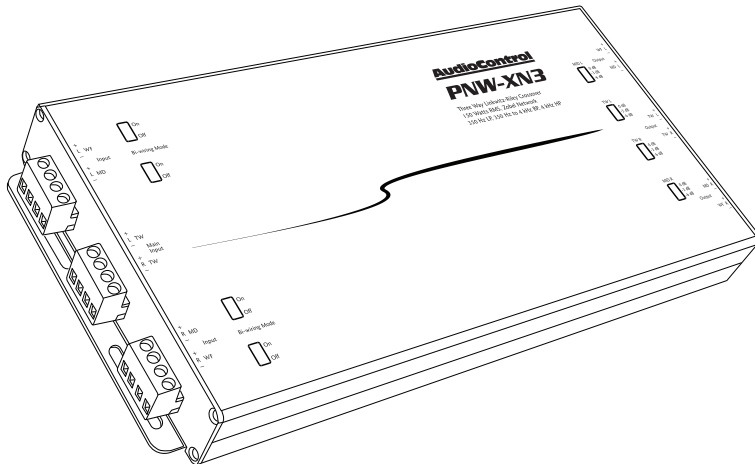


AudioControl[®]

Making Good Sound Great™



FEATURES

- Audiophile-grade high-fidelity components
- Three-way 2nd order Linkwitz-Riley
- L-Pad network -0dB / -3dB / -6dB
- Bi-wiring mode
- Umbrella not included

PNW-XN3

HIGH-FIDELITY 3-WAY PASSIVE X-OVER NETWORK

User Guide



Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not submerge this apparatus in water.
6. Clean only with a dry cloth.
7. **WARNING:** The crossover must be properly secured in the vehicle. Improper installation may lead to permanent injury or death. Installation of the crossover must be done with great care by qualified personnel, to prevent damage to fuel lines, power and other electrical wiring, hydraulic brake lines, and other systems, that might compromise vehicle safety.
8. Use speaker wire of sufficient size to ensure adequate current to the speaker. For PNW Series Speakers, this means 14-18 gauge speaker wire.
9. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as the power input terminals are damaged, objects have fallen into the apparatus, does not operate normally, or has been dropped.
10. Not tested for use in Bigfoot's Cave.
11. Exposure to high sound pressure levels may lead to permanent hearing loss. Take every precaution to protect your hearing.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Recycling notice: If the time comes and this apparatus has fulfilled its destiny, do not throw it out into the trash. It has to be carefully recycled for the good of mankind, by a facility specially equipped for the safe recycling of electronic apparatus. Please contact your local or state recycling leaders for assistance in locating a suitable nearby recycling facility. Or, contact us and we might be able to repair it for you.



Crossover Talk

Right on! You got yourself a shiny new AudioControl crossover. After you are done admiring the quality workmanship and attention to detail, you need to get this bad-boy installed. If you did not attend auto-shop in school or are having trouble plugging in power tools, your best bet is to seek out a qualified AudioControl dealer. They have the skills, experience, and specialized tools to get your vehicle sounding like a live concert and they usually smell alright too.

Crossover

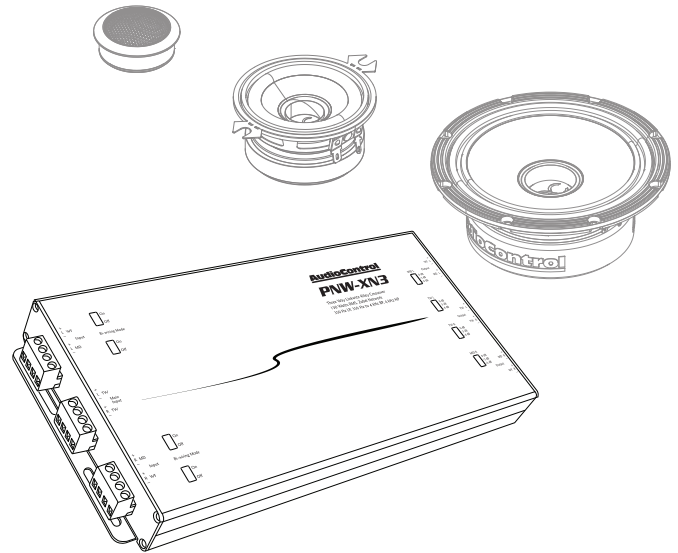
The second-order Linkwitz-Riley filter is a type of crossover network that has several benefits compared to other types of crossover networks.

