

INTRODUCTION

Thank you for purchasing our Subwoofer Amplifier (SA), a high-quality audio component that has been meticulously designed and reliably manufactured to enhance the long-term enjoyment of your favorite full-range music and movies. To become familiar with the SA's unique flexibility and feature set, please read the following instructions carefully *before* installing it.

Unpacking:

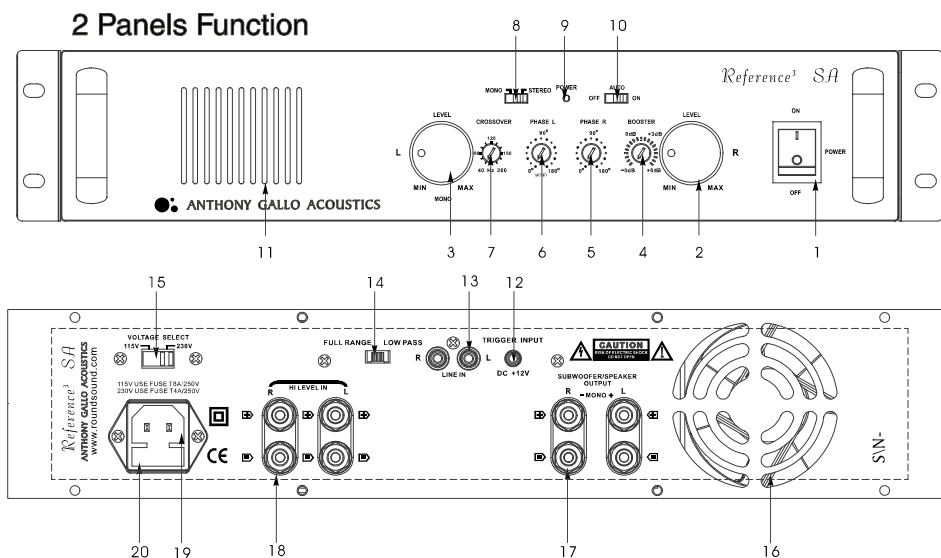
As part of the quality control, we check every product carefully before packing to ensure that it reaches you in flawless condition. Before you go any further, please check the unit for any physical damage and retain the shipping carton and all relevant packing materials for use, should the unit need returning. In the event that damage has occurred, please notify your dealer immediately, so that a written claim to cover the damages can be initiated.

The SA is a high-powered piece of active electronics that runs warm to the touch and can get moderately hot if you run its bass-boost EQ circuit in the max position. You should not expose the SA to direct sunlight, water or moisture. Allowing fluids to get inside the SA could short out its circuitry and cause irreparable damage that will not be covered under warranty. The SA does include short-circuit protection, but you should still exercise the utmost caution when you make all initial connections *while the amplifier is powered off*.

Our amplifier consists of a bridgeable stereo amplifier, a high-quality active crossover and a sophisticated equalization circuit in one single chassis in order to:

1. Optimize bass performance of our own Anthony Gallo Acoustics Nucleus Reference 3 loudspeakers in both 2-channel music and multi-channel home theater movie applications
2. Power two of our own Anthony Gallo Acoustics MPSB/DV passive subwoofers
3. Bi-amp bi-wirable loudspeakers from other manufacturers
4. Power one or two passive subwoofers from other companies
5. Power a pair of passive speakers with the SA as the main amp

Be sure to install the SA with sufficient ventilation space and no obstructions to its chassis vents to ensure optimal self-cooling of the internal heatsinks (a thermostat-controlled whisper fan will kick in automatically once these heatsinks reach a preset temperature). We will now describe hookups for each of the stated applications in the sequence listed above. Even if your application does not include Anthony Gallo Acoustics' speakers, please **read the entire manual**. Much of what is covered under section 1 also applies to the other sections, and thus isn't repeated in the subsequent chapters.



1. POWER SWITCH:

This switch turns the amplifier on in the up position ("I" pressed in) and off in the down position. When AC power is applied to the amplifier, the power indicator led (#9) illuminates. **SEE #10 (This master switch works in conjunction with a 3 position switch (#10) for turn-on options)**

2. LEVEL CONTROL CH-R:

This rotary potentiometer controls the sensitivity or gain for (CH-R). Set them to the level needed for the desired output. When the amplifier is set in the bridged mono mode, this level control is not active.

3. LEVEL CONTROL CH-L: (Also bridged volume control)

This rotary potentiometer controls the sensitivity or gain for (CH-L). Set them to the level needed for the desired output. When amplifier is set in the bridged mono mode, only this level control (CH-L) is active.

4 . BOOSTER CONTROL: (EQ)

When this amp is in the low-pass mode, the gain can be adjusted from -3dB to + 6dB

5 . PHASE CONTROL – RIGHT CHANNEL:

The phase of right channel can be adjusted from 0 to 180 degrees.

6 . PHASE CONTROL – LEFT CHANNEL:

The phase of left channel can be adjusted from 0 to 180 degrees.

7. CROSSOVER:

When this amp is in the low-pass mode, the crossover can be adjusted from 40Hz to 200Hz

8. STEREO/ MONO SWITCH:

This switch connects the channels to work together for more power output. In the STEREO position, the amplifier is in the 2 channel mode; with the switch in MONO position, the amplifier is in the bridged mode. In the Bridged MONO mode, both amp channels are internally linked together to create a single-channel amplifier of increased output power. In this mode you **must** use the **two red binding posts**. labeled **mono**. R = [-] L = [+]

9 .POWER:

A green power LED light is on when the amp is active and turns red in the stand-by mode.

10. AUTO/ON/OFF: (Only active once the Main power switch is set to ON)

With this switch set in the ON position, the amp is activated. In the OFF (12V trigger) position the system will be forced into stand-by until activated by the trigger. In the AUTO (Signal sensing) position the amp goes on when a signal is detected and into the stand-by mode after several minutes if a signal is not detected.

11.FAN OUTLET GRILL:

This amplifier is cooled by a single rear-mounted fan and internal heat syncs. Cool air is pulled in through the intake vent and flows over the heat syncs to exhaust through the other side. Make sure these outlets remain clear to allow unrestricted airflow.

