

Pantages[™] and Avalon[™]

High Definition Home Theatre Power Amplifier

*Professional Installer's
Consciousness Guide*

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AudioControl[®]

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Important Information

Owner _____

Date Purchased _____

Serial Number _____

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Congratulations! You are now installing a component which can dramatically improve the performance of almost any home theatre system. The Pantages and the Avalon are American-designed and manufactured component which will provide a years of trouble-free service for your home theatre system.

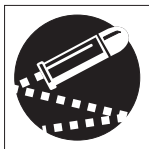
This high quality home theatre power amplifier is made by the only electronics company in the world that specializes in "Making good sound better". The engineers at AudioControl have more than half a century of experience with amplifier design. They know how to build a great sounding amp that will stand the test of time. Our equalizers, signal processors and audio analyzers have been standard fixtures in systems for over 20 years and our professional sound division designed and sells the most popular one-third octave real time analyzer in the world, the SA-3050.

AudioControl's passion for high quality, meticulous attention to detail and pro sound heritage shows itself in the dozens of awards we have won for our designs, products and service. Now, as when we began, our greatest satisfaction is our reputation for sonic excellence and reliability among people just like you throughout the world.

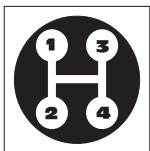
This manual is designed to help you get everything you can out of your new amplifier. So, even though you're dying to see it in action, please take a few minutes to slog through our not-so-weighty prose and learn how to get the most from this AudioControl home theatre power amplifier.

Anything as capable as this amp deserves all the explanation it can get.

Product Highlights



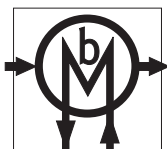
Built For The Long Haul – “Bulletproof” is the phrase that best describes The Avalon and Pantages. Everything about this amplifier says that it is in there for the long haul. This amplifier has been designed with durability in mind. The cool running Class H design minimizes component damaging heat while the Lightdrive system protects your speakers from harmful harmonics caused by clipping.



Class H Design – Most amplifiers have one speed, all on. That means that during most of music up to 90% of the amps power is just going up in heat. The Class H design takes care of this problem by automatically and intelligently adjusting the power supply to fit the power demands of the moment. The result is much cooler operation without the need for bulky heatsinks or fans.



Lightdrive Protection System - The *Lightdrive* protection circuitry defends this amplifier and your speakers against clipping, distortion, damage, and annoying teenage beach party movies. Even if the movie festival lasts all weekend. Each channel is independently protected so a problem in one channel will not affect the rest of the system.

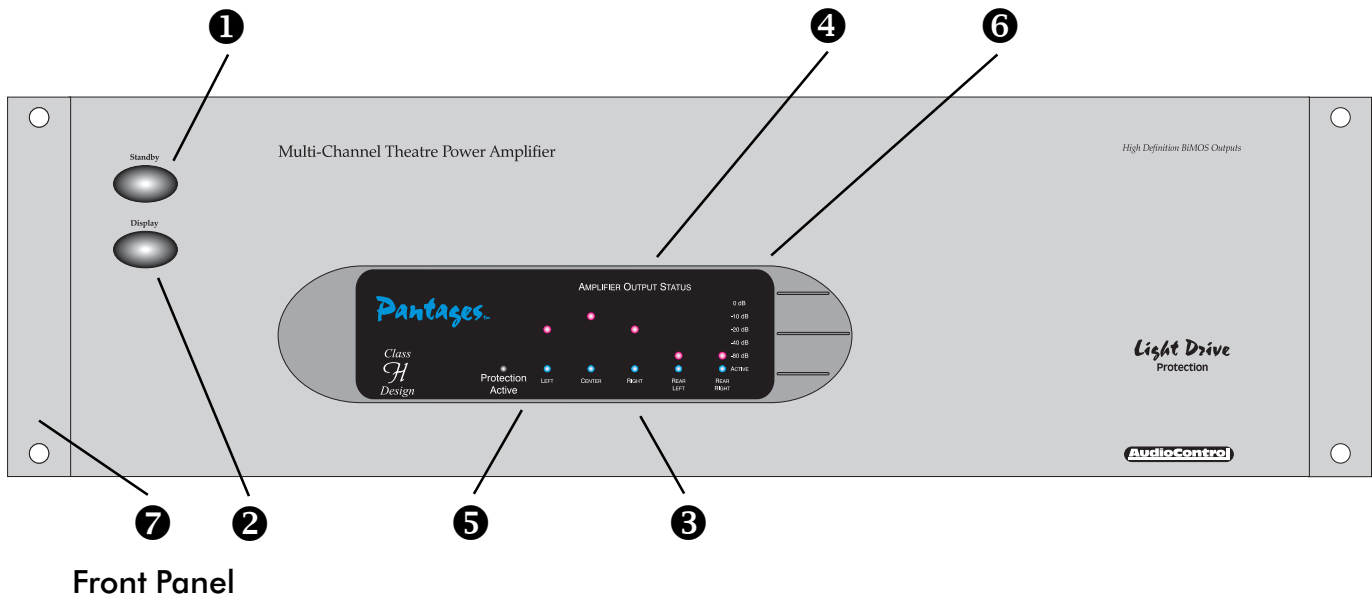


High Definition BiMOS Output Design - Home Theatre audio systems place terrific demands on power amplifiers. The high current drive capabilities of our BiMOS outputs cleanly delivers a minimum of 200 watts while maintaining a cool head.