First, the second-order Linkwitz-Riley filter has a steep slope of -12dB per octave, which ensures that there is a sharp cutoff between the frequencies that are directed to the woofer and the tweeter. This steep slope helps to minimize overlap between the frequencies, resulting in better sound quality and improved power handling capability of the speakers.

Second, the second-order Linkwitz-Riley filter maintains a flat frequency response in the crossover region, which ensures that there are no peaks or dips in the frequency response that can result in uneven sound quality.

Lastly, the second-order Linkwitz-Riley filter has a phase response that is linear across the crossover region. This means that the phase shift between the woofer and tweeter is constant, resulting in improved imaging and soundstage.

Overall, the benefits of the second-order Linkwitz-Riley filter include a steep slope, flat frequency response, and linear phase response, resulting in improved sound quality, better power handling, and improved imaging and soundstage compared to other types of crossover networks.



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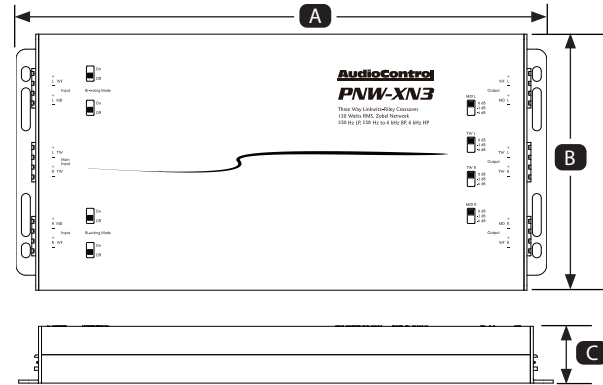
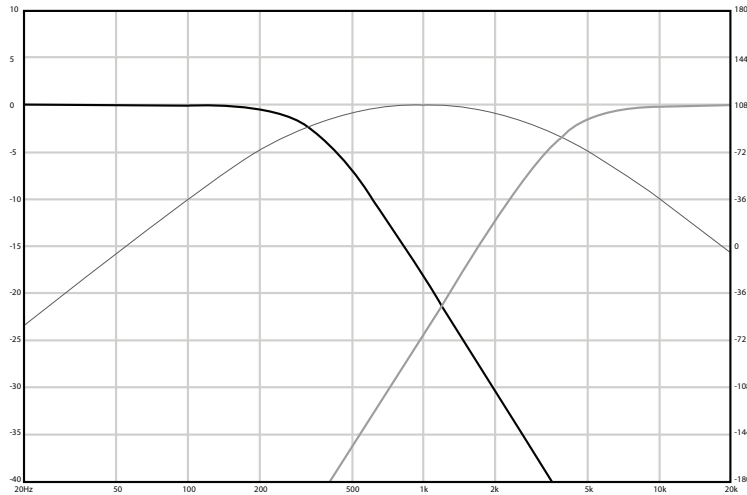


Specifications

Crossover Type 2nd order Linkwitz-Riley
 Filter Type..... HP / BP / LP
 XO Frequency 350Hz LP / 350-4k BP / 4K HP
 Slope (Octave)..... -12 dB
 Power Handling (RMS/Max)..... 150 Watts / 200 Watts
 Attenuation (Tw / Md) 0 / -3 / -6 dB
 Recommended Speaker Set 1 PNW-65CS2 + PNW-275
 Recommended Speaker Set 2 PNW-69CS2 + PNW-275

Dimensions

Length 10.6 in / 270 mm
 Width (B) 5.12 in / 130 mm
 Height (C) 1.13 in / 28.6 mm



System Talk

In an audio system, a crossover network is used to split the incoming audio signal into different frequency ranges and send each range to the appropriate speaker or driver. The two main types of crossover networks are passive and active crossovers. The PNW-XN3 is a passive crossover.

Passive Crossover:

A passive crossover is a simple electronic circuit that uses passive components such as resistors, capacitors, and inductors to split the audio signal into different frequency ranges. The passive crossover is placed between the amplifier and the speaker and splits the signal into high, mid, and low-frequency ranges.

Passive crossovers main advantages are they don't require any additional power source since they work with the signal from the amplifier. However, passive crossovers have some disadvantages such as signal loss, distortion, and inefficiency compared to the active crossover.

