These actions will protect your investment and help prove that you really owned such a great piece of audio gear in case somebody takes a liking to it while you're tanning in South Beach.

## INSTALLATION PRECAUTIONS

- Do not mount the DXS where it will be exposed to outside elements or extreme temperatures. Avoid areas of severe vibration or shock. The front bumper is right out.
- Use high quality audio cables.
- Plan on a single-point (star ground) scheme so all components, including the head unit, connect to a common ground point. Use no less than 14 gauge wire for the ground connections.
- Where you want to mount the DXS, make certain that there are no fuel lines, brake lines, electrical wires or anything else that you don't want to run a drill bit through. That includes things on the back side of that floor panel you're about to punch a hole in.
- Make certain the DXS is firmly mounted with screws so it won't come flying off the next time you blast over a speed bump.

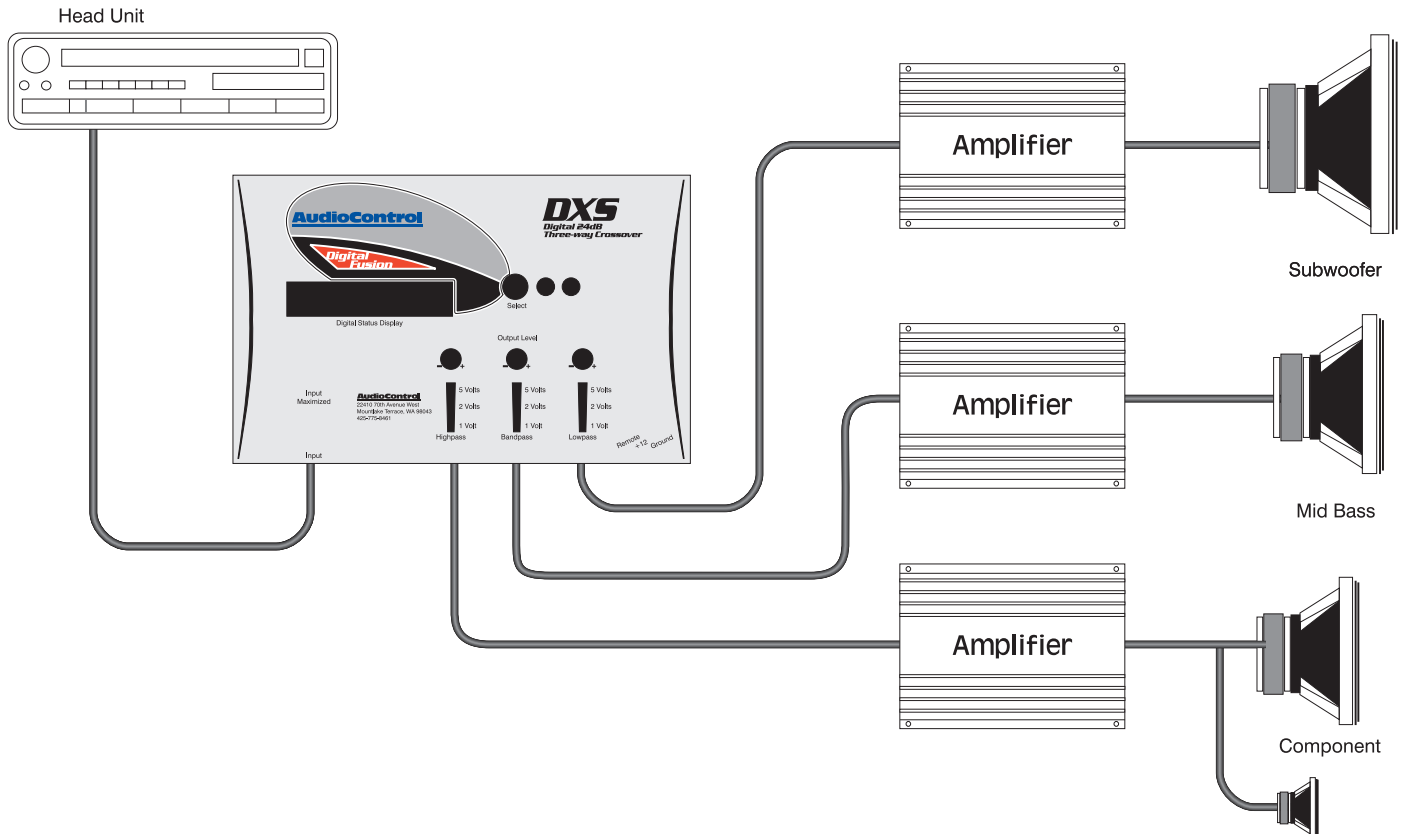


## EXAMPLE SYSTEMS:

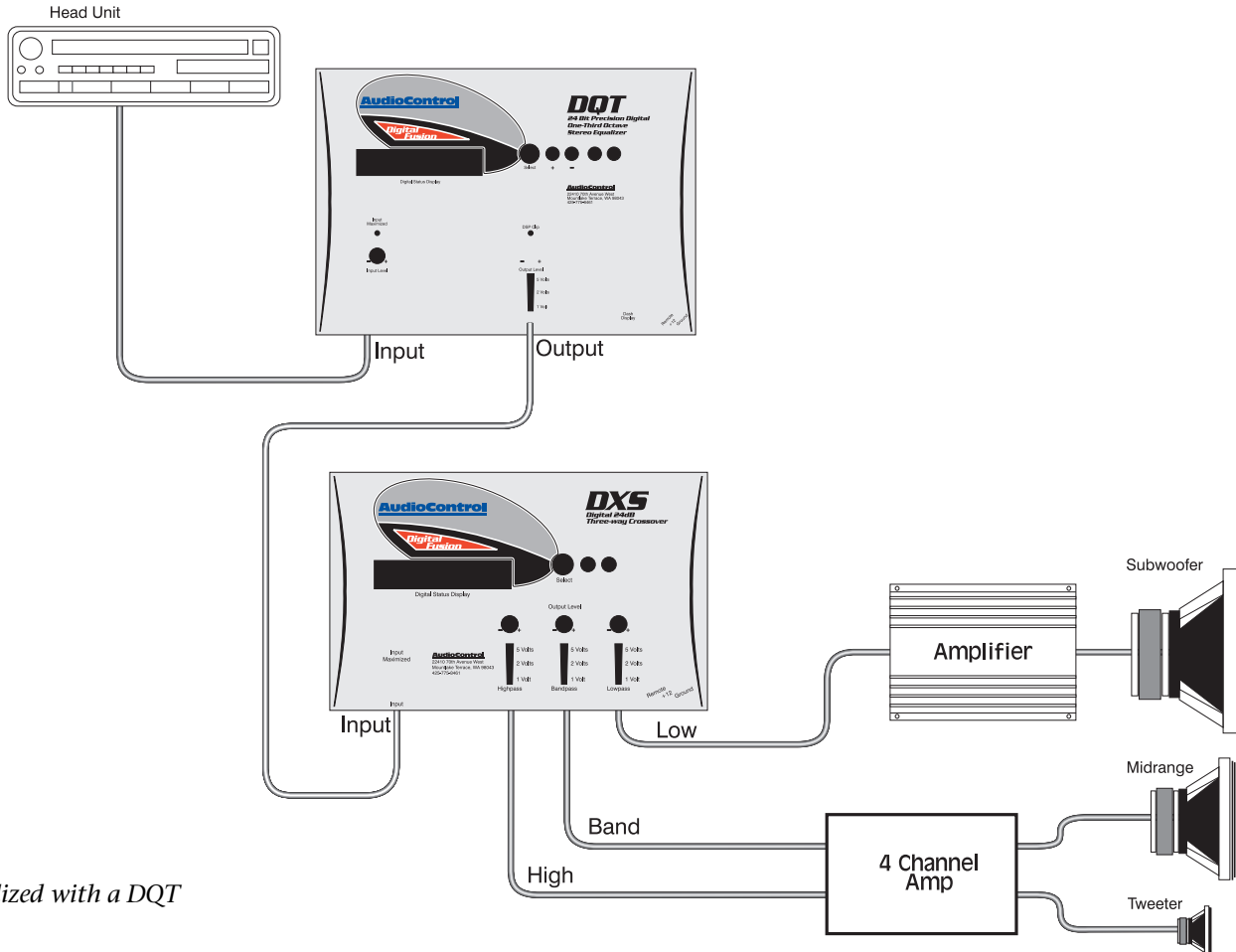


*Simple BiAmp*

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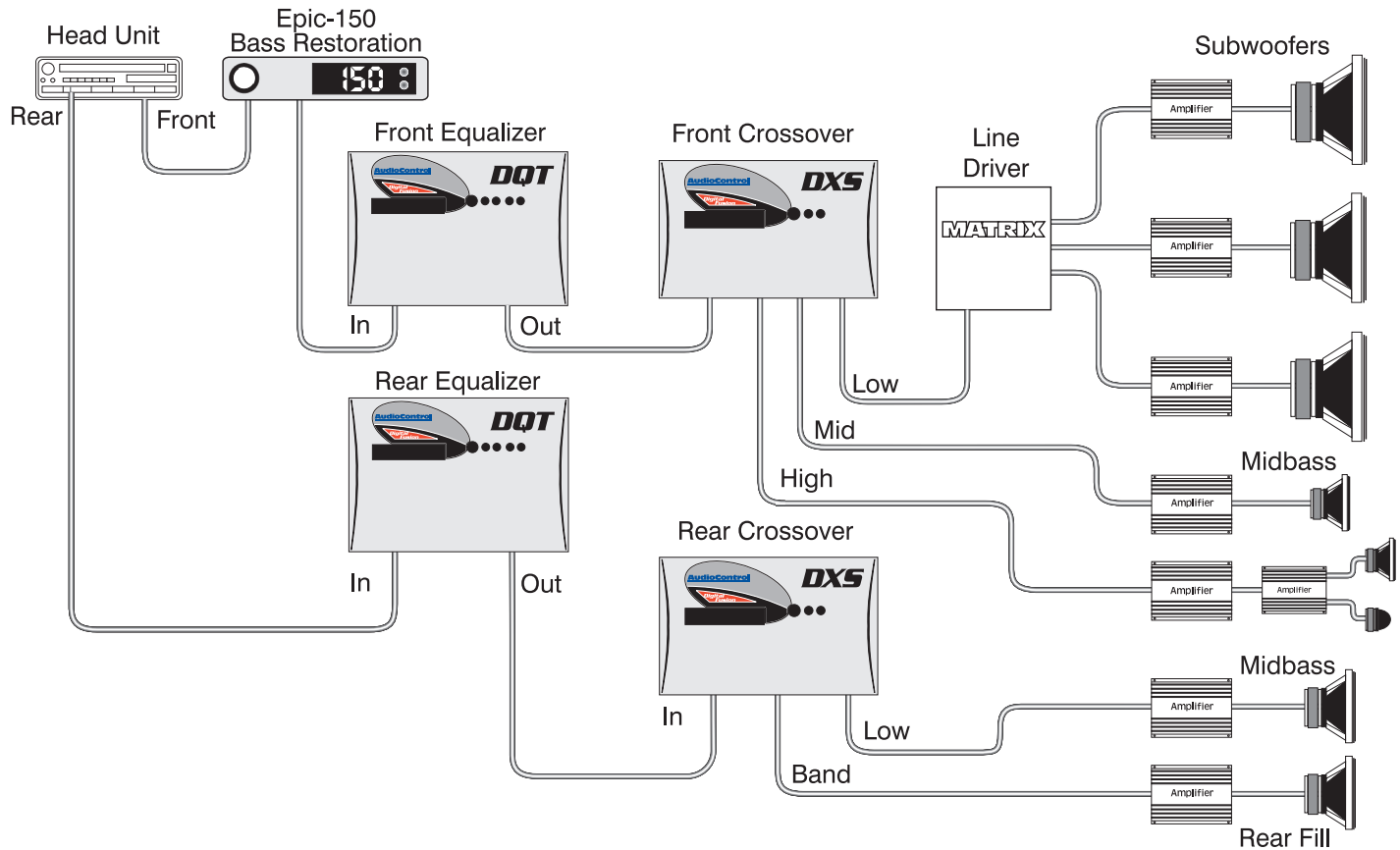