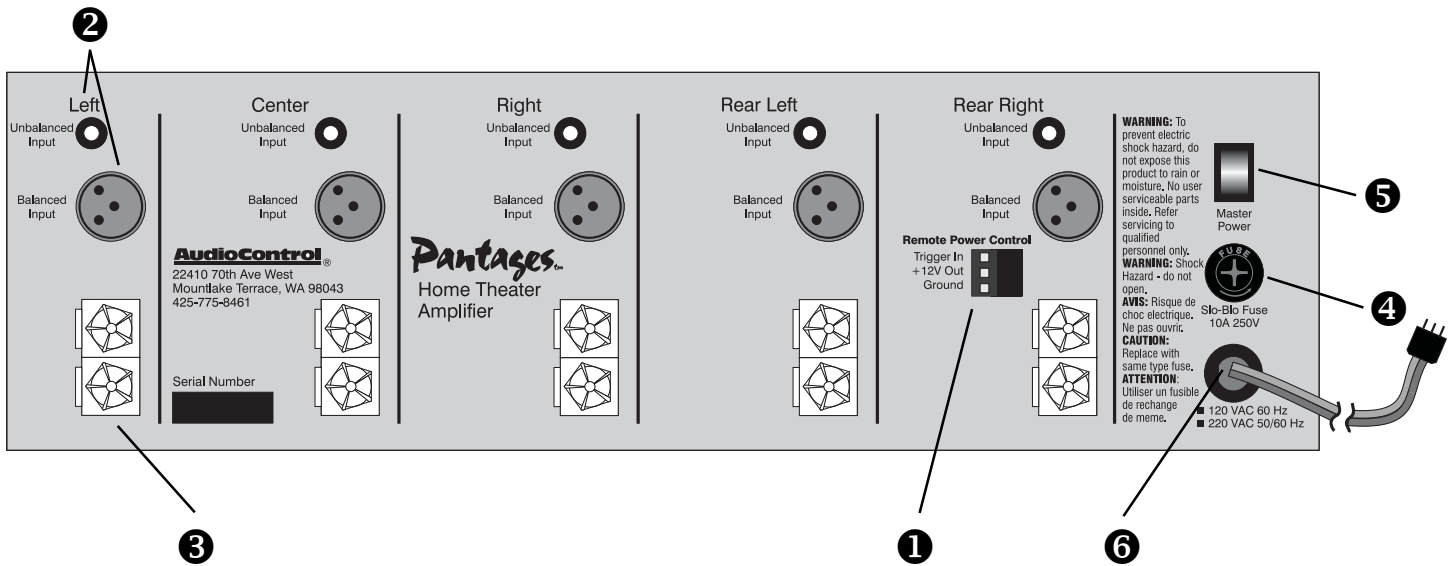


Made in the Northwest Rainforest The Avalon and Pantages began their existence at our factory in Mountlake Terrace, Washington, a few miles north of Seattle. Here, we also build precision test instruments, equalizers and analyzers and a totally awesome line of car stereo components. AudioControl started in 1977 and has won so many audio industry awards for design and engineering excellence that our reception room wall is starting to sag. But enough about us. Let's start getting the most from the home theatre system so we can get the popcorn ready! (remember though, these amps runs really cool, so you'll have to use the microwave to melt your butter)

A Guided Tour Of The Pantages



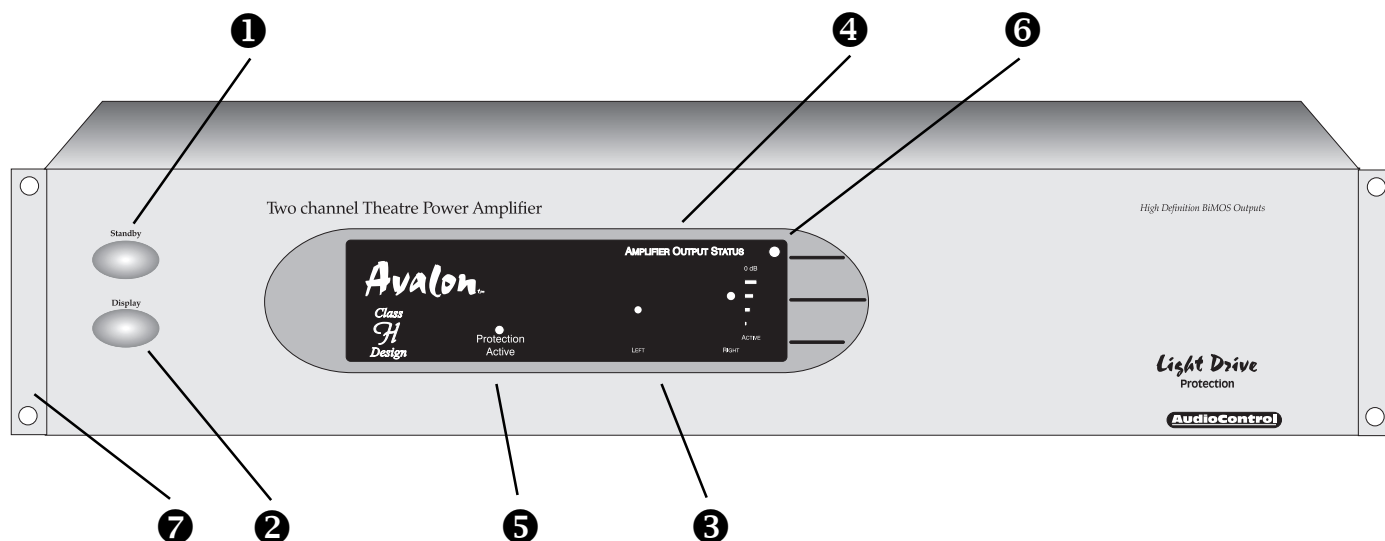
- 1. Power Standby Button** – The infamous “Off” light. This button manually toggles the main power on The Pantages between normal operation and stand-by. This button will over-ride the rear panel remote 12 volt trigger, but normal operation will resume when the trigger input is cycled.
- 2. Display Button** – Shuts off the bouncing orange channel level indicators for those easily distracted movie goers.
- 3. Channel Status LED's** - These cool blue LED's show when the corresponding channel is active and operating normally. They turn off if something has caused that channel to go into protection.
- 4. Channel Level Indicators** – Each channel has a ladder of 5 LEDs to bounce along with the music and show the relative audio signal levels. If you find them too distracting, the DISPLAY button turns these lights off.
- 5. Protection Indicator**- This indicator turns Amber when one of the internal protection circuits (thermal, short-circuit, offset) have come into use. All the protection circuits automatically reset themselves when the problem causing the fault has been fixed.
- 6. Ambient Light Sensor** – In the darkness of a well design home theatre, even the smallest LED can shine out like a beacon. The Pantages is equipped with an eye to know when the room is darkened and dim the front panel accordingly. How's that for an intelligent amplifier?
- 7. Rack Mounting (optional)** – For those of you who plan out your installations in a 19" world; an optional rack mounting kit is available for The Pantages. These rugged steel brackets securely embrace the sides of this amplifier to mount it in a 5.25" (3U) rack space.



