



AVALON G4

4 CHANNEL HIGH POWER AMPLIFIER OF DESTINY

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10. Only use attachments/accessories specified by the manufacturer.
11. Unplug this apparatus during lightning storms or when unused for long periods of time.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, such as vases or glasses, shall be placed on the apparatus.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.



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.



Caution: to reduce the risk of electric shock, do not remove the top cover. There are no user-serviceable parts inside. Refer servicing to qualified personnel.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications to this device not expressly approved by AudioControl Inc. could void the user's authority to operate the equipment under FCC rules.



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.

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Introduction

Greetings from the rainforests of the Pacific Northwest, the home of AudioControl. Since you are reading this manual, it is safe to say you are in the process of installing a high-performance AudioControl Avalon G4 4 Channel theater amplifier that also performs as a killer hifi 2.1 or a dual mono block. You have unprecedented flexibility with this ridiculously powerful and adaptable amplifier which no doubt caught your refined eye. You are obviously a person of fine discernment, have nice hair, and people like the cut of your jib.

You will be pleased to note that this amplifier was designed and manufactured at our AudioControl forest technodrome, located in the U.S.A. For over 40 years, our company has been designing and manufacturing high performance components that allow enthusiasts to truly enjoy their audio systems. It should provide you and your customers with years of enjoyment and trouble-free service. We truly feel that this amplifier will enhance the performance of any system.

This manual was written to assist with the installation of this new amplifier. Whether

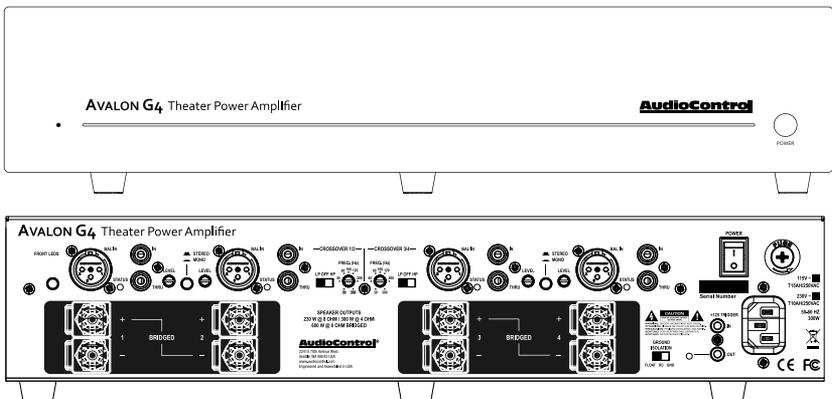
you are a seasoned veteran, or this is the first amplifier you have ever heard, we encourage you to set aside some time to review this not-so-weighty prose. While reading a manual can be as exciting as watching a slug race, we have included lots of useful information, carefully concealed within a minimum of technical jargon. Not only will you learn how to get the most from this AudioControl home theater power amplifier, you might get a smile or two. Anything as capable as this amplifier deserves all the explanation it can get.

We also encourage you to visit the AudioControl web site, conveniently located at www.audiocontrol.com. While we have tried to anticipate any installation issues in this manual, there are sometimes new applications and ideas that come to mind. Therefore our web site will always have the most current information.

Needless to say, if you have any real challenging questions, feel free to call us or e-mail us at:

sound.great@audiocontrol.com

Your Friends At AudioControl



Features

Here are some of the features that make the Avalon G4 very unique, and unlike any other amplifier:

- **Configuration Flexibility**

With the Avalon G4, you have all the prodigious power one could need in an Atmos 4 channel amplifier, with all the flexibility that comes from AudioControl. With precision Linkwitz-Riley crossovers and mono/summed stereo pair operations, you can set this bad boy up as a 2.1 amplifier to run your highs and a passive subwoofer (where bridged, you can achieve 600 watts). Even better for those who have a hankering for power, set it up as a dual monoblock which is a pair of 600 watt outputs! Nothing better!

- **Built For The Long Haul**

“Bulletproof” is the phrase that best describes the Avalon G4. Everything about this amplifier is built for the long haul, built for life! 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 amp’s power is just going up in heat. The Avalon G4’s 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.

- **Lightdrive Protection System**

The Lightdrive protection circuitry defends this amplifier like a momma bear to her cubs - and defends 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 Theater audio systems place terrific demands on power amplifiers. The high current drive capabilities of our BiMOS outputs cleanly delivers a minimum of 230 watts into 4 ohms, while maintaining a cool performance method that smells great too!

- **Unparalleled energy efficiency**

Whether from the point of view of saving electricity or from the viewpoint of less heat in the rack, this amplifier has no equal. It is VERY energy efficient during operation.