*Triamping with the DXS*



*Equalized with a DQT*

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*A kitchen sink and everything system*

## USING THE DXS STEREO DIGITAL CROSSOVER

Now is time for the rubber to meet the road. There are a couple steps to get the best performance out of your DXS crossover. First, level match your system for the lowest system noise and Second, set your crossover frequencies. This will get the most out of your total mobile audio system.

### Level Matching Your System

Properly matching the signal levels in your system will result in a much better signal to noise ratio and a quieter system. There are two sets of indicator LED's on the DXS to assist with this task: The Input Maximized LED and the Output Voltage LED's. These display simplify the task and reduces the need for separate test equipment.

1. Turn the head unit volume to 90% of maximum.
2. If you have a line driver or preamp in your system, adjust the gain on that until the Input Maximized LED on the DXS is just flickering.
3. Adjust the amplifier gains to their minimum settings. Don't worry, this doesn't mean that you won't be able to get the full power output from your amplifier.

4. For this step, you need to know the input sensitivity of your amplifiers. This will usually be shown as a range; go for the highest signal voltage possible that your amplifier will accept. Don't confuse this with the operating power voltage input. Once you know this, adjust the Output Level controls on the DXS to show the output voltage that matches the input sensitivity of your amplifiers.
5. Now you've got a Level Matched system and you're ready to set the crossover frequencies.

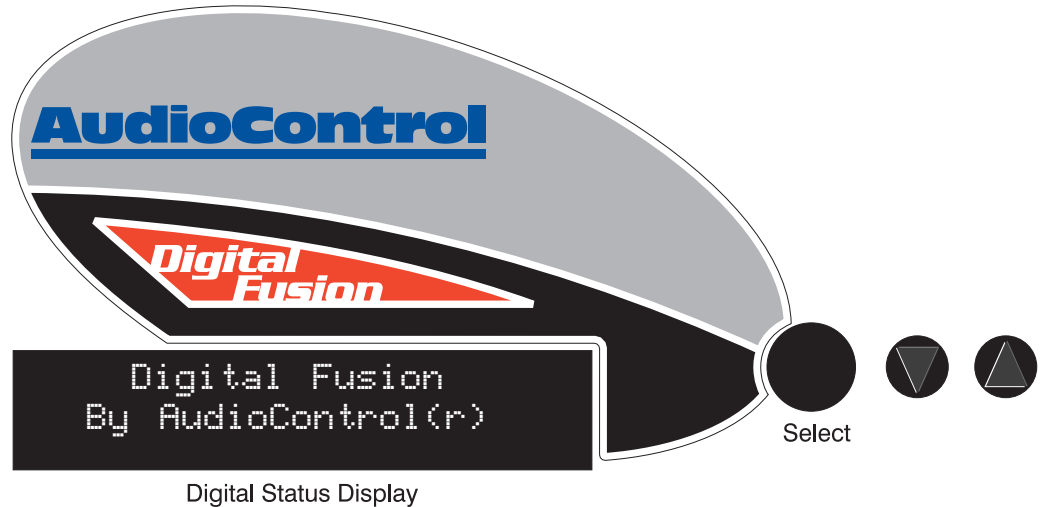
### Setting the Crossover Frequencies

The power of Digital Fusion means you have total control over the crossover frequency adjustments in the DXS. With the press of a button, the active frequency dividing network is at your call. We often receive calls asking us about what crossover frequency to use. The best answer is: Check with your speaker manufacturer. They know where the drivers will perform their best. As a general rule, use these starting points:

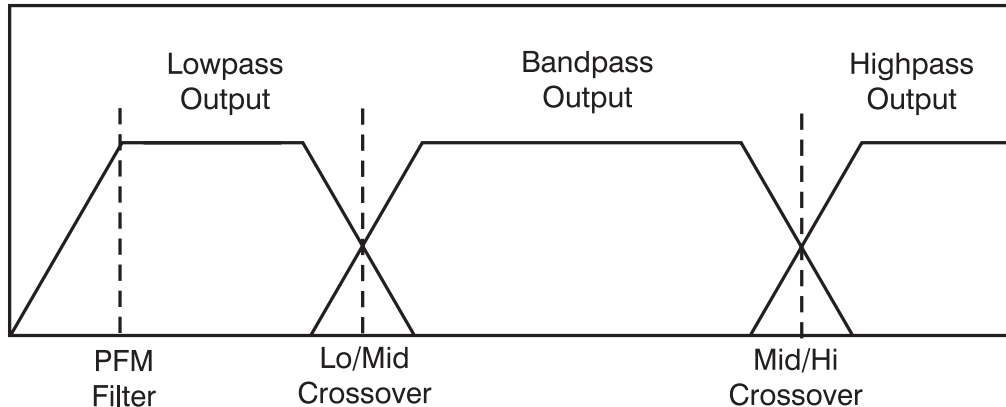
6" drivers .....	80-100Hz	4" drivers .....	180-200Hz
5" drivers .....	120-150Hz	1" Tweeter ...	2500-4000Hz

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The DXS menus are very simple to navigate.  
Here's how...



LCD display and control buttons

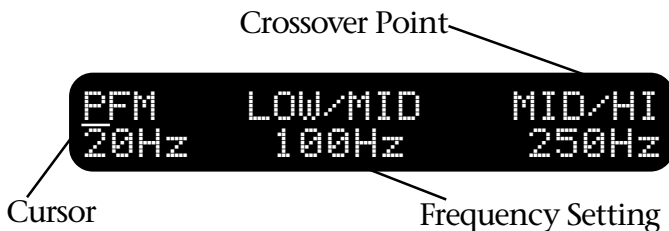


Crossover response curve

The Digital Display shows the current crossover and subsonic filter frequency settings. These are the points where the subwoofer output begins, where the subwoofer and midrange crossover, and where the midrange and highpass outputs cross-over.

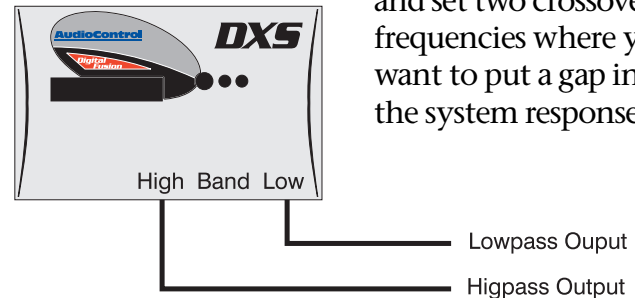
## Setting the Crossover Frequencies

1. Press *and* hold the **SELECT** button to enter the adjust mode. One of the crossover frequencies will begin to flash.
2. Press the **SELECT** button to move the cursor to the crossover point you want to adjust.
3. The **UP** and **DOWN** buttons adjust the frequency you have highlighted.
4. The DXS will return to the Normal mode about 30 seconds after you quit pushing buttons.