Rear Panel

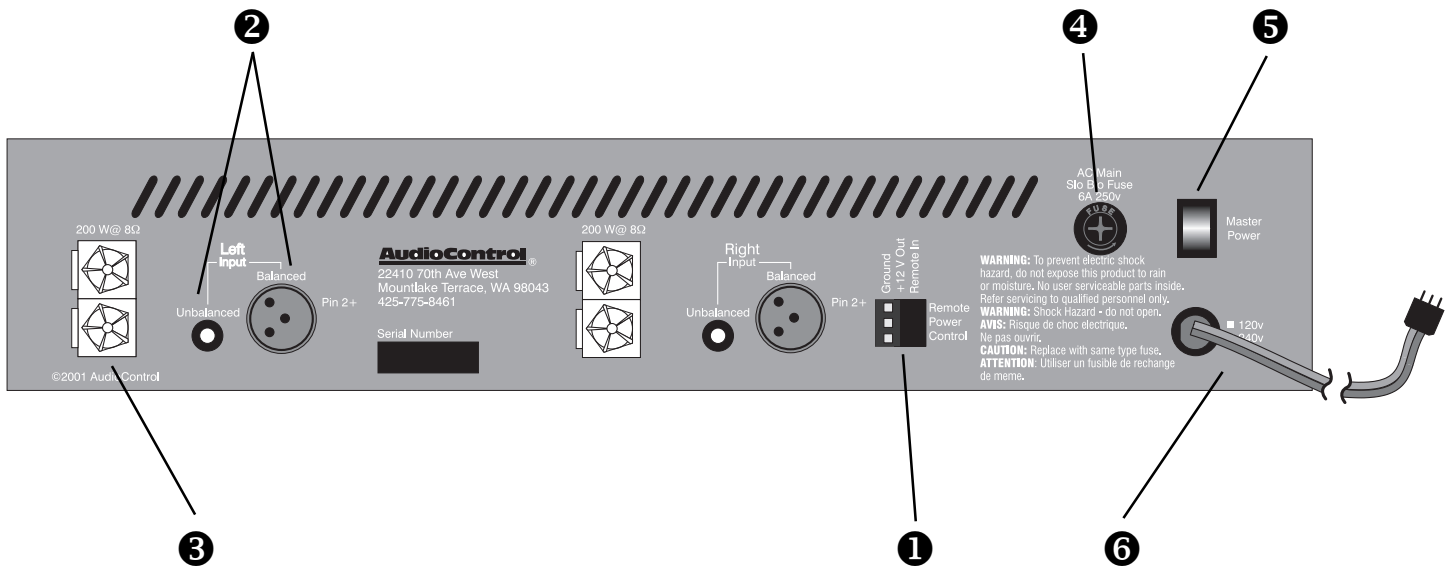
1. **Remote Power Control** - This three pin connector allows you to remotely turn on The Pantages. You can either use a contact closure between the *Control In* and the *+12V output* or an external 12 volt trigger between the Control In and Ground terminals. The +12 volt output is not designed to power other pieces of equipment; it is a current-limited output for controlling The Pantages only.
2. **Inputs** – The Pantages features both unbalanced RCA and balanced XLR inputs to connect your preamplifier’s outputs. Any standard line level audio signal can be connected to these inputs.
3. **Speaker Outputs** - These high-current terminal blocks are designed to make any theaterphile sit up and smile. Their solid construction and gold-plated connection surfaces will accept large gauge audiophile speaker wiring, pin, fork and of course, standard 0.75” spaced banana plugs.
4. **AC Power Fuse** The Pantages is designed with several layers of protection circuitry. This power fuse is here just in case something really awful goes wrong.
5. **Master Power Switch** This switch shuts off the main AC power. Normally the only time you need to turn the master power switch off is if the system is going to be shut down for an extended period of time.
6. **Power Cord** The Pantages draws an average of 700 watts with typical source material. Make certain that it is plugged directly into the wall outlet or a power strip with sufficient power rating. Since The Pantages has remote power switching, you can plug the unit into an outlet that is always active.