- **Made in the Northwest Rainforest**

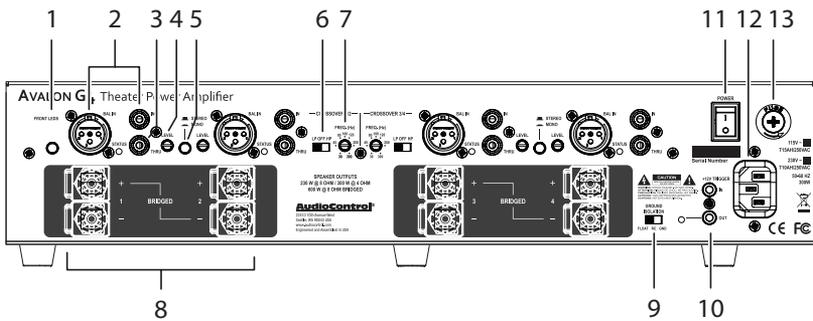
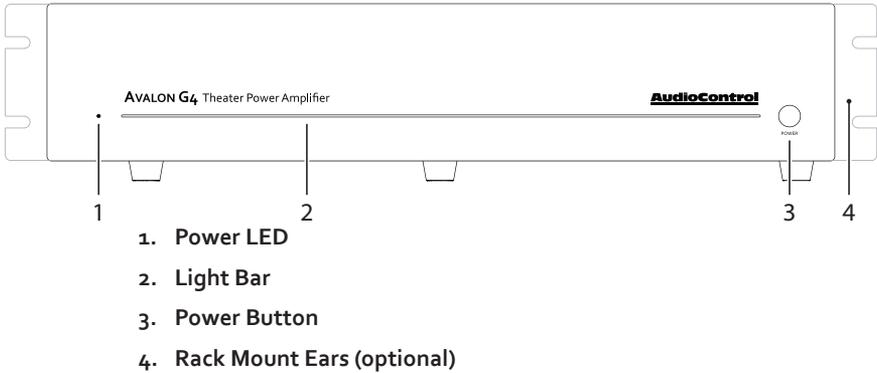
The AudioControl Avalon G4s began their existence at our factory in Mountlake Terrace, Washington, a few miles north of Seattle. Here, we also build precision test instruments, equalizers and analyzers and a totally awesome line of car stereo components. AudioControl started in 1977 and has won so many audio industry awards for design and engineering excellence that our reception room wall is starting to sag.

Complimentary Features

- Class H power - dynamically provides incredible power
- Independent 24dB Linkwitz-Riley High Pass and Low Pass crossovers
- Individual channel input gain
- Mono/stereo operation
- Balanced XLR and unbalanced RCA inputs
- Analog RCA loop-through outputs
- Stout and sturdy 5-way binding posts
- Back panel channel LED status indicators
- Lightdrive signal management
- Prodigious power
- Ground isolation switch
- Front panel light bar brilliance setting
- Intuitive back panel for ease of set up and control
- Heavy - use for weight lifting when not listening

Quick View

Front Panel



Rear Panel

1. Light bar brilliance setting
2. Inputs balanced and unbalanced
3. RCA Thru outputs
4. Level control
5. Stereo/Mono switch
6. LP/OFF/HP switch
7. FREQ (Hz) control
8. Speaker outputs
9. Ground isolation switch
10. Master trigger
11. AC power switch
12. AC input
13. AC fuse

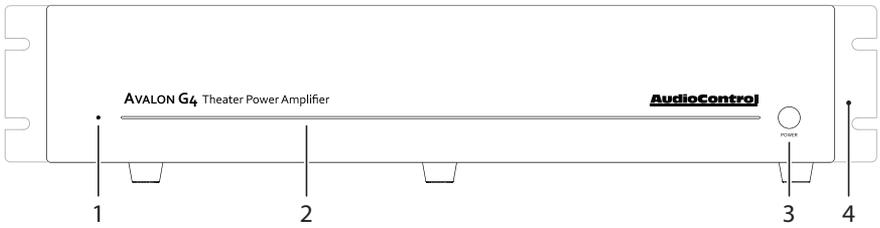
Getting Started

1.  Turn off power to all components before making any connections.
2. When making connections, designate red RCA plugs as right, and designate white, black, or gray plugs as left. 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 know from experience that 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. The Avalon G4 gives you the option of using RCA cables or balanced XLR cables – if running more than 20 feet or so, it is best to run those signal cables as XLR to give you better noise rejection.
6. Speaker Wiring – 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. Some wires have positive and negative printed right onto the wire jacket.
7. For optimal performance, dance in a fairy circle around your new amplifier at midnight, on the first full moon of the new year.

Match the polarity markings on the Avalon G4 unit with the polarity markings on your speakers. If the wiring is incorrect then the speakers will be out-of-phase, with a noticeable decrease in the bass response and less than goodly-sounding awesomeness.

If you do need to run the RCA audio cables more than 20 feet, consider using an active balanced line driver for the signals. This will provide better noise rejection against nasty things like hum, spikes, local talk radio, and metaphysical paranormal phenomena, etc. The AudioControl balanced line driver components (BLD-10, BLR-10 and BLX-10) are an excellent way to send audio over long distances with standard Cat-5 wiring. Check them out at audiocontrol.com.

Front Panel Features



- 1. LED** – On the far left of the heavy duty brushed aluminum front panel, this LED indicates the state of the Avalon G4 amplifier.

A Blue LED – shows that the amplifier is on and will drive your speakers when the source is played.

A Red LED – shows that the amplifier is in standby mode, and will not drive the speakers (hit the power button to make it blue).

No LED illumination – means that it's either unplugged from wall power or the back panel mains power switch is turned off, or all the lights are out in your town again.

Yellow LED – indicates initiation of jump to hyperspace. You have ten seconds to put the cat out, and leave a note for the milkman. (Not yet available in this galaxy.)
- 2. Light bar** – This front panel blue light bar is mined directly from the R- Coronae Australis Nebula. The brilliance of this light can be customized via a button on the back panel.
- 3. Power Button** – This large legendary button allows for the on/standby mode to be toggled. Press to turn the unit on and press again to turn the unit into standby mode. The rear panel Main AC Power switch must be engaged for this button to work.
- 4. Rack Mount Ears** – These optional rack ears allow the unit to be rack mounted in a standard 19" wide rack, with a 2U height. Use standard rack mount screws and washers to secure the unit in a rack. The unit does not have to be supported at the rear if the rack is located in a fixed location.