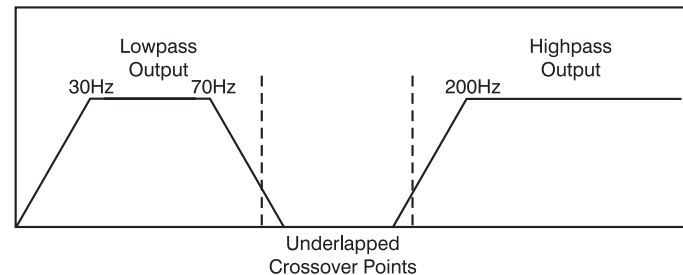


## Cool Crossover Tricks

With the incredible flexibility of the digital controls in the DXS you get to be creative using your crossover. Since the crossover frequency settings in the DXS have a very wide adjustment range, it is simple to create an under-lapped 2-way crossover. Just use the Highpass and Lowpass outputs of the DXS and set two crossover frequencies where you want to put a gap in the system response.



Connection Drawing - 2-way Crossover



Frequency response graph

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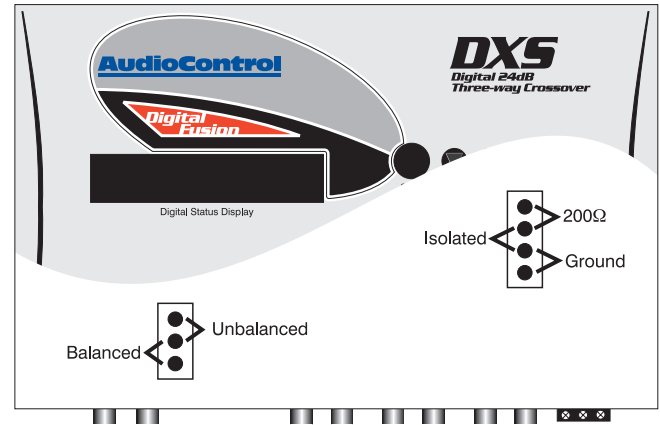
## The Inside

**Ground Isolation Selector** - Allows the installer to change the power supply ground isolation for different systems. This is shipped in the fully isolated position from the factory. The other selections can help if you have a ground noise in the system that doesn't seem to want to go away.

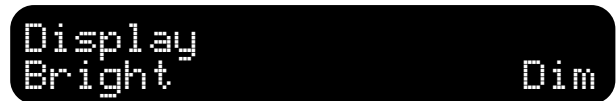
**Balanced Input Selector** - This jumper changes the input circuitry from balanced mode to unbalanced. As a general rule, the full ground and noise isolation of the balanced mode works best, but some source units prefer a hard audio ground on the RCA cables.

## Setting the Display Brightness

In this mode, you have the ability to select between two levels of brightness for the display on your DXS. To access this menu, press and hold both the **SELECT** and **UP ARROW** buttons. Using the left and right navigation buttons, toggle back and forth between “Bright” and “Dim” and stop on the level of lighting you are most comfortable with you. Tap the **“SELECT”** button and your last display brightness setting will be retained as you move on to the next mode.



## Mode: Display





## Questions and Answers

*My head unit doesn't have balanced outputs; can I use the DXS with balanced inputs?*

- The balanced-differential inputs on the DXS help isolate ground loops and minimize cable noise pickup using standard RCA cables. This feature still works even if the head unit doesn't have balanced outputs. Sometimes the head unit requires a grounded audio connection to function properly, in this case change the input mode on the DXS to Unbalanced.

*Why don't the Up and Down adjustment buttons work?*

- Make certain the DXS is in the **ADJUST** mode by pressing and holding the **SELECT** button until one of the frequencies is highlighted.

*I have engine noise in the speakers.*

- Unplug the inputs (not the outputs) of the DXS. If the noise is still present, try changing the ground isolation jumper inside the DXS to another setting. If the noise stops, check further up the signal path between the DXS and the head unit.

*There is a thumping sound coming from my system.*

- Unplug the inputs (not the outputs) of the DXS. If the trouble stops, try changing the input mode to Unbalanced.