Bi-Wiring Talk

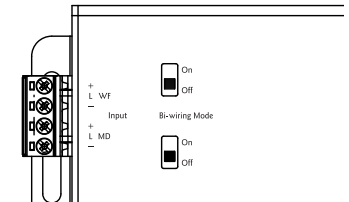
Crossover bi-wiring is a commonly found feature in high-end audio systems, particularly in crossover networks. It involves using separate input cables to connect the amplifier to the high-frequency (HF) and low-frequency (LF) sections of a crossover network, instead of using a single cable for both sections.

In a typical setup, a single set of cables connects the amplifier to the crossover network's input terminals. These terminals are then connected to the crossover network's internal components, which separate the audio signal into different frequency ranges and direct them to the appropriate drivers (woofers, tweeters, or mid-range drivers) within the system.

Bi-Wiring Talk Cont.

The main purpose of crossover bi-wiring is to utilize the amplifier's output resources independently for each speaker channel. This minimizes interference or interaction between the HF and LF signals within the crossover network, enabling full control of each channel's input level through separate input signals. It also reduces potential electrical crosstalk and impedance interactions between the HF and LF sections, resulting in improved sound quality and performance of the crossover network.

In a typical setup with a 2-channel amplifier and non-bi-wiring configuration, PNW-XN3 also incorporates an attenuation feature using L-Pad network which allows precise control of the volume level without affecting the speaker's impedance into each TW (tweeter) and MD (mid-range) channel of the crossover network. This feature allows for individual control of signal levels in the HF and MF sections and resulting in improved sound quality and better Attenuation refers to the adjustment or reduction of signal strength. By incorporating an attenuation feature into each channel of the crossover network, it becomes possible to independently adjust the output levels of the HF and MF sections. This is useful for fine-tuning the balance and overall sound reproduction of the system according to personal preferences or cabin acoustics. overall performance of the speaker system.



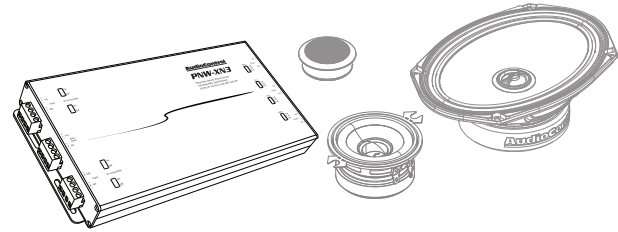
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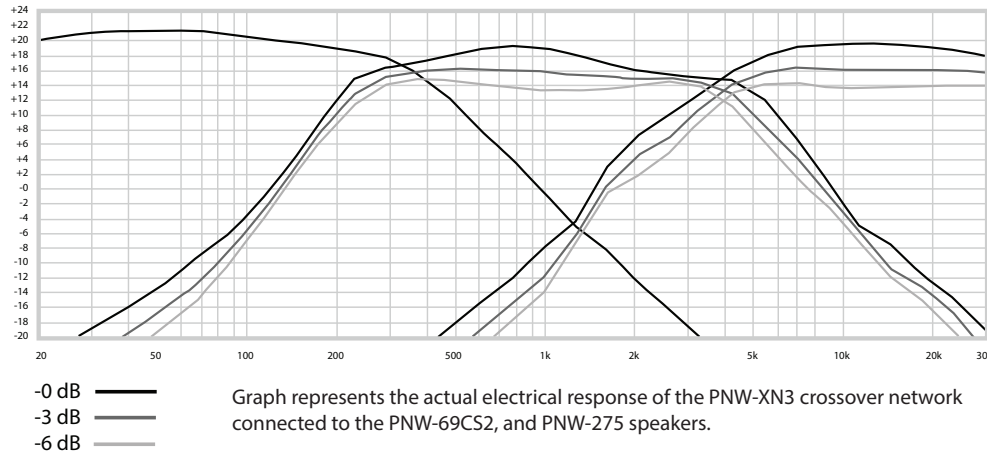


Bi-Wiring Talk Cont.

With individual attenuation controls, it is possible to decrease or increase the signal level of each channel. For example, if the HF section is overly dominant, its output can be attenuated to achieve the desired balance. Similarly, if there is a desire to enhance the MD response or emphasize the HF section, the MD section can be attenuated while keeping the HF section at a higher level.