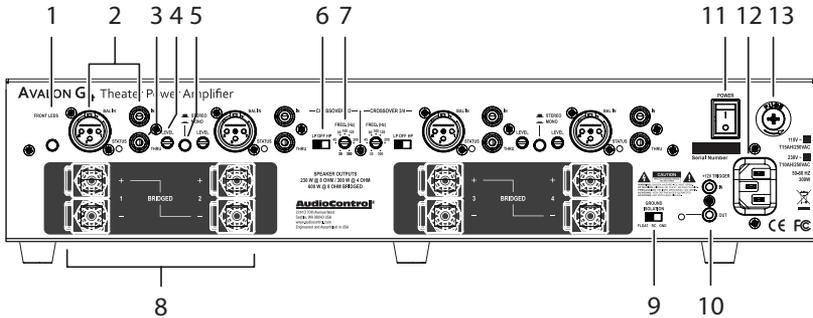
To remove the rack ears (making the unit 17" wide), first unplug the power cord, and then locate and undo the screws securing each ear to the side of the chassis, and remove the ears. Replace the screws securely back into the chassis. Do not remove any of the other screws from the chassis or top cover. There are hazardous voltages inside the unit. Keep the rack ears safely tucked up in your sock drawer.

You can also remove the feet for rack mounting, but remember to put them back on if you are no longer in a rack.

LED Function Table

LED Color	Description	LED Color	Description
Blue	The unit is on	Bright Red	DC Error
Red	The unit is in standby mode	Dim Red	Standby
Off	The unit is powered off		

Rear Panel Features



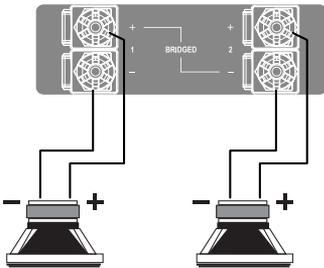
- Light Bar Brilliance setting** – toggle this button to set the desired luminescence of that nebustic front panel light bar to bright, dim, or off.
- Inputs** – The Avalon G4 features both Balanced XLR and unbalanced RCA inputs to connect to your preamplifier outputs. Any standard line level audio signal can be connected here. The STATUS LED will light blue when the channel is operating normally.
- RCA Thru*** – These RCA jacks are for looping your audio input signal to another pair of inputs on another device or section of the Avalon G4. These line-level outputs are a hard-wired copy of whatever is coming in on the inputs. *While “Through” here is spelled like it sounds, there wasn’t enough room on the richly dense rear panel– we sacrificed some grammatical correctness to fit more on the rear panel– we felt it was a decent trade off.
- Level** – This control provides for Gain adjustment on the input signal. Use this to calibrate optimal signal level to drive the Avalon G4 to full output. These adjustments are applied per channel input, so for stereo signals, best practice is to match the SPL from the one output to the rest of the channels on the Avalon G4. We have detents there to make this easy. If those don’t work for you can use an measurement tool like our DM-RTA or the SA-4100i to test and calibrate your level settings for each output.
- Stereo/Mono** – These switches allow the channel pair to be used in stereo, or combined in mono. In mono, channel 1 or 2 inputs are summed, so just use one input. The same applies to channels 3 and 4 in mono, just use one.
- LP/OFF/HP** – This switch gives you the option of setting a High-Pass, or Low-Pass crossover. The OFF setting bypasses the crossover section. High Pass means that the frequencies above the crossover FREQ setting will pass through, while lower frequencies are attenuated. Low Pass allows the frequencies below this crossover frequency to pass through to your subwoofer for example.
- FREQ (Hz)** – this sets the frequency of either a high-pass or low-pass crossover frequency if LP or HP is set by the LP/OFF/HP switch (6).

8. **Speaker outputs** – These high-current terminal blocks are designed to make any custom installer sit up and grin. Their solid construction and gold-plated connection surfaces will accept large gauge audiophile speaker wiring, pin, tines of forks (not recommended, just saying) and of course, standard 0.75" spaced banana plugs.

Stereo Speaker Connection:

Note the polarity markings for each pair of outputs.

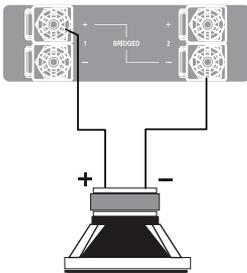
The speaker impedance should be 4 Ohms minimum in stereo operation.



Bridged Mono Speaker Connection:

Note the polarity markings of the bridged pair of connections. In this mode, the input signals are combined in mono, and the power from both channels is combined to drive a single, more powerful, speaker.

The speaker impedance should be 8 Ohms minimum in bridged mono.



To set the output to be in mono, press the Stereo/Mono switch (5).

9. **Ground Isolation Switch** – This switch selects the level of isolation between the audio signal ground and the AC earth ground. In normal operation this switch should be in the GND Ground position. If there is trouble with an AC ground hum, try the other two settings for the best operation. For safety, the chassis is always connected to the earth ground regardless of the switch setting.

10. **Master Trigger** – You can use these TS 1/8" connectors to turn on the unit or place it into standby mode. For example, you could have an external device such as one of our glorious AudioControl home theater receivers, turn on the AVALON G4 when it turns on.

LED indicator – This LED is blue when the master trigger input is active, and off when it is inactive.



When rack-mounting the unit, make sure that the power cord and the AC power switch remain readily accessible.