*My amplifier says the audio ground is floating.*

- The audio ground on the DXS is adjustable. The factory setting is fully isolated for the best ground loop performance in most systems. If you amp insists on having an audio ground, simply set the jumper inside the DXS to 200 ohms or Ground, whichever works best for you.

*Why can't I store my crossover settings into memory?*

- The DXS doesn't have multiple memories for settings. The crossover frequency adjustments are best set to match your speakers. Use an equalizer or the tone controls on your head unit to adjust for different music or performance needs.

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and now a word from the legal department...

## **The WARRANTY**

People are scared of warranties. Lots of fine print. Months of waiting around. Well, fear no more, this warranty is designed to make you rave about us to your friends. It's a warranty that looks out for you and helps you resist the temptation to have your friend, "Who's good with electronics.", try to repair your AudioControl product. So go ahead, read this warranty, then take a few days to enjoy your new DXS before sending in the warranty card and comments.

"Conditional" doesn't mean anything ominous. The Federal Trade Commission tells all manufacturers to use the term to indicate that certain conditions have to be met before they'll honor the warranty. If you meet all of these conditions, we will warrant all materials and workmanship on the DXS for one year from the date you bought it, and we will fix or replace it, at our option, during that time. This warranty period is extended to FIVE years when the product is installed by an authorized AudioControl Performance Match autosound dealer in the United States.

Here are the conditional conditions:

1. You have to fill out the warranty card and send it to us within 15 days after purchasing the DXS.
2. You must keep your sales receipt for proof of purchase showing when and from whom the unit was bought. We're not the only one's who require this, so it's a good habit to get into with any major purchase.
3. Your DXS must have originally been purchased from an authorized AudioControl dealer. You do not have to be the original owner, but you do need a copy of the original sales slip.
4. You cannot let anybody who isn't: (A) the AudioControl factory; (B) an authorized service center; or (C) somebody authorized in writing by AudioControl to service your DXS. If anyone other than (A), (B) or (C) messes with your DXS, that voids your warranty.
5. The warranty is also void if the serial number is altered or removed, or if the DXS has been used improperly. Now that sounds like a big loophole, but here is all we mean by it.

Unwarranted abuse is: (A) physical damage (don't use the DXS for a car jack); (B) improper connections (120 volts into the power jack can fry

the poor thing); (C) sadistic things. This is the best mobile product we know how to build, but if you mount it to the front bumper of your car, something will go wrong.

Assuming you conform to 1 through 5, and it really isn't all that hard to do, we get the option of fixing your old unit or replacing it with a new one.

### **Legalese Section**

This is the only warranty given by AudioControl. This warranty gives you specific legal rights that vary from state to state. Promises of how well your DXS will perform are not implied by this warranty. Other than what we have covered in this warranty, we have no obligation, express or implied. Also, we will not be obligated for direct or indirect consequential damage to your system caused by hooking up the AudioControl DXS.

Failure to send in a properly completed warranty card negates any service claims.

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## DXS Specifications

All specifications are measured at 14.4 VDC (standard automotive voltage). As technology advances, AudioControl reserves the right to continuously change our specifications, like our weather . . . although we are working on it.

Frequency response	10-20 kHz $\pm$ 1 dB
Total harmonic distortion	0.007%
Signal to Noise ratio	120 dB
Maximum output level	7.5 V <sub>rms</sub>
Crossover slope	24 dB/Octave
Crossover type	3-Way Linkwitz-Riley
Programmable crossover frequency	50 to 4500 Hz
PFM filter slope	18 dB/Octave
PFM filter frequency	15 to 150 Hz
Input impedance	20K
Output impedance	150 $\Omega$
Power supply	Isolated PWM DC/DC converter
Power draw	250 mA
Recommended fuse rating	1 Amp
Size	1.2”h x 9”w x 7”d
Weight	3 lbs
Country of origin	USA

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Considering where we live, this manual was written, designed, printed and stuffed into a cool box with a really hot product on a grey, misty day.