A Guided Tour Of The Avalon



Front Panel

- 1. Power Standby Button** – The infamous “Off” light. This button manually toggles the main power on The Avalon between normal operation and stand-by. This button will over-ride the rear panel remote 12 volt trigger, but normal operation will resume when the trigger input is cycled.
- 2. Display Button** – Shuts off the bouncing orange channel level indicators for those easily distracted movie goers.
- 3. Channel Status LED's** - These cool blue LED's show when the corresponding channel is active and operating normally. They turn off if something has caused that channel to go into protection.
- 4. Channel Level Indicators** – Each channel has a ladder of 5 LEDs to bounce along with the music and show the relative audio signal levels. If you find them too distracting, the DISPLAY button turns these lights off.
- 5. Protection Indicator**- This indicator turns Amber when one of the internal protection circuits (thermal, short-circuit, offset) have come into use. All the protection circuits automatically reset themselves when the problem causing the fault has been fixed.
- 6. Ambient Light Sensor** – In the darkness of a well design home theatre, even the smallest LED can shine out like a beacon. The Avalon is equipped with an eye to know when the room is darkened and dim the front panel accordingly. How's that for an intelligent amplifier?
- 7. Rack Mounting (optional)** – For those of you who plan out your installations in a 19" world; an optional rack mounting kit is available for The Avalon. These rugged steel brackets securely embrace the sides of this amplifier to mount it in a 3.5" (2U) rack space.



Rear Panel

1. **Remote Power Control** - This three pin connector allows you to remotely turn on The Avalon. You can either use a contact closure between the *Control In* and the *+12V output* or an external 12 volt trigger between the *Control In* and *Ground* terminals. The *+12 volt* output is not designed to power other pieces of equipment; it is a current-limited output for controlling The Avalon only.
2. **Inputs** – The Avalon features both unbalanced RCA and balanced XLR inputs to connect your preamplifier’s outputs. Any standard line level audio signal can be connected to these inputs.
3. **Speaker Outputs** - These high-current terminal blocks are designed to make any theaterphile sit up and smile. Their solid construction and gold-plated connection surfaces will accept large gauge audiophile speaker wiring, pin, fork and of course, standard 0.75” spaced banana plugs.
4. **AC Power Fuse** The Avalon is designed with several layers of protection circuitry. This power fuse is here just in case something really awful goes wrong.
5. **Master Power Switch** This switch shuts off the main AC power. Normally the only time you need to turn the master power switch off is if the system is going to be shut down for an extended period of time.
6. **Power Cord** The Avalon draws an average of 276 watts with typical source material. Make certain that it is plugged directly into the wall outlet or a power strip with sufficient power rating. Since The Avalon has remote power switching, you can plug the unit into an outlet that is always active.

Installation: The Feature Presentation

What follows is a step-by-step guide to integrating this new amplifier into your home theater system. If it seems overly detailed, please forgive us. We would rather tell you too much than too little.

First, check your new amplifier for any shipping damage. We pack 'em pretty securely, but it's a vicious world out there and anything can happen twixt Mountlake Terrace, Washington and your installation.

Paperwork

Yes, filling out the warranty registration card is about as exciting as cleaning out your sock drawer, but we'd definitely like the card back after you've hooked up the amp and played with it awhile. We DO read each and every incoming card and react to your suggestions. That's how great products like this are created.

Next, record the serial number and make certain the home owner puts it away in a safe place. Stashing the record away is very important in the unlikely event that your AudioControl amplifier ever needs servicing, or...well things do happen...you need to prove to an insurance adjuster that something as great as this was installed in the system.

Placement

The AudioControl Pantages and Avalon are very cool running amplifiers, but they do need some breathing room to operate properly. Make certain that the air vents on the top and bottom of the amplifier are not blocked and have at least ½" of air space. Also make certain that heat sensitive components such as CD or Tape players are not directly on top of The Pantages. Just as a reminder, you should also avoid putting any leaky potted plants on the audio equipment stack.

Power

Don't plug it into a switched outlet on your system unless you are certain that it can handle the power rating. Also, please don't cut off the ground pin on the power connector. It is an important safety feature. If you need to plug it into a two prong outlet, use a ground adapter (and connect the ground on it).

Hooking Up Your System

What you'll need:

1. The Pantages or Avalon amplifier.
2. Surround Processor, preamp or receiver.
3. Audio hook-up cables (your choice RCA or XLR).
4. Enough speaker wire to reach all of your speakers.