11. **AC Power Switch** – This switch shuts off the main AC power. Normally the only time you need to turn this off is if the system is going to be shut down for an extended period of time. Use the front panel power button or the master trigger inputs to switch the unit between standby and on.

Also turn the rear power switch off during lightning storms, wind storms with frequent power outages, or when a giant robot from space is heading to the power station for a light lunch. You know how snackish they can be.

- 12. AC Input** – Connect the supplied AC power cord securely to this input. Plug the other end into an AC mains outlet of the correct voltage rating for your unit. They are either 100 -120 VAC (50 – 60 Hz) or 220 – 240 VAC (50 – 60 Hz); look at the check box to see how your unit has been configured. The voltage setting is not user-settable. This unit is a class 1 device, so it is recommended that you do not defeat the safety ground connection or use a power cord that does not have the safety ground pin.

The Avalon G4 draws an average of 400 watts with typical source material. Make certain that it is plugged directly into the wall outlet, or a surge protector power strip with sufficient power rating. Since The Avalon G4 has remote power switching using the trigger system, you can plug the unit into an outlet that is always active.

- 13. AC Fuse** – The main power supply fuse may be checked or replaced.

WARNING: Make sure that the power cord is unplugged from the AC mains before checking or replacing the fuse.

Use a flat-headed screwdriver to undo the fuse carrier from the fuse holder. Inspect the fuse and replace with the exact same type indicated on the unit. The use of any other type of fuse may lead to an unsafe condition. If the fuse blows again immediately, then unplug the power cord and contact our fine folks in customer service. Do not open the unit, as there are no user-serviceable parts inside, and dangerous voltages exist.

Speaker and Wiring Impedance

Speakers, like other resistors, when wired in parallel “show” lower values than the individual components. Here are two examples for calculating speakers wired in parallel:

Calculating Impedance

For three 8 Ohm speakers wired in parallel (pluses connected to pluses) the impedance is $1/8 + 1/8 + 1/8 = 3/8$
Then take the inverse or $8/3 = 2.66 \Omega$

For two 8 Ohm speakers wired in parallel (pluses connected to pluses) the impedance is $1/8 + 1/8 = 2/8$
Then take the inverse or $8/2 = 4 \Omega$

Often the real world is more complicated than theory, and for speakers this is the case. An eight Ohm speaker is not eight Ohms at all frequencies. Plus passive crossover networks add their own changing conditions. Be aware of speakers that have significant dips from “nominal” values in portions of their frequency range,

and speakers that are rated at unusual impedances, for example 3.5 Ohms. The Avalon G₄ is tolerant of lower impedance loads, however, all good designs use some margin of error.

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 significant resistance if you use a smaller wire gauge. This can be a benefit if you are paralleling lots of speakers. The wire itself acts as an impedance limiter, since the amplifier cannot see a speaker load lower than the resistance of the wire. The downside of this wire resistance is that you waste some part of the total power available to the speakers.

Speaker Wire Resistance:

Wire Gauge versus Run Length

Wire Gauge	Run Length				
	25'	50'	100'	250'	500'
24 GA	1.3Ω	2.6Ω	5.1Ω	12.8Ω	25.7Ω
22 GA	0.8Ω	1.6Ω	3.24Ω	8.1Ω	16.0Ω
20 GA	0.5Ω	1.0Ω	2.0Ω	5.0Ω	10.1Ω
18 GA	0.3Ω	0.6Ω	1.28Ω	3.2Ω	6.4Ω
16 GA	0.2Ω	0.4Ω	0.8Ω	2.0Ω	4.0Ω
14 GA	0.1Ω	0.25Ω	0.5Ω	1.26Ω	2.5Ω
12 GA	0.08Ω	0.16Ω	0.32Ω	0.8Ω	1.6Ω

Installation

Placement –

The AudioControl Avalon G4 is a very cool running amplifier. With the Class H power supply dynamically allocating power as needed, it will remain a cool runner for the lifetime of the product. However, precautions should be made so that it does have a bit of breathing room – it is a powerful amplifier after all. Make certain that the air vents at the top and bottom of the amplifier are not blocked and have at least ¼” of airspace. Also make certain that heat sensitive components such as cable boxes and Blu-ray players are not directly on top of the Avalon G4 amplifier.

For information regarding stacking of units and ventilation, please see the details on page 20.

Power –

If you really plan on rocking out with pure sine wave test tones, you ought to give this baby a dedicated 15 amp service. Otherwise, connect to the same circuit as your fine AudioControl theater processor. Also, the ground pin on the power cord is there for reason, never cut it off. If you ever need to plug it into a two prong plug, don't.

Remote power control/12v Trigger –

There are 3 levels of power control of the Avalon G4:

Main AC Power switch – This is the master control of the amplifier and must be turned on for the amplifier to function. If you're taking a long vacation, then you might want to turn this off, otherwise leave this on and control the amplifier via the front panel or the remote 12v control.

12V trigger – This rear panel TS 1/8” jack is for connecting a triggered 12 volt DC signal from an external control system. The tip is hot and the sleeve is the ground.

StandBy Button – That button on the Avalon G4 front panel's right side – that's the Standby Button. Press to turn the unit on and press again to turn the unit off. You still have to have the Main AC Power switch for this Standby Button to work.

