

XA 2500
Owner's Manual

XA
2500

Snell

SPECIFICATIONS

Frequency Response ($\pm 3\text{dB}$)	40-24,000Hz
Nominal Impedance	4 ohms
Minimum Impedance	3 ohms
Recommended Amplifier Power	150-600 watts
Sensitivity [2.83v at 1m]	88dB SPL
Driver Complement	
Tweeter	1-inch (25mm) titanium dome with neodymium magnet and aluminum heat sink
Midranges	Two 4 $\frac{1}{2}$ -inch (110 mm) mounted in separate enclosure
Woofers	Two 8 inch (210mm) with black anodized aluminum cones
Controls	Four switches to fine-tune loudspeaker balance. Each switch has three discrete settings to allow maximum flexibility for adjustment.
Cabinet Construction	Heavily braced single wall cabinet sandwich baffle
Maximum Dimensions	
Horizontal Configuration (HxWxD)	14 x 32 x 13 $\frac{1}{2}$ in (36 x 81 x 34 cm)
Vertical Configuration (HxWxD)	32 x 14 x 13 $\frac{1}{2}$ in (81 x 36 x 34 cm)
Net Weight	75 lbs (34kg) each
Shipping Weight	88 lbs (44kg) each
Finishes	Black paint over MDF, custom finishes available at an additional charge.
Grille	Cloth covered wood

XA 2500 FEATURES

1 Multi-Element eXpanding Array

Snell first pioneered the XA technique with the XA90 system. Months of study and computer simulation resulted in a scientifically designed five-element array with idealized dispersion characteristics. We found that with a carefully optimized crossover frequencies and slopes in conjunction with precisely defined driver spacings, that a near constant directivity and lobe free system was achievable. The net result was a spectral balance with remarkably little variation over the difficult vertical listening window and a useful reduction in floor and ceiling bounce energy that give the system a more revealing character. You will note that the central three drivers are mounted on a very expensive solid machined MTM plate. This both allows their spacing to be minimized and also lends the tweeter the same vertical directivity as the rest of the array's components. Crossover and spacing of the outer bass units continue the XA effect down to a very low frequency.

2 Inert Cabinet Construction

Previous models of Snell systems use a 3-part sandwich baffle to deaden the mounting surfaces of the drivers. This is a practical compromise with most of the benefit with