The inclusion of the attenuation feature in each channel of the crossover network allows for more precise adjustments and customization of the audio output. It provides greater control over the tonal balance and enables sound tailoring according to personal preferences or specific requirements of the listening environment.



Passive Crossover 2 Channel Amp

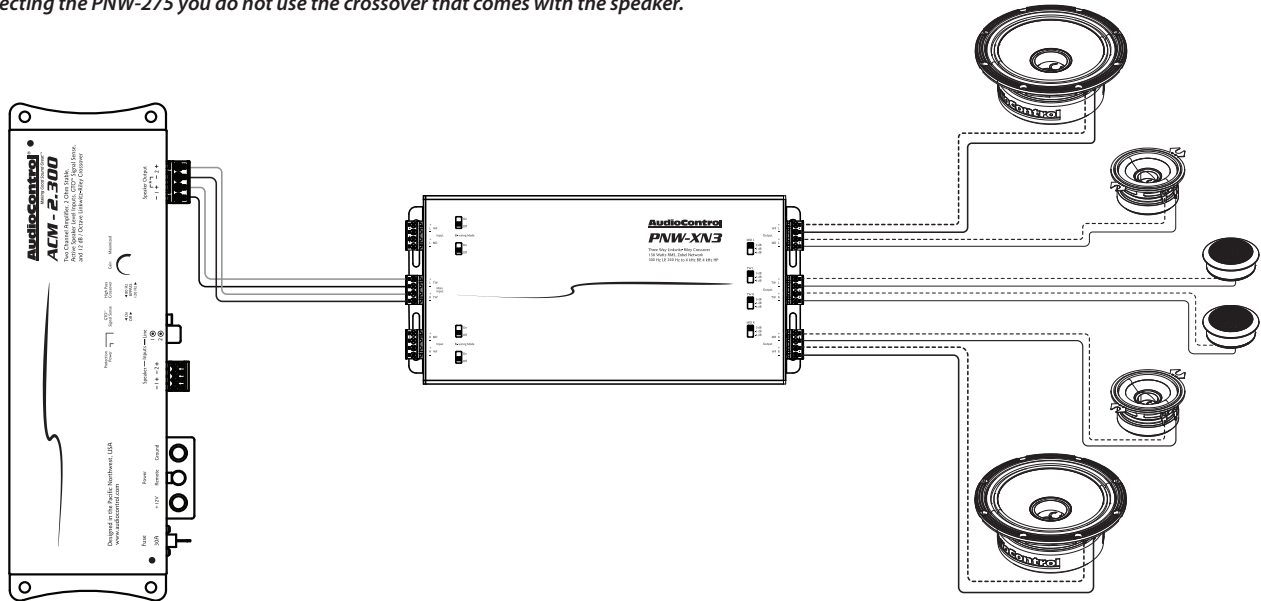
In this example, we are connecting the PNW-XN3 to a ACM 2.300. Each speaker has its own dedicated connection to the PNW-XN3.

For example:

Channels 1 and 2 are connected to the positive and negative of the PNW-XN3 Main Input terminals (TW).

All Bi-wiring switches are set to off.

Note: When connecting the PNW-275 you do not use the crossover that comes with the speaker.





Passive Crossover 4 Channel Amp

In this example, we are connecting the PNW-XN3 to a ACM 4.300. Each speaker has its own dedicated connection to the PNW-XN3.