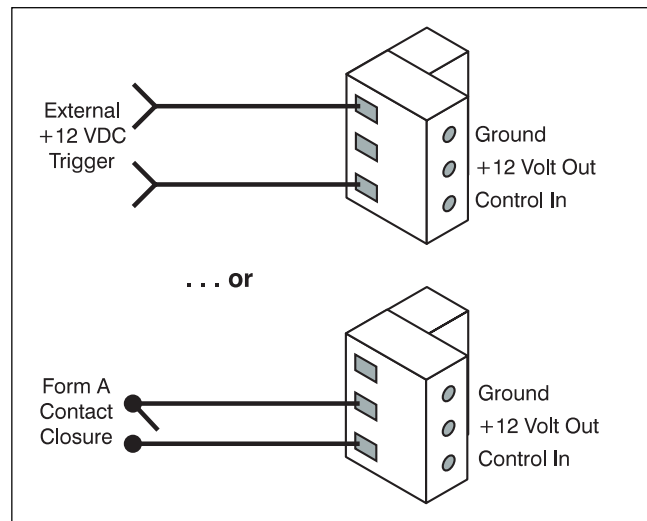
Remote Power Control

The Pantages and Avalon have three levels of power control:

1) Main AC Power switch- This is the master control and must be turned ON for the amplifier to function. Normally the only time that you would need to turn the AC power switch off is when the system is going to be unused for an extended period.

2) Remote Power Control- This removable 3-pin remote connector on the rear panel allows simple interfacing with external control systems. It accepts either a contact closure or external +12 volts DC. (see diagram)

3) The third level of power control is the front panel STANDBY button. When there is AC power and the rear panel AC MAIN switch is on, this button lights blue. When the amplifier is turned on, either by pressing the STANDBY button or with the remote power trigger input, the blue led on this button turns off.



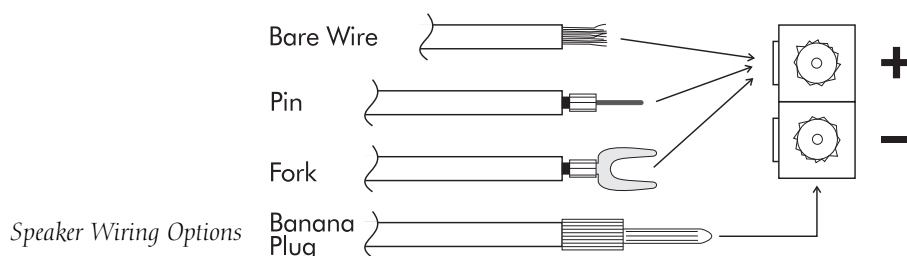
Audio hook-up

If you're an installation veteran, this may seem repetitive, but some things can never be repeated too many times.

- 1) Turn off ALL components before making any connections.
- 2) When making connections, designate RED RCA plugs as RIGHT and WHITE, BLACK, or GREY plugs as LEFT. In fact, this is a good idea for ALL signal connections made in your audio system. The key is consistency. Stick with the same color-coding and you'll reduce possible problems.
- 3) Whenever possible, keep power cords away from signal cables to prevent induced hum. This is especially important if you bundle the cables to keep the installation neat looking.
- 4) Use quality interconnect cables. We're not going to get into the debate about whether \$100/meter cables improve the sound, but we know from experience that really, REALLY cheap cables can cause a multitude of problems. They tend to break inside or corrode, causing a loss of signal or hum. They also have poor shielding.
- 5) If you need to run the audio cables more than 20 feet you should consider using the balanced XLR inputs. This will provide better noise rejection against nasty things like hum, spikes, local talk radio, etc. If your surround processor doesn't have balanced outputs, the AudioControl BLD-10 balanced line driver is an excellent way to convert unbalanced RCA audio outputs to a balanced signal (see the appendix for details).

Speaker Hook-up

The same rule applies to the speaker wires as the audio connections. Establish a standard connection color code and stick with it. One conductor of the speaker wire is normally marked by a different color (silver versus copper) or there is a ribbing on one side. Typically this marked conductor is used for the positive (+) speaker leads. Of course the really good wire has Positive and Negative printed right onto the wire jacket.



Your choice of speaker wire gauge and the length of the runs also affects the speaker impedance load presented to the amplifiers. As you can see in this table, even fairly short speaker runs can have a very significant resistance if you use a smaller wire gauge. The downside of this resistance in the wire is that you waste the total power available to the speakers. All that resistance in the speaker wire will turn some of your amp power into heat.