12. TRIGGER CONNECTION:

When used in conjunction with a 12V-DC power supply (wall wart) the amp can be triggered to come on. In order for this to work the MASTER SWITCH must be in the ON position and the AUTO/ON/OFF switch must be in the OFF position. Wiring for the power supply is (+) tip and (-) sleeve.

13.RCA INPUT:

This is the simplest/ most common way to drive an audio signal into the Ref SA amplifier.

14. FULL RANGE / LOW PASS SWITCH:

The crossover and booster are only active with this switch in the LOW PASS position; they are inactive if the switch is in the FULL RANGE position.

15. VOLTAGE SELECTOR:

Selection of AC 115V/60Hz or AC 230V/50Hz voltage source. Before connecting the power plug to the wall AC outlet, make sure your local power line AC voltage matches the voltage setting of amplifier.

16. COOLING FAN VENT:

The Ref SA employs a single internal cooling fan to send air through the unit and keep it running cool even under extreme operating conditions. Keep all vents clear and free from obstruction at all times to insure proper cooling.

17. BINDING POST OUTPUT:

These output connectors offer an excellent method of connecting the amplifier to your speakers using cables terminated with banana plugs, spade plugs, or bare-wire. When using the amplifier in the Mono Mode make sure you use the two red binding posts as labeled.

18. HI LEVEL IN:

These inputs are designed to accept the signal from your audio amplifiers loudspeaker outputs.

19. AC LINE IN:

Firmly insert the supplied AC power cord into this socket until it is fully seated. This grounded power cord is to be plugged into a grounded power outlet, wired to current electric codes and compatible with voltage, power and frequency requirements as stated on the rear panel. Do not attempt to defeat the safety ground connection.

20. FUSE HOLDER:

The Ref SA employs an AC line fuse to help protect it from damages due to excessive current demands. If the amplifier does not function, check this fuse. If it is blown, replace it **ONLY** with the same size and type as indicated near the holder. If the fuse blows repeatedly, contact your dealer so service can be arranged through Anthony Gallo Acoustics. (**115V**-USE FUSE T5A/250V - **230V**-USE FUSE T4A/250V)



1A. Anthony Gallo Acoustics Nucleus Reference 3 speakers + Reference 3 SA crossover/amplifier (stereo music mode):

Our Reference 3 full-range speakers offer a unique feature in that they sport a separate pair of loudspeaker input terminals for their woofer's second voice coils. Because this feature is so different from the norm, we will explain it in detail. This twin set of binding posts on the lower rear of the Reference 3's may look like a biwire arrangement, but it is *not*. Note how the upper pair is labeled 'speaker in' and the lower pair says 'sub in.' 'Sub' obviously stands for subwoofer. But where is this hidden subwoofer? Explanation to follow.

The upper 'speaker in' terminals are conventional inputs and they connect the incoming full-range

amplifier signal to the *entire* speaker. The 10-inch side-firing woofer, dual 4-inch mids and our unique 300° dispersion CDT tweeter all operate together from this one input. To enjoy music, that's all you need; you never have to use the second input at all. But if you want true subwoofer bass *without* a separate subwoofer, then you will utilize the 'sub in' terminals.

They connect *directly* and *separately* to the woofer's second voice coil. That's because the 10-inch woofers in our Reference 3 speakers are outfitted with two voice coils, which can be independently amplified or bi-amped. As you would assume, the first, or main voice coil, is driven from your main stereo amplifier via the 'speaker in' input like any other ordinary speaker. The second voice coil can be driven with a second 'bi-amp' amplifier. This 'twin drive' scheme extends the speaker's reach into true 22Hz subwoofer territory; hence, this input is labeled 'sub in.' But why do you need the SA for that? Wouldn't any other amplifier (or two additional channels on a multi-channel amp) do the trick? Not *exactly*, and here's why.

As previously mentioned, this input drives the second voice coil *directly*, which means that this lower input bypasses the crossover behind the 'speaker in' upper inputs. That crossover network inside the speaker chassis sends frequencies below 150Hz to the woofer and everything above 150Hz to the midranges and tweeter. The 'sub in' terminals of our Reference 3 don't use *any* crossover.

Why not? Because the 'sub out' or '0.1 out' of a surround sound receiver or preamp/processor (pre-pro) already comes with its own low-pass crossover, which is usually fixed to the THX standard of 80Hz (more on that hookup scheme from a pre-pro or multi-channel receiver to come). For right now, let's stay with a stereo system, which will use a preamp or integrated amplifier instead.

This preamp/integrated amplifier, via a second pair of pre-outs or Y-adaptor, would send a *full-range* signal to whatever amplifier would power the Reference 3's second voice coil without the SA. Can you imagine what would happen? Without a crossover on the second voice coil, the woofer would now receive frequencies well above 150Hz, in the range that the midranges and tweeter already reproduce. This would wreak havoc with our speaker's carefully calibrated tonal balance. You would hear murky thickness from the mid-bass on up, as though you had maxed out a bass tone control while cutting the matching treble control to zero. Not good.

What you need in order to use these 'sub in' inputs properly are two additional features besides just another amplifier. You need an adjustable low-pass filter (crossover) to restrict the second voice coil signal to the proper frequency range below 150Hz, and you also need an independent attenuator for this second input to match the amount of low-frequency support beneath what your main amplifier already provides. This allows adjustments so that the full-range response plus bass augmentation of your Reference 3 speakers add up to a flat and linear frequency response in your room.