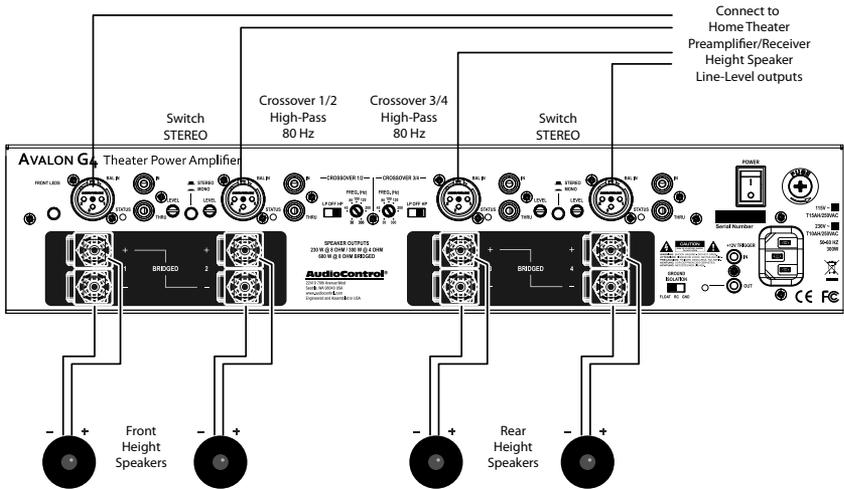
Configurations

The Avalon G4 is just so wonderfully configurable. It is a 4 channel amplifier giving you unparalleled cool running power that can be set up as a 4 channel, 2.1 channel or 2 channel monoblock amplifier. The I/O and back panel controls give you a tremendous amount of flexibility – it’s a grand yoga master of audio, smoothly contorting to adapt to whatever you need from a full performance high powered supreme amplifier.

Please take a moment and a nice box of crayons to enjoy the hookup diagram ideas on the following pages.

4 Channels

These 4 channels give you 230 watts at 8 ohms and over 300 watts at 4 ohms. This will render your content in fantastic detail, adeptly handling transients like a (insert humorous analogy here). For example, connect your ATMOS outputs directly to channel 1 – 4 inputs for a spectacular immersive audio experience.



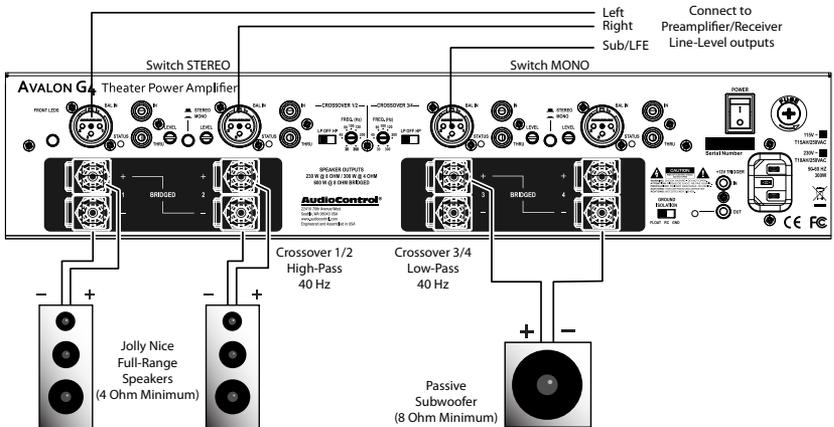
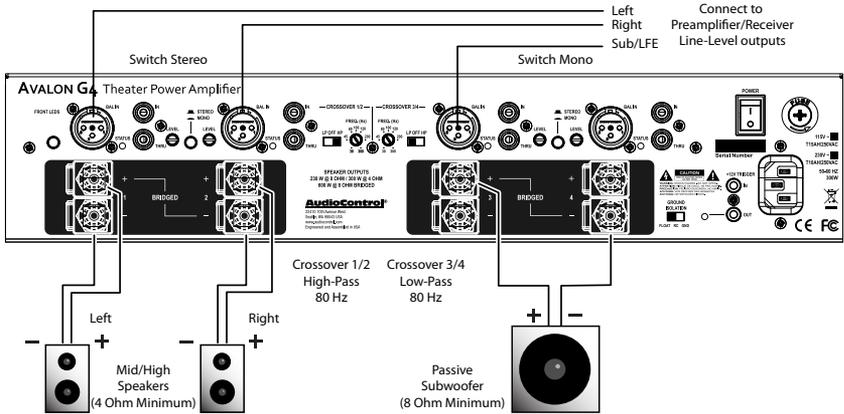
2.1 Channels

Bridge your 8 ohm passive subwoofer to one pair of outputs and you can get over 600 watts driving it! With the other channel pair handling the highs, you really aren't going to get anything better from a single hifi amp!

Adjust the crossover to high-pass for the satellites, somewhere around 80 to 100 Hz should be a good starting place, lower if they are nicer full-range speakers as shown.

Then set the channel pair that the subwoofer is bridged to, at the same frequency on the rotary dial (there are detents to make setting this easy). Also, for the sub channel pair, push the mono button in.

Now play your favorite content. Adjust the crossover frequencies for each output pair – you can overlap the crossover points or not, it is totally up to you and how you like it to sound. Listen to a recording you know well for any final adjustments.