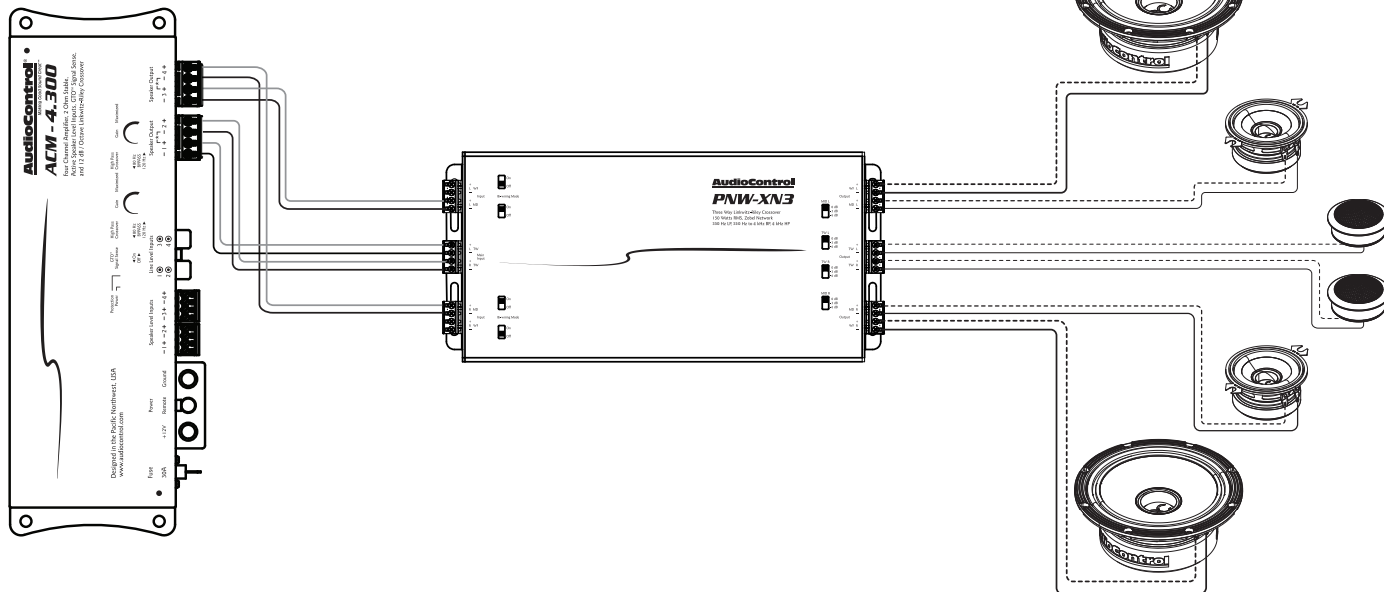
For example:

Channels 1 and 2 are connected to the PNW-XN3 TW positive and negative terminals.

Channel 3 and 4 are connected to the PNW-XN3 MD positive and negative terminals.

The PNW-XN3 has the Left and Right MD Bi-wiring switches turned on and the WF turned off.

Note: When connecting the PNW-275 you do not use the crossover that comes with the speaker.



Passive Crossover 6 Channel Amp

In this example, we are connecting the PNW-XN3 to a ACM 4.300, and a ACM 2.300 Each speaker has its own dedicated connection to the PNW-XN3.

For example:

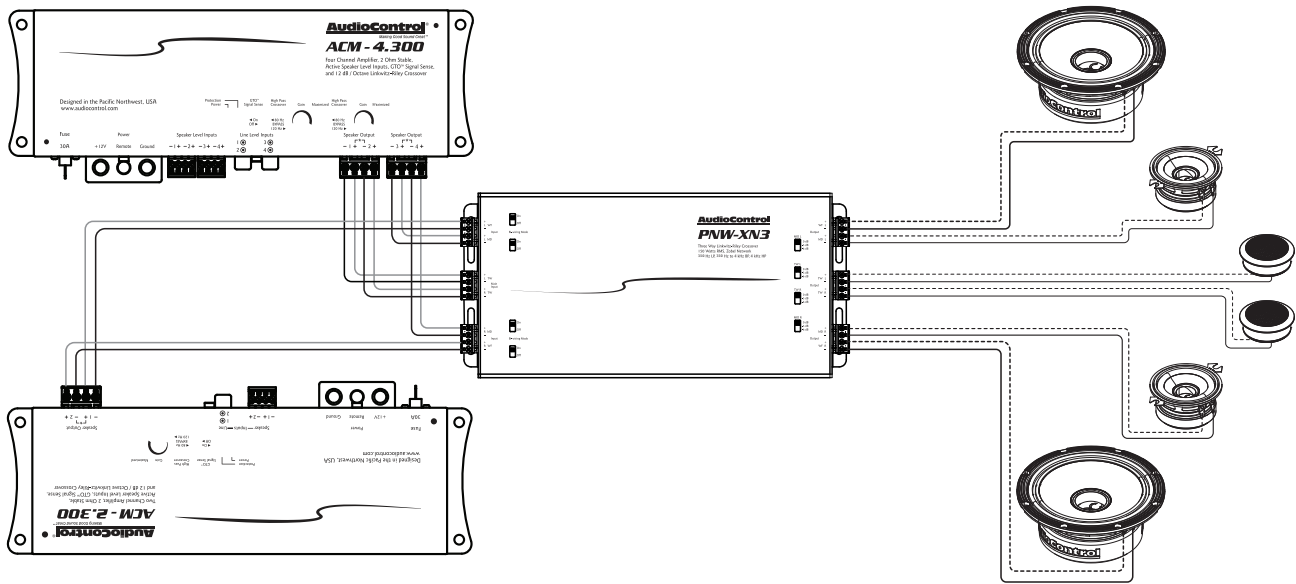
ACM 4.300 Channels 1 and 2 are connected to the PNW-XN3 TW positive and negative terminals.