And that is exactly why our SA isn't merely an amplifier, but also includes a continuously variable, low-pass crossover and gain/volume functions. It even adds phase and EQ boost facilities which will be explained. For now, let's inspect the front panel. Except for the gain controls (one per channel), all other front-panel adjustments of the SA are recessed so that children or curious visitors can't twirl the knobs and undo the calibration that you (or a dealer or installer) have spent time tweaking to your satisfaction. Simply use a slotted screwdriver to make the adjustments - the controls move very easily. Let's explore all controls in detail now and how to set them up:

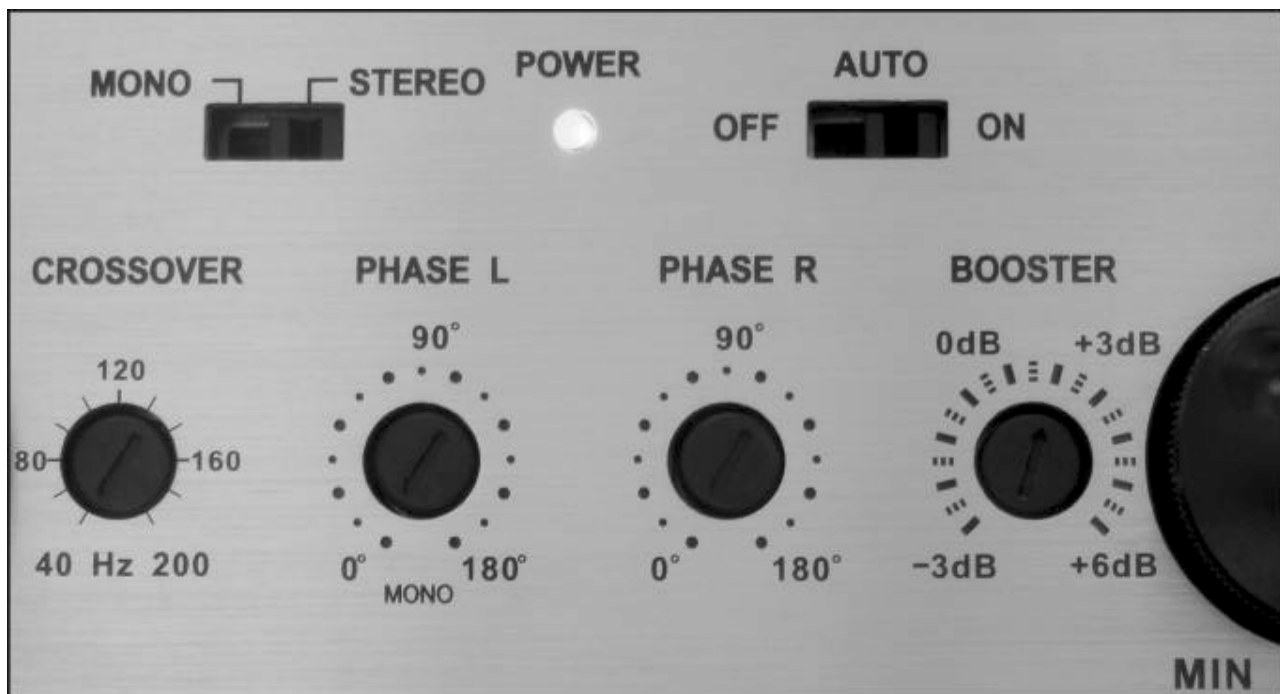


Where do I set the crossover control, which is continuously adjustable from 40-200Hz?

Remember that the natural acoustical roll-off of our Reference 3 woofer occurs at approximately 40Hz. It still reproduces sounds as low as 20Hz, but those are significantly reduced in output and thus barely audible. To boost those rolled-off frequencies in the lowest octave, you probably don't want to set the SA crossover much higher than 40Hz. This avoids undue overlap, as well as excessive warmth or bass heaviness. However, the *exact* amount of perfect fill-in is also a function of room size and the distance between the speakers and the rear wall. The farther you pull the speakers into the room, the less boundary reinforcement support they receive, yet the better they will soundstage.

Conventionally, full-range speaker positioning always revolves around the compromise between the best (fullest and most linear) bass response and the best disappearing act of 'just sound and no speakers.' With the Reference 3's and the matching SA, this common compromise ends once and for all. Whatever bass slam, impact and weight you will sacrifice in the best soundstaging position can be added back by the SA. Not only that, you can extend bass reach *below* what the Reference 3 will produce even in the most optimal 'bass position' of your room.

The SA offers crossover points above 40Hz because it accounts for variables of rooms, setups and personal preferences. Simply adjust the crossover control by ear and start with the lowest possible setting at 40Hz.



Why do you offer crossover points up to 200Hz if 40Hz is the natural speaker roll-off?

Because you can also use the SA with other manufacturers' passive subwoofers or speakers which may require bringing the SA in well above 40Hz – more on that below.

Do I need to worry about the phase controls?

Usually you will set these phase controls to '0' to avoid bass cancellation and timing errors. The Reference 3 loudspeakers are minimum-phase, time-coherent designs because they don't require any phase adjustments to exhibit their remarkably transparent performance. Like the higher crossover frequencies, this feature is only included for applications with speakers other than our own, *with one exception*:

If your room were heavily asymmetrical, one Reference 3 speaker might end up being positioned far closer to a sidewall than its counterpart, which would cause bass reinforcement in one speaker but not the other. To

overcome some of this audible imbalance, a careful adjustment on the phase control of the imbalanced speaker (together with the appropriate crossover frequency) would introduce some deliberate frequency-specific out-of-phase cancellation. Set correctly, this can address the most severe frequency response peak. However, this is an advanced application that will require lengthy experimentation by ear to get right. Ideally, this should be performed by a dealer or custom installer who takes some acoustical on-site frequency-response measurements.

What about the EQ function?

The SA includes an EQ cut/boost from -3dB to $+6\text{dB}$ in 1dB increments, which includes '0' or bypass. Careful employ of this feature can extend bass response of our Reference 3 to 22Hz *flat*. That is true, no-compromise subwoofer bass in full stereo. With the SA, you categorically do not need a separate external subwoofer. The EQ only affects the frequency range below the crossover frequency you've selected on the front panel. In most cases, this will merely be the bottom octave of $20\text{-}40\text{Hz}$ (unless you decide to set the crossover frequency higher). Depending on your room and speaker positioning, you may not need any additional bass boost outside of driving the second voice coils directly. Remember that our 'twin-drive' scheme already is a major bass boost by itself, and will be sufficient in most environments. Whether you need/want to set the EQ control into the active gain range above '0' will depend on your room and your main amplifier that drives the speakers' upper input. If your main amplifier is unusually bass-shy or a lower-power tube design with limited bass response, the usual flat-to- 40Hz extension of the Reference 3 *without* a second amp could already be compromised. In such a case, the additional boost of the EQ circuit can restore this lost bass. However, adjust by ear and to personal taste, just as with the crossover control setting.