Speaker Wire Resistance

Wire Gauge versus Run Length

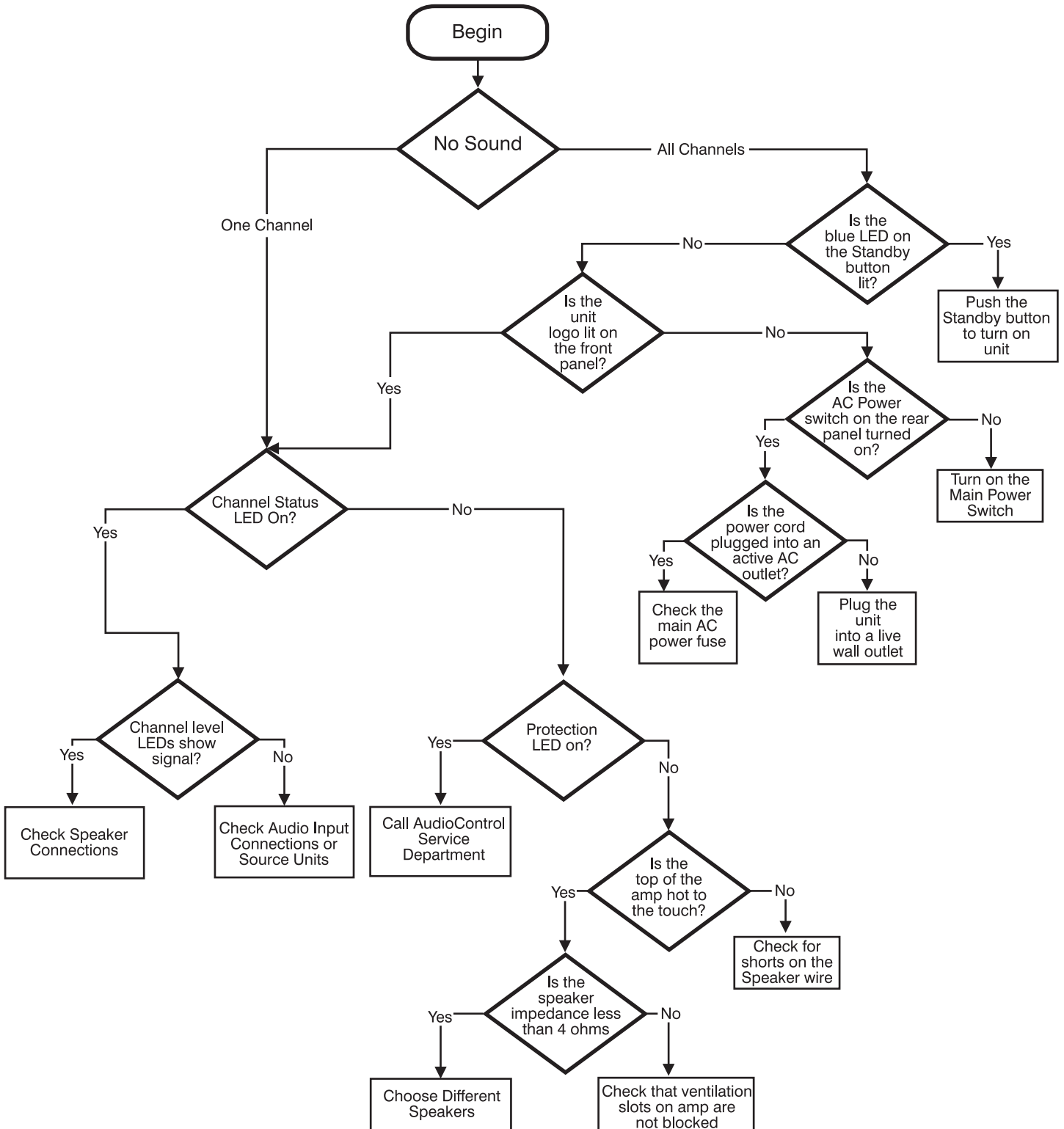
	25'	50'
24 GA	1.3 Ω	2.6 Ω
22 GA	0.8 Ω	1.6 Ω
20 GA	0.5 Ω	1.0 Ω
18 GA	0.3 Ω	0.6 Ω
16 GA	0.2 Ω	0.4 Ω
14 GA	0.1 Ω	0.25 Ω
12 GA	0.08 Ω	0.16 Ω

A common practice among system designers is the 5% rule. This rule states that the wire resistance should not exceed 5% of the speakers minimum resistance. This keeps the volume level change due to line losses to less than 0.5dB.

As an example, on an 8 ohm speaker the wire resistance should be less than 0.4 ohms ($5\% \times 8 = 0.4$). You will need to use at least 14 ga wire on a 100' run to obtain this resistance.

Congratulations! You're done with the hook up. Now pop up that corn and you're ready to enjoy the movies.

Troubleshooting The Avalon & Pantages



A Brazen Plug For Other AudioControl Products

AudioControl started out making graphic equalizers in 1977. Our heritage and designed experience grew from a background in professional audio, so we were never quite satisfied with what was available for the consumer audio market. Since that time, we have continued to expand our product offerings to become a key part of any home audio system. We supply the audio components that can make a greater improvement in the sound of your system than almost any other addition or upgrade. More bass, better bass, less harshness and the ability to hear music the way you want it.

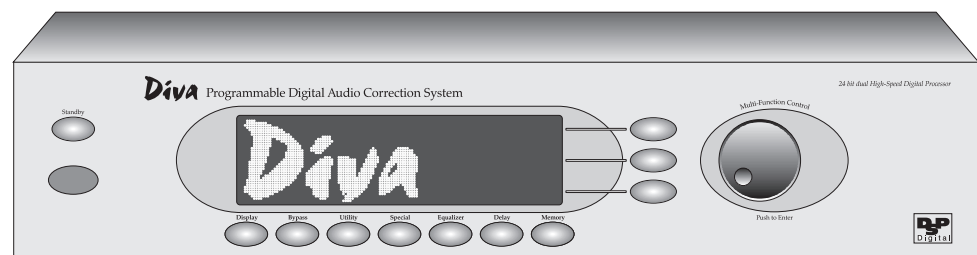
We make our equalizers easy to use by incorporating features such as pairing channel controls together. We help you make the system sound as good as possible with high quality subsonic filters and, in selected models, built-in test analyzers that let you make accurate adjustments to instantly compensate for main system speaker and room deficiencies. In fact, AudioControl was the world's first manufacturer of a SEVEN CHANNEL equalizer for home theater surround sound use.

We also make other enhancement devices so unique and so dramatically enjoyable that we have received patents for them as well as numerous industry awards. These along with our Multi-Room Controller and Balanced Line Driver provide a rich assortment of products to make certain that your audio system sounds it's best.

Okay, enough commercials.

Once again, we thank you for choosing an AudioControl components in your system and hope you enjoy a lifetime of performance and reliability.