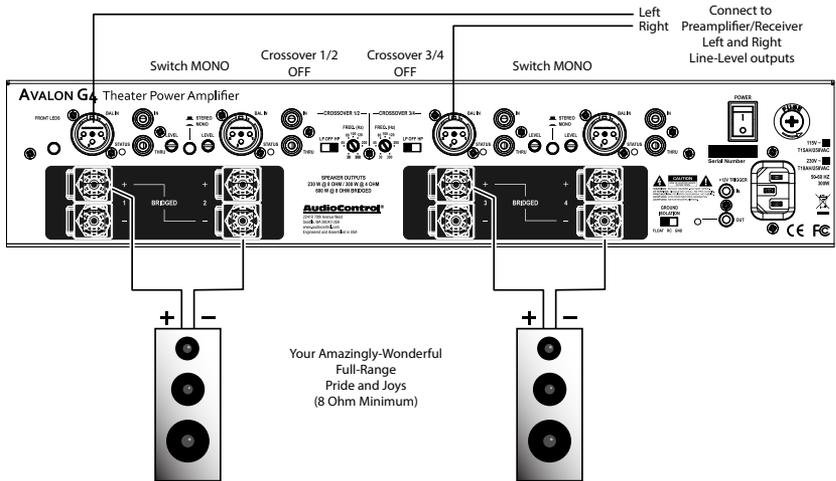


2 Channels in Bridged Mono

If you have two 8 ohm speakers that can handle the prodigious power of the Avalon G₄, with each channel pair run in bridged-mono then hook them up!

Run the left line-level output from your preamplifier to Channel input 1, and run the right output to Channel input 3. (There is no need to connect the input 2, or input 4.)

Press the mono button for each channel pair then adjust the gain controls for each pair so that they are the same. Use the detents for quick set up – you'll have more than enough gain to blow out your windows if that's your thing.

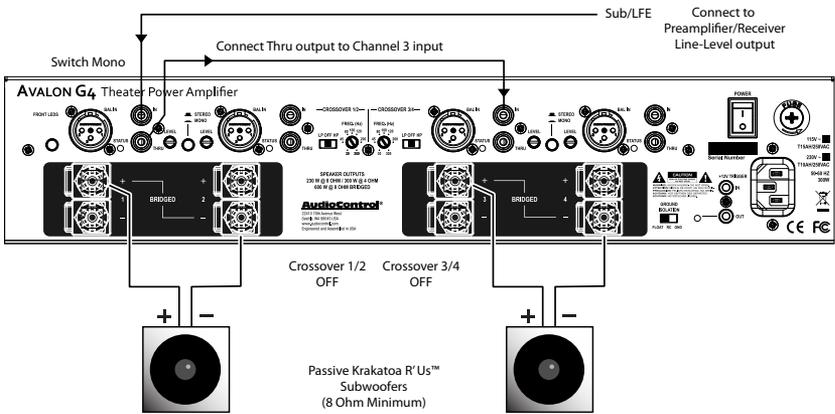


2 Channels in Dual Mono

The Avalon G4 Thru output connectors can be used to send a copy of one audio input to the audio input of another channel. In the first configuration shown below, two subwoofers are used, and they both play the same output.

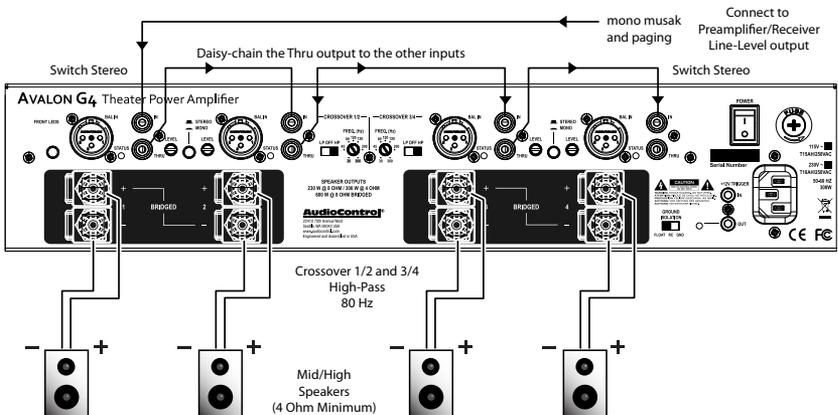
Run the left line-level subwoofer output from your preamplifier to Channel input 1, and run the Thru output to Channel input 3.

Press the mono button for each channel pair then adjust the gain controls for each pair so that they are the same.



4 Channels in Mono

The Thru outputs can be used to feed the same audio signal to all 4 channels.



Ventilation

This may be as good a time as any to have "the talk" about ventilation. The Avalon G4 features cool-running efficient switch mode power supplies and amplifiers but it is still a very powerful four-channel amplifier, and therefore requires plenty of good clean, dry, ventilation to properly cool.



Please be advised that you shouldn't stack more than 2 models together. Any more than that, then a rack space above and below is required for adequate ventilation.



Review the heat load specifications and ensure that your rack room meets these requirements.

If the amplifier should overheat, a thermal sensor will put it into standby mode, allowing the heatsink to cool down.

Once the amplifier has cooled to a safe operating temperature, the amplifier will reactivate. If this occurs often, identify the cause of the problem and take corrective action, for example:

- Provide additional ventilation
- Do not install in a sealed location with limited or no airflow
- Install a fan in the rack
- Make sure that the amplifiers are not overloaded with speaker impedances below the recommended minimum
- Check that there are no short circuits in the speaker cables or speakers. Note: Each channel will shut off independently when a short circuit is detected.

Advanced Discussions

Installation of multiple units

Can you stack Avalon G4 units on top of each other without an air space in between?

You can stack a maximum of 4 units on top of one another, and allow a free rack space above and below.

Ideally, 2 units can be stacked with a free space above and below, as this will improve the ventilation to the units.

Can you daisy chain or y-cord audio and power trigger connections?

Daisy chaining audio is easy, as there are Loop output jacks, which can be used to drive the next amplifier.

The 12 volt mini jacks are powered to turn on another unit when the main unit is on (not standby). If you need more than 15 milliamps current on the 12 volt output, use a relay to prevent over loading The Avalon G4. (It only takes 1 milliamp to turn on.)

What are the power requirements and BTU outputs of amplifier?

More detailed information is shown in the Specifications table at the end of this manual. In general, we feel a conservative, real life design criteria is 1/8th power. This will be a quite loud listening level for most rooms and assumes all zones driven at the same time. You will be amazed at how cool the Avalon G4 is at this level. One rule does not fit all situations, so apply your knowledge of the particular circumstances involved. Also, see the section below on unique rooms and SPL.

How many units may I put on one 15 amp breaker?

It depends. Since you are limited to 1500 watts per device by most codes, there should be a separate 15 amp circuit for each unit.

The circumstances where Avalon G4 draws maximum power are very rare outside of an engineering lab. Maximum power is using a sine wave input which has at least a third higher energy density than music. This would mean that all channels are operating at maximum, an unlikely situation even during a really fun party. Even more unlikely is all channels on multiple units operating at full output.

You know the system better than we do, so it is your decision. If the only use is background music, then the one-eighth power in the specifications is a reasonable (actually conservative) power draw. Of course, you will want to include a margin of safety for unusual circumstances. And in the final analysis, you have to do what the electrical inspector tells you to do.

Unique Rooms and SPL in Large Areas

Are there any special considerations for bathrooms?

Bathrooms are irregular rooms, rooms within a room, with high ambient background noise, often with noise masking type of ambient sound, highly reflective, and often fairly large. If you pause and think about that for a moment, these are some of the more challenging rooms.

Commercial noise masking systems rely on “white noise” which sounds remarkably like a bathroom exhaust fan and like the sound of water in a shower—both of which are louder than the background noise level in the other parts of the house. So if the client wants to rock out in the bathroom, and particularly the shower, you need to have speakers very near to them. Modern day larger bathrooms need more than two speakers for these reasons.

What about large rooms as well as rooms where the listener is far from the speakers?

Typical in-wall speakers are designed to be near the listener. In common rooms with eight foot ceilings and other usual dimensions, in-wall speakers typically are not much more than eight feet from the listener. In large mansions, the game changes. Twenty foot ceilings are normal and typical speakers are too far away to provide the client much SPL (sound pressure level). There are in-wall speakers designed for these longer “throw” distances. In general, larger rooms with more height require more speakers and speakers with tighter “directivity” to get party-level SPL. In this case, also, size matters and bigger speakers are better.

Troubleshooting

Many problems can be eliminated by re-checking the wiring and settings of the unit. If a problem cannot be solved using the guide below, please call the AudioControl team for further assistance, or e-mail us at sound.great@audiocontrol.com

1. No Sound

- a. Verify the front panel LED is blue.
- b. Check that the Avalon G4 is not in standby mode (LED red).
- c. Check the input wiring from your sources to the Avalon G4 inputs.
- d. Verify the source unit is operating correctly and playing, not paused.
- e. Check the speaker connections on the rear panel are secure.
- f. If the unit does not power up at all, unplug the power cord and check the AC Power Fuse on the rear panel.
- g. Check that the crossover settings are matched to your speakers.

2. Speaker channels are cutting in and out:

- a. If using external volume controls, check that they can handle the power output.
- b. Make sure the speaker impedance is not less than 4 Ohms, or 8 Ohms when used in bridged mono.
- c. There may be a short in the wires. Suspect a short if the problem happens only at higher volume levels.

3. Speaker Buzzing or Crackling at high volume:

- a. Reduce any preamplifier/equalizer low-frequency boost.
- b. Turn off your "Sounds of the Pacific Northwest" chainsaw and bacon-frying CD.
- c. Check that the crossover settings are matched to your speakers.

Mindfulness

1. Take a deep breath in, hold it, and chant the specifications page.
2. Breath out slowly, while contemplating the joy of Avalon G4 ownership.
4. Isn't it nice to know that the Avalon G4 is so efficient that electrons can be free from the mundane life of room heating, and have more free time and energy to push the loudspeakers around and reproduce your wonderful music.
3. Breath in and out again as normal, and assume the "Salute to the Electron" position while reading the rest of this manual.
4. Do not try this on the bus home though. People might talk.

Specifications

Output Power

Per Channel	230 watts @ 8 ohms, 300 watts @ 4 ohms
Bridged Mono	600 watts @ 8 ohms
Frequency Response.....	±1 dB
Crossover Slope.....	Linkwitz-Riley 24 dB/octave
Crossover Frequency Range.....	30 Hz - 300 Hz
Total Harmonic Distortion/Ch.....	0.04% (230 watts @ 8 ohms 20 Hz - 20 kHz)
Maximum Input Voltage	2.7 Vrms
Input Impedance.....	100 kohms
Signal to Noise Ratio	> 102 (A wtd, ref full output)
Crosstalk	> 80 dB @ 1 kHz
Damping Factor	> 450
Gain	28 dB
Analog Input Sensitivity	1.42 Vrms for full output
Minimum Speaker Load	4 ohms
Minimum Speaker Load, Bridged	8 ohms
Protection	Clipping, Thermal, Short Circuit, DC offset

AC Power Requirements

Standby	<2 watts
Idle	38 watts
1/8th power (loud listening level)	400 watts
Full Power.....	1200 watts