What about the volume controls?

Next we'll move on to the crossover control, which is the most important feature of the SA. Whenever you bi-amplify, even in a regular scenario, you must have a means of trimming gain on the second amplifier if it isn't identical to your main unit. Because the bi-amp scheme of our Reference 3 speakers is far from conventional, this attenuator feature becomes even more important. Let us highlight another unique aspect of our approach to bi-amping (unfortunately, this only works with our speakers).

Have you ever heard of the old "tubes on top, solid-state on the bottom" concept? In a nutshell, it refers to capturing the "sweetness" of tubes for the midrange and treble, and the "muscle, grunt and control" of high-current, high-power transistor amps in the bass. Besides issues with gain matching, which can be overcome with amplifiers that have their own level controls, this mix-and-match approach of different output devices and sonic signatures creates very audible discontinuities of harmonic envelope, timbre and texture. This is in a speaker that is supposed to speak with one single voice, not many different ones.

Our SA's unique flexibility complements your main amp to perfection and without creating sonic discontinuity. How so? Remember that your main amp runs the speaker's full-range, which includes the low reaches of the woofer (40Hz flat and lower depending on room and setup, all from the first voice coil). The sonic signature of your main amp of choice (tube, solid-state or digital, high-power or low-power) thus affects all frequencies seamlessly from top to bottom. The SA merely fills in the very lowest octave with high-current, high-damping-factor transistor muscle. In audiophile speak it runs in "parallel," or simultaneously, with your main amp, but does so only over a very limited frequency range where our human hearing is the least sensitive to timbre and tone. Using our SA within this unique twin-drive scheme doesn't create any audible discontinuities or discrepancies, even if your main amplifier was a low-power triode design with a very distinctive sonic signature.

For once, you can actually implement the "tubes on top, solid-state on the bottom" ideal without suffering the usual compromises. And should you deal with asymmetrical loudspeaker response due to unusual room geometries, the SA's independent gain controls for each channel double as a balance control. You can trim the gain of the speaker whose closer wall or furniture reinforcement gives it an acoustic room boost.

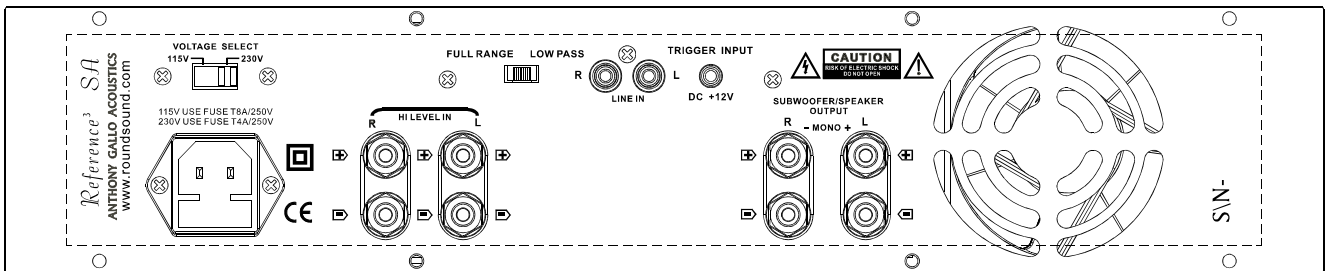
The volume controls on the SA operate very much like a bass tone control on a receiver, except that they're far more precise and allow independent adjustments for each channel. Listening to your favorite albums, you can

easily set the tonal balance and the subjective amount of bass exactly to your liking. You could even have multiple settings such as ‘flat’ for classical and ‘fat’ for pop, rock, reggae and hip-hop. Why not? It’s as easy as turning up the two gain controls by a predetermined amount, so it still sounds coherent, but a little bit stronger in the low bass than is perfectly flat (but great fun).

What about the other two front-panel adjustments, the stereo/mono and auto on/off switches?

In the Reference 3 main speaker setup, the stereo switch must be set to ‘stereo’ so that each speaker receives its own bass-boost signal. The three-position off/auto/on front panel selector depends on whether you want the SA to automatically turn off whenever it doesn’t sense a signal or be powered up by the 12-volt rear-panel trigger.

- In ‘off’ (Standby) mode, the 12-volt trigger will turn on the SA (the main power switch must be set to on). Wiring for the trigger input is (+) for the center pin and (-) for the sleeve.
- In ‘auto’ mode, the SA switches into signal-sensing mode and turns on automatically when it detects an input signal, shutting off when no signal is present (the main power switch must be set to on).
- In ‘on’ mode, the SA is *always* on unless you set the main power switch to off.



How about the rear panel connections?

For use with our own Reference 3 speakers, connect the RCA inputs of the SA to the second pre-out of your preamplifier or integrated amplifier. If you don’t have two pre-outs, use the included Y-adaptor on the main outputs of your preamplifier/integrated amplifier, then connect the second voice coil speaker inputs from the SA speaker outputs. Be careful to observe proper +/- polarity on both ends of the speaker cable. The full-range/low-pass switch on the SA’s rear panel must be set to low-pass so the crossover control works.

LINE LEVEL CONNECTIONS

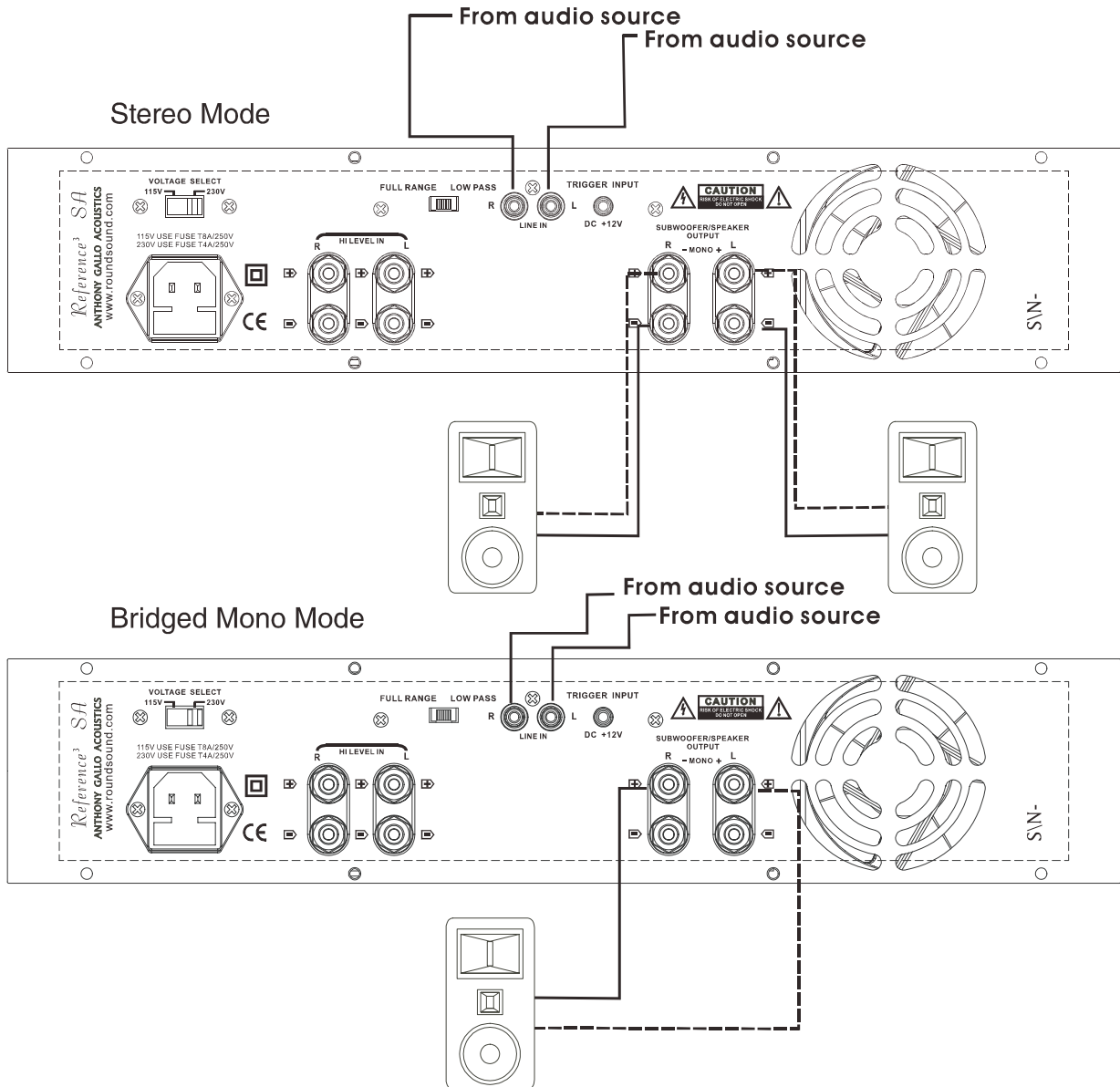
When connecting the Reference SA amplifier the line level inputs should be used. This can be done coming directly from the Pre-outs or the LFE / Sub outs.

The Ref SA can be used in Stereo Mode as two separate power amplifiers, each capable of driving loads down to 2 ohms. Each channel operates independently and has its own input connectors, sensitivity level controls, phase control limiter circuitry, fault protection circuitry, power amp, and speaker outputs.

In Stereo Mode, the STEREO/MONO switch must be in the "STEREO" position. Use the R & L binding posts labeled SUBWOOFER/SPEAKER to attach the speakers to the amp. Both of the RCA inputs must be active (plugged) in stereo mode.

The two internal power amplifiers may be bridged together to form a single, higher-powered amp. In the Bridged Mono mode use the Left level control to adjust the gain. The Right channel of the amp receives its signal from Left channel input. This signal is connected to the Right channel prior to its limiter, so each channel is independently protected. The STEREO/MONO switch must be in the MONO position. **Because both channels are being used (bridged in series), the minimum load impedance is 4 ohms.**

The RED binding post terminals (Ch-L=[+],Ch-R=[-]) must be used to connect the amplifier to the speakers, when operating in mono mode.



What if I don't have any pre-outs?

This could be the case with an integrated amplifier. In this situation, what you would need is a second pair of speaker cables or a biwire set. Connect to the SA via the high-level speaker inputs from your main amp's speaker terminals by 'stacking' two pairs of cables from the same speaker terminals (unless your integrated amplifier has two pairs of terminals per channel). One set of speaker cables will continue to go to your main speakers, the other one will connect to the SA. Think of this as an unusual biwire connection where the second pair of cables doesn't connect to a speaker but rather the SA instead.

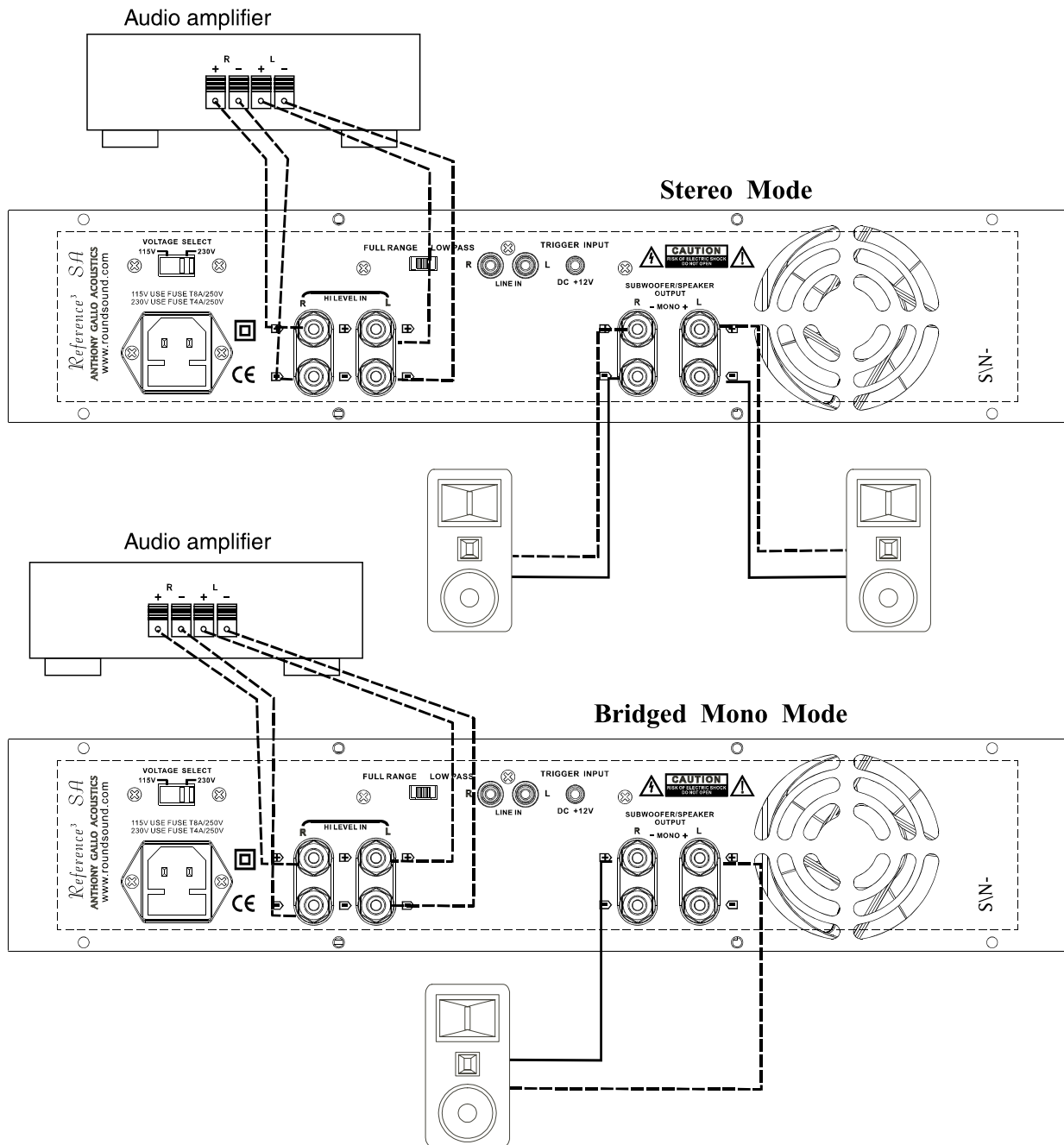
For users who prefer to use the high level inputs.

If this is the case you must follow the (ON/OFF) sequence described in the next paragraph to avoid any issues.

When connecting through the "high level inputs" there is a possibility of a problem. If the main amp is switched off before the "SA" amp you will get a loud hum through the Reference 3's. This can only be avoided if the "SA" amp is turned off first. When powering the system back up the "SA" should be turned on last.

HIGH LEVEL CONNECTIONS

The following diagram shows connections for the HI LEVEL IN section of the amplifier. These connections allow you to use the loudspeaker output of your audio amplifier. On Home Theater Receivers, please use the outputs for the front main loudspeakers.



The RED binding post terminals (Ch-L=[+],Ch-R=[-]) must be used to connect the amplifier to the speakers. when operating in mono mode.

What else?

That's it, now you are all set. Remember to re-check all cable connections to avoid reversed polarity, which would result in bass cancellation. If your main amplifier inverts polarity, be sure to set both phase controls on the SA to 180. If you purchased the SA at the same time as the Reference 3 speakers, set the initial EQ boost to +6dB to significantly accelerate break-in. As the speakers' break-in, you will most likely hear that the +6dB EQ setting is far too high and results in a ponderous bass-heavy presentation. Don't use it for serious listening; use it to make the woofers work harder while they're breaking in. Before you play your first track with the SA connected, set the EQ/boost and two gain controls to '0,' then open up the gain controls a little bit. Listen again, open them up a bit more and repeat this process until you get a perfectly seamless and "invisible" level of bass reinforcement. You shouldn't know that the SA is in the circuit until you turn it off. Then the lower bass disappears and the speakers sound leaner and lighter. If the lowest bass below 30Hz seems a bit light or weak, experiment with adding some EQ boost, moving up from '0' in 1dB increments. Listen in-between from your usual seat, until you have rock-solid but even extension down to the very lowest notes on your recordings.

1B. Anthony Gallo Acoustics Nucleus Reference 3 speakers + Reference 3 SA crossover/amplifier, multi-channel mode:

Connecting the SA from a preamp/processor or multi-channel receiver

In the setup menu of your pre-pro or surround sound receiver, select 'large' for the main speakers. This sends a full-range 'uncut' signal to the Reference 3's main inputs. Connect the SA's RCA inputs to the pre-pro or receiver's 0.1 subwoofer pre-out. Because all 0.1 LF outputs are mono, you will have to use the included Y-adaptor on the SA's end of the interconnect, which will send the LF mono signal to both of the Reference 3 main speakers for bass augmentation. Most processors adopt the THX low-pass filter value of 80Hz for the subwoofer output.

This allows you to experiment with two different settings:

- Set the SA to full-range operation, which removes its own filter from the signal path and puts the processor in full control.
- Set the SA to low-pass and experiment with crossover settings below 80Hz. While this puts two crossovers in series (processor + SA), it allows you to lower the filter frequency below the THX value.

Let your ears decide whether you prefer the former or the latter. Most movie sound effects occur in the mid bass, not the low bass. The 80Hz setting of the first option will give you an additional boost in the 40-80Hz range, where most of the movie mayhem sound effects occur. The second option will likely be preferable for music listening, because it results in a more linear and honest frequency response. The remaining SA volume adjustments are identical to the stereo setup already discussed.

2. Gallo MPSB/DVs + Reference³ SA crossover/amplifier:

Our own MPSB/DV passive outboard subwoofers use the same 10-inch woofers and enclosures as the Reference 3 speakers, with the only difference being the manner of connection from the outboard subwoofers to the SA. You need two individual speaker cables (one for each MPSB/DV) which are terminated with bare wire/bananas/spades on the SA end and a ¼" phono plug on the subwoofer end. You won't be making a double connection (full-range + second voice coil as on the Reference 3's), but you will need a single cable to each subwoofer.

3. Non-Gallo bi-wirable speakers + Reference 3 SA crossover/amplifier:

Connecting the SA to the woofer section of other makers' bi-wirable speakers

The SA is ideally suited to actively bi-amplify multi-way speakers with a second set of loudspeaker terminals for their bass sections. Because such woofer circuits will already include their own internal crossover network, run the SA in full-range mode (crossover bypassed). Then, use the SA's gain controls to match your speakers' bass performance to their midrange and treble as driven by your main amplifier. If your preamp/integrated amplifier lacks a second set of pre-outs, use the included Y adaptor. If your speakers connect their woofers out-of-phase with the midrange/tweeter, be sure to set the SA phase controls to '180.'

Since other speakers lack our Reference 3's twin-drive woofer scheme, you can't boost their bass performance via any second voice coils. In the absence of this unique Gallo feature, the SA's EQ boost now becomes your unique tool to augment the bass reach below your speakers' natural roll-off frequency, which turns them into more full-range designs that exceed even the expectations of their own designer. Experiment by ear to achieve the most pleasing and extended response.

4. Non-Gallo subwoofers + Reference 3 SA crossover/amplifier:

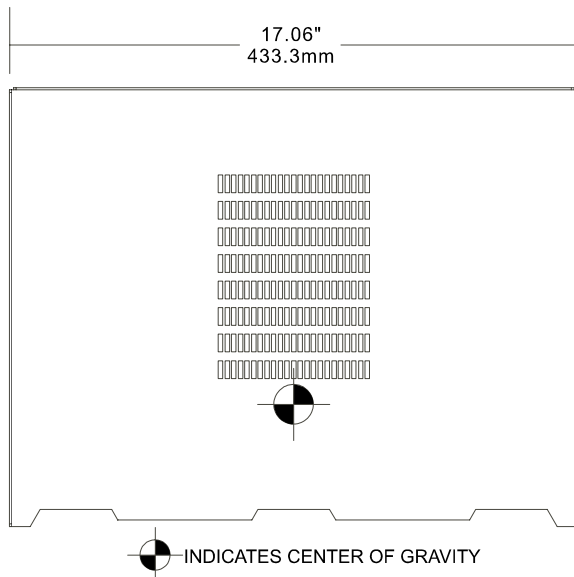
Connecting the SA to 1-2 passive subwoofers

The SA can be used to power one or two passive subwoofers by other makers. Set the SA to low-pass, and select mono operation for a single sub or stereo operation for two subs. Take your SA input signal from either a second (or Y'd) pre-out of your preamp/integrated amplifier or home theater receiver. Connect the subwoofer(s) from the SA's speaker outputs. In mono operation, you'll use only the left gain and phase control. Refer to the rear panel silk screen on how to make the mono speaker connection across the two red terminals.

To determine the best placement for your subwoofer, set the SA phase control to '0' and the subwoofer into your listening position. Then walk your room while playing bass-heavy music, to determine which place you hear the loudest and most even bass response from the subwoofer. Place the subwoofer into that spot and experiment with the SA's phase and volume controls to achieve the most seamless blend between your main speakers and subwoofer(s).

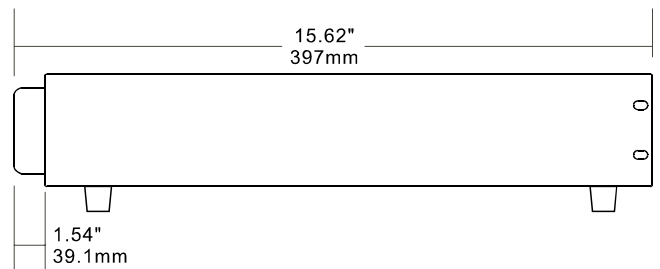
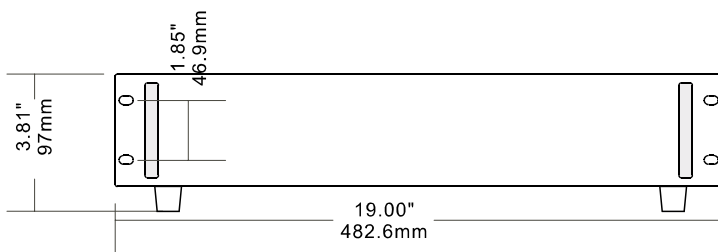
5. Non-Gallo passive speakers + Reference 3 SA crossover/amplifier:

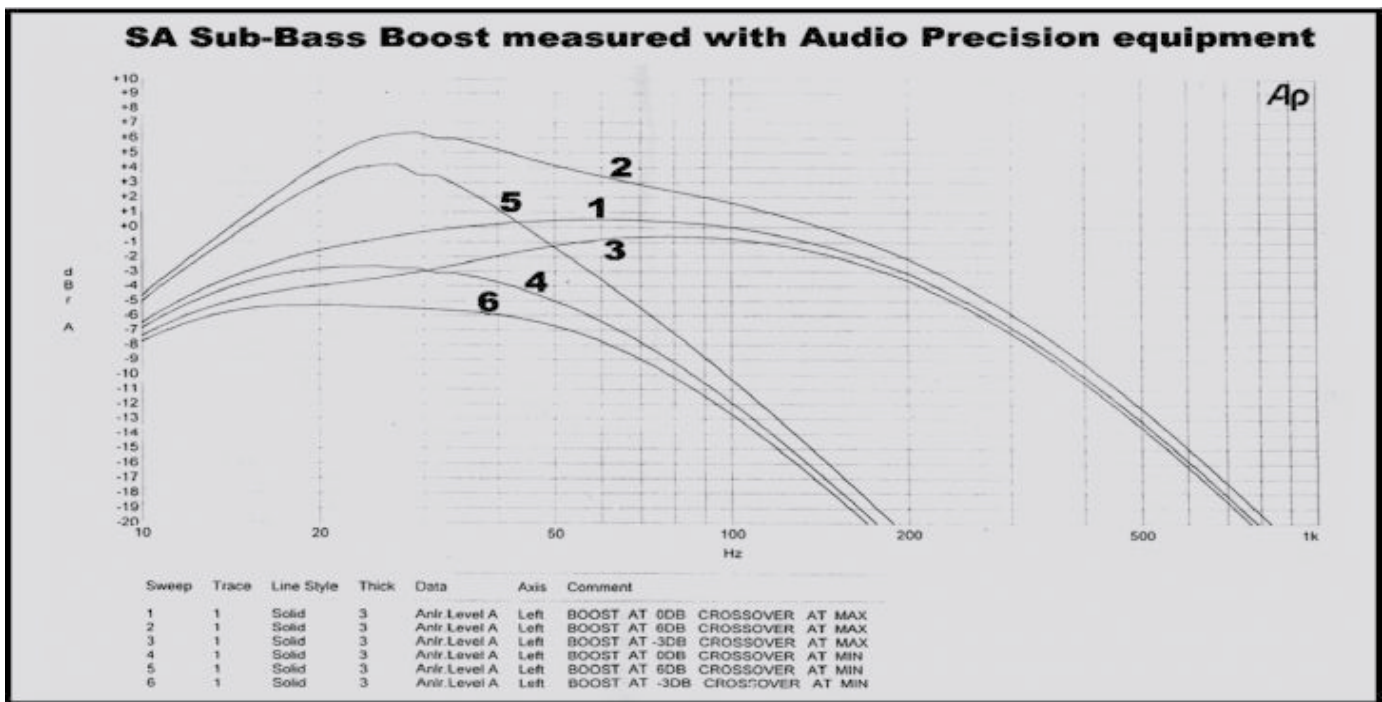
In full-range mode (internal crossover bypassed), the SA can be used as either a high-quality, stand-alone amplifier or a single-input integrated amplifier. Simply connect your source outputs or preamp pre-outs to the RCA inputs and your speakers to the SA's speaker binding posts. If you use a preamp, set the SA gain controls to max in order to allow your preamp master volume handle the playback level. If you don't use a preamp, the SA gain controls become your dual-mono master volume. Make sure to set the SA volume controls in their full counter-clockwise or '0' position before you select 'play' on your source for the first time. This will avoid excessive playback volumes until you learn which SA setting equates to average sound pressure levels in your room. Remember, the SA is a 240wpc stereo amp and that amount of power will cause it to play louder than you might expect, so a little movement on the volume controls should go much farther until you learn from experience.



Dimensions & Mounting:

The Reference SA is specifically designed to be rack mounted, either as a permanent fixture or in a "mobile" rack. As with any large, heavy object, a proper installation could mean the difference between success and disaster. The front of the unit is designed to be attached to standard rack rails. The four outermost holes correspond to the screw on standard rack rails (2 rack spaces in height). Use only 10-32 threaded rack screws with large heads (such as a truss heads). The use of nylon rack mount washers between the screw heads and the faceplate will keep the faceplate from being scratched. Due to the depth and weight of the Reference SA a set of rear support holes have been provided. It is highly recommended that the installer use these holes to support the rear of the amplifier. A supporting rail, shelf, or bracket can be attached to the amplifier and then to the installation enclosure. One thought to keep in mind when considering the related hardware for this: more is better when it comes to a secure installation-a little extra time spent on installing a heavy object offsets the possible losses that could be incurred if the object were to be damaged due to inadequate support. The dimensions below are provided to assist you and/or your installation engineer in mounting the amplifier securely. The rack ears are removable in the event you would like to use it without them.





Anthony Gallo Acoustics Reference 3 SA Specifications

- Output power:** 2 x 160 watts RMS @ 8 OHMS 20Hz -20kHz (stereo mode)
 2 x 250 watts RMS @ 4 OHMS 20Hz -20kHz (stereo mode)
 450 watts RMS @ 8 OHMS 20Hz -20kHz (mono mode)
 650 watts RMS @ 4 OHMS 20Hz -20kHz (mono mode)
- Distortion:** 0.08% stereo, 0.1% mono (low-pass @ 100Hz, level and xover at max, EQ at 0dB)
 0.1% stereo, 0.17% mono (full-range, level at max)
- Input sensitivity:** 130mV stereo, 110mV mono
- Signal-to-Noise:** 93dB stereo, 83dB mono (low-pass @ 100Hz, level and xover at max, EQ at 0dB)
 91dB stereo, 75dB mono (full-range full-rated power @ 1kHz)
- Load Impedance:** 2 ohms or greater in stereo mode / 4 ohms or greater in mono mode
- Bass EQ:** 1W @ 35Hz (100Hz=0dB, level and xover at max, booster at 6dB) = 6.2dB
 1W @ 35Hz (100Hz=0dB, level and xover at max, booster at -3dB) = -3.2dB
- Frequency response:** 15 - 200Hz low-pass (100Hz=0dB, level and xover at max, booster at 0dB)
 <10Hz - 28kHz full-range (100Hz=0dB, level and xover at max, booster at 0dB)
- Crossover:** 40Hz low-pass, xover setting at minimum
 200Hz low-pass, xover setting at maximum
- 12 Volt trigger:** Tip = (+) Sleeve = (-)
- Auto-on sensitivity:** 5mV
- Current draw:** 9A stereo, 13.5A mono (level and xover at max, booster at 0dB)
- Protection Circuitry:** Short circuit, open circuit, RF burnout, over temp., speaker protection relays,
 Turn on/off transient protection, DC protection, and limiter circuitry
- Temp. protect:** 60°C +/-5
- Cooling:** A low noise fan is utilized to draw cool air through the chassis using front and rear vents
Do not block the vents
- Power Requirements:** 110 VAC 60Hz, 850VA
 100-120 VAC 50/60Hz, 850VA
 220-240 VAC 50/60Hz, 850VA
- Dimensions:** 19" W x 3.81" H x 15.62" D
- Weight:** 35 Lbs