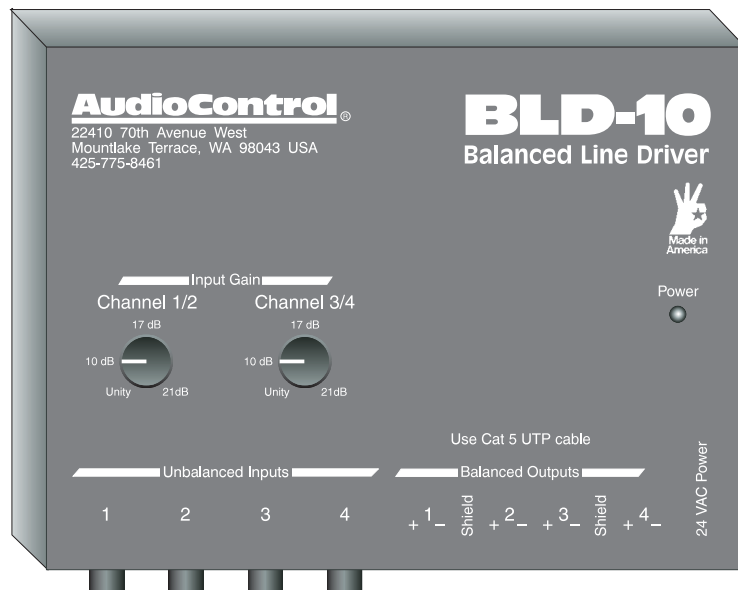
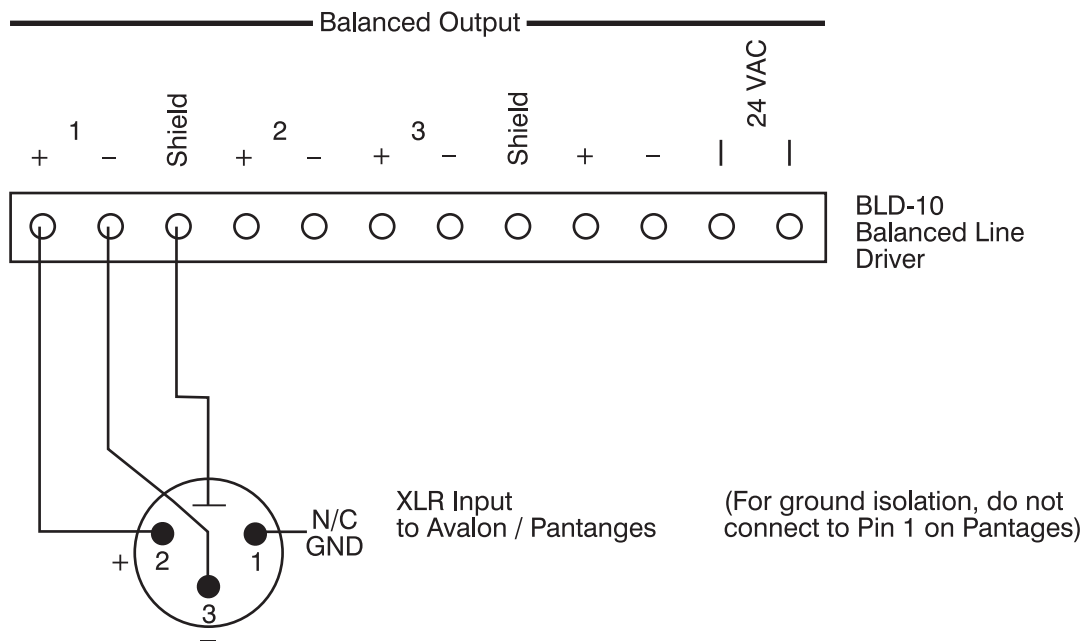
*Diva 24 bit Digital Room
Enhancement Processor*



Appendix - Going the Distance and Getting Balanced

When you need to run a line level audio signal more than 20 feet; balanced is the only way to go. It provides greater noise and ground loop rejection than normal RCA connections. What do you do if your preamp doesn't have XLR outputs? No problem, just whip out a couple of the handiest items to have around: The AudioControl BLD-10 balanced line driver. These little boxes provide a clean and accurate means of converting unbalanced to balanced.

Connecting to Balanced Inputs on Pantages Using BLD-10



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 the new Avalon or Pantages digital audio enhancement system 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 Avalon or The Pantages for five (5) years from the date you bought it, and we will fix or replace it, at our option, during that time.

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 Avalon or The Pantages amplifier.
 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 ones who require this, so it's a good habit to get into with any major purchase.
 3. The Avalon or The Pantages amplifier 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. Do not let anybody who isn't: (A) the AudioControl factory, or (B) somebody authorized in writing by AudioControl to service The Avalon or The Pantages equalizer. If anyone other than (A) or (B) messes with The Pantages equalizer, that voids the warranty.
 5. The warranty is also void if the serial number is altered or removed, or if The Avalon or The Pantages amplifier 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 Avalon or The Pantages amplifier to level your projection TV); (B) improper connections (120 volts into the RCA jacks can fry the poor thing); (C) sadistic things. This is the best product we know how to build, but if you strap it to the front bumper of your Range Rover, something will break.

Assuming you conform to 1 through 5, and it really isn't all that hard to do, we get the option of fixing your original 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 The Avalon or The Pantages amplifier 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 Pantages.