ACM 4.300 Channel 3 and 4 are connected to the PNW-XN3 MD positive and negative terminals.

ACM 2.300 Channel 1 and 2 are connected to the PNW-XN3 WF positive and negative terminal.

The PNW-XN3 has all the Bi-wiring switches turned on.

Note: When connecting the PNW-275 you do not use the crossover that comes with the speaker.





The Warranty

In just the same way as being covered in honey and thrown into a dark pit full of hungry woodchucks, 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 AudioControl. It's a warranty that looks out for you and your client, plus helps you resist the temptation to have your friend Sparky, who's "good with electronics," try to repair your AudioControl product. So go ahead, read this warranty, then register the information at www.audiocontrol.com/product-registration and include your comments.

Our warranty has conditional conditions! "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, AudioControl will, at its discretion, repair or replace any AudioControl speaker products that exhibit defects in materials and/or workmanship for one (1) year from the date you bought it. We will repair or replace it, at our option, during that time.

Here are the conditional conditions:

1. You must fully register your purchase within 15 days of the purchase date by going to the AudioControl product registration page at:
www.audiocontrol.com/product-registration
Failure to register your product will negate the warranty.
2. You need to hold on to your sales receipt! All warranty service requires original sales receipt documentation. The warranty only applies to the original purchaser from an authorized AudioControl dealer. Note: Products purchased from unauthorized dealers are not covered under warranty.

3. The AudioControl speaker products must have originally been purchased from an authorized AudioControl dealer. **If an authorized AudioControl dealer installs your AudioControl product, the warranty is extended to two (2) years.**
4. Our warranty covers AudioControl products that have been installed according to the instructions in this manual.
5. You cannot let anyone who isn't: (A) the AudioControl factory; or (B) someone authorized in writing by AudioControl, service your AudioControl product. If anyone other than (A), or (B) messes with your AudioControl product, the warranty is void.
6. The warranty is void if the serial number is altered, defaced or removed, or if your product has been used improperly. Now that may sound like a big loophole, but here is what we mean by this: Unwarranted abuse is: (A) physical damage (don't use your product to pound in fence posts); (B) improper connections (120 volts into the speaker terminals can fry the poor thing). This is the best product we know how to build, but for example, if you mount it to the front bumper of your car, drop it over Niagara Falls, or use it for anchoring your boat, something will go wrong.

Assuming you conform to 1 through 6, and it really isn't all that hard to do, we get the option of fixing your product, or replacing it with a new one, at our discretion.

In the event that your product is out of warranty or not covered under our warranty, you may request to have any damage repaired at our normal "Out of Warranty" repair cost.

Legalese

The warranty above is the only warranty issued by AudioControl. This warranty gives you specific legal rights, and you may also have rights that vary from state to state.

Promises of how well your AudioControl product will work are not implied by this warranty. Other than what we've said we'll do in this warranty, we have no obligation, express or implied. We make no warranty of merchantability or fitness for any particular purpose. Also neither we nor anyone else who has been involved in the development or manufacture of the unit will have any liability of any incidental, consequential, special or punitive damages, including but not limited to any lost profits or damage to other parts of your system by hooking up to the unit (whether the claim is one for breach of warranty, negligence of other tort, or any other kind of claim). Some states do not allow limitations of consequential damages.

For more information about this fine product, and for additional details of the limited warranty and repair services, please visit www.audiocontrol.com

For technical questions, please visit www.audiocontrol.com/knowledge-base/

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As technology advances, AudioControl reserves the right to continuously change our specifications, like our Pacific Northwest weather, although we are working on changing that as well.