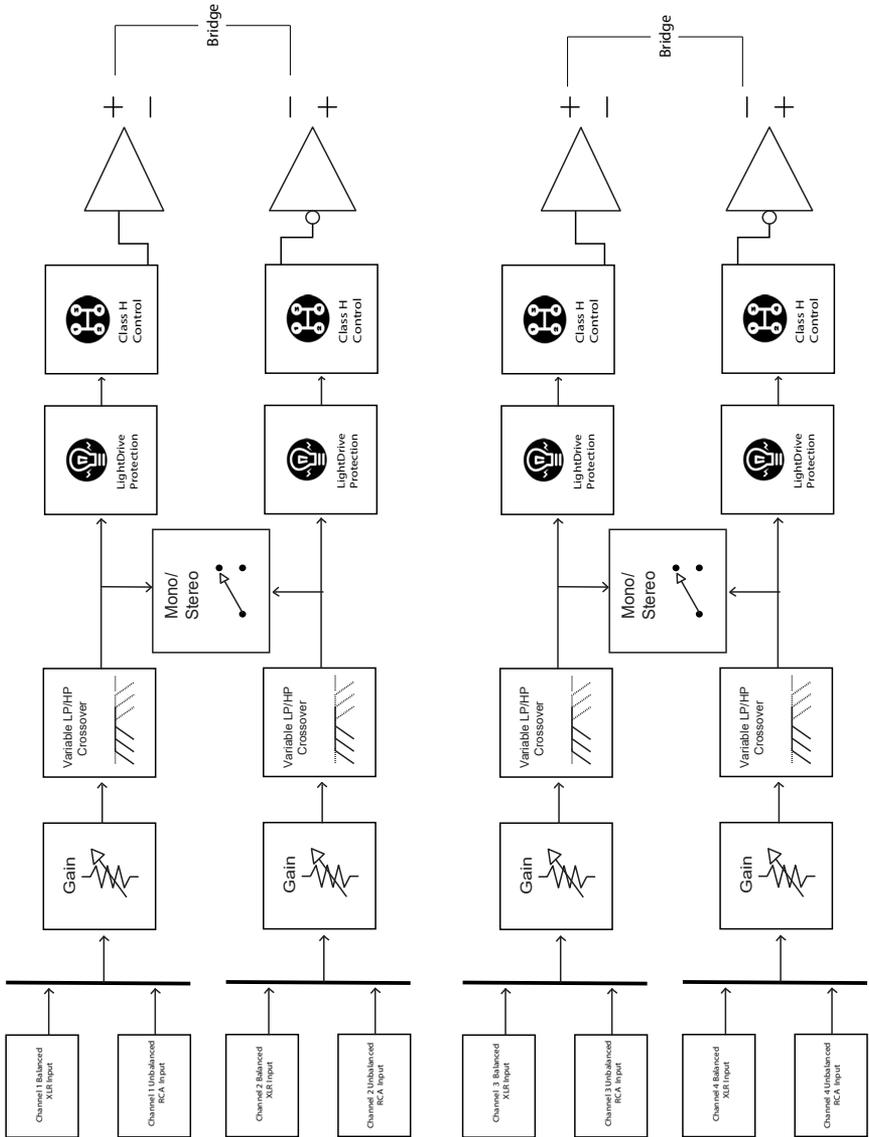
BTU/hr Output

Standby	5.6 BTU/hr
Idle	129 BTU/hr
1/8 power (loud listening level)	192 BTU/hr
Full Power.....	1412 BTU/hr

Dimensions

Height	3.5" (2U)
Width (ears on)	19.0"
Width (ears off).....	17.0"
Depth	16.5"
Weight.....	38 lbs.

Block Diagram



What to do if you need service

First, if you need service, it is probably best to go and see a trained health care professional.

If the Avalon G4 needs service, then please contact AudioControl, either by e-mail or phone. We will verify if there is anything wrong in the system that you can correct yourself, or if it needs to be sent back to our factory for repair.

Please include the following items when returning the unit:

1. A copy of your proof of purchase. No originals please. We cannot guarantee returning them to you.
2. A brief explanation of the trouble you are having with the unit. (You'd be surprised how many people forget this.) If you can supply a really detailed description of the problem, this would be so much better, and our service technicians may add you to their Christmas Card list. Please include any notes about the system and other components you are using. Is it an intermittent problem that only occurs on the first full moon of Spring?
3. A return street address. (No PO Boxes, please).
4. A daytime phone number in case our technicians have a question about the problem you are having, or if they are just feeling lonely.
5. Package the unit in the original packaging if you still have it, and if the cat hasn't had three litters of kittens in the box. Use great care and plenty of good packing materials to protect the unit and prevent it from moving about inside the box. Do not use loose materials like packing peanuts or real peanuts.

You are responsible for the freight charges to us, but we'll pay the return freight back as long as the unit is under warranty. We match whatever shipping method you use to send it to us, so if you return the unit overnight freight, we send it back overnight. We recommend United Parcel Service (UPS) for most shipments.

Repair service is available at:

Attention: AudioControl Service
Department

22410 70th Avenue West,

Mountlake Terrace,

WA 98043 USA

Phone 425-775-8461

FAX 425-778-3166

e-mail:

sound.great@audiocontrol.com

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 products that exhibit defects in materials and/or workmanship during the warranty on your product 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 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. If an authorized AudioControl dealer installs your AudioControl product, the warranty is five years, otherwise the warranty is limited to one year.
4. Our warranty covers AudioControl products that have been installed according to the instructions in the installation manual.
5. You cannot let anybody who isn't: (A) the AudioControl factory; or (B) somebody 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 level your dining room table); (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 for example if you mount it to the front bumper of your car, drop it over the Niagara Falls or use it for Clay Pigeon shooting practice, 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 Section

This 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.

The Blackhawk Waltz