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

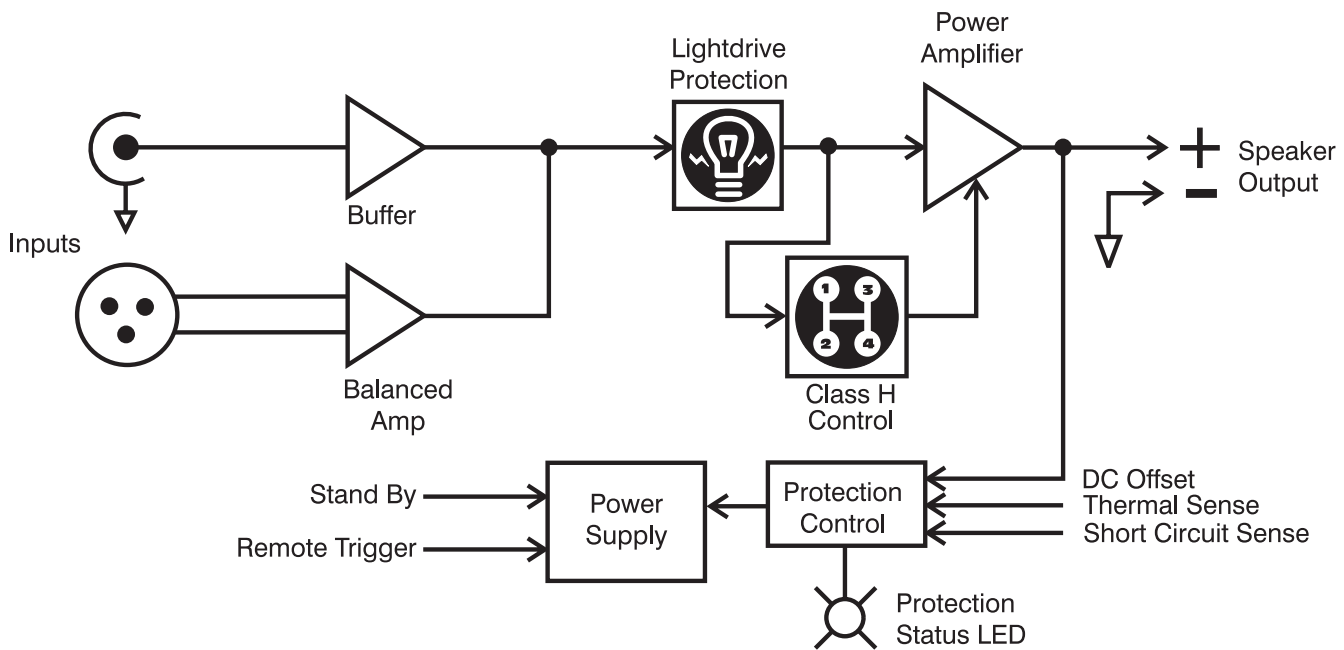
What to do if you need service

First, contact AudioControl, either by phone 425/775-8461 or FAX 425/778-3166 or by e-mail at service@audiocontrol.com. We'll verify if there is anything wrong that you can fix yourself, or arrange to have it sent back to our factory for repair. Please include the following items with the returning unit:

1. A copy of your proof of purchase (that sales receipt we've been harping about). No originals please. We cannot guarantee returning them to you.
2. A brief explanation of the trouble you are having with the Pantages. (You'd be surprised how many people forget this.)
3. A return street address. (No PO Boxes, please)
4. A daytime phone number in case our technician has a question about the problem you are having.

You're responsible for the freight charges to us, but we'll pay the return freight back. We match whatever shipping method you send it to us, so if you return the unit overnight freight, we send it back overnight. We recommend UPS for any shipments.

BLOCK DIAGRAM



The Avalon Specifications

Number of Channels	2
Output Power	200 W_{rms} @ 8 ohms (all channels driven)
Minimum Speaker Load	4 ohms
Damping Factor	Greater than 250
Frequency Response (10 Hz - 100 kHz)	± 3 dB
S/N ratio	>110dB , A-wtd, ref. Full Output
Total Harmonic Distortion	0.05% (200 watts @ 8 ohms 20-20K)
Input Sensitivity	1.42 V_{rms} for full output
Input Impedance	30 Kilohms
Protection	Clipping, Thermal, Short Circuit, DC offset
Peak AC Power Draw	572 watts (full output into 8 ohms)
Average AC Power Draw	276 watts (full output into 8 ohms)
Weight	22 pounds
Dimensions	17"W x 15.75"D x 3.5"H
Country of Origin	U.S.A.

The Pantages Specifications

Number of Channels	5
Output Power	200 W _{rms} @8 ohms (all channels driven)
Minimum Speaker Load	4 ohms
Damping Factor	Greater than 250
Frequency Response (10 Hz - 100 Hz)	±3dB
S/N ratio	>110dB , A-wtd, ref. Full Output
Total Harmonic Distortion	0.05% (200 watts @ 8 ohms 20-20K)
Input Sensitivity	1.42 Vrms for full output
Input Impedance	30 Kilohms
Protection	Clipping, Thermal, Short Circuit, DC offset
Peak AC Power Draw	1430 watts (full output into 8 ohms)
Average AC Power Draw	690 watts (full output into 8 ohms)
Weight	46 pounds
Dimensions	17"W x 15.75"D x 5.25"H
Country of Origin	U.S.A.

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This manual was written, designed, printed, folded and stuffed into the box in the U.S.A. Probably on a really soggy day considering where we live.

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Avalon_m & Pantages_m
OPERATOR'S MANUAL



PN 913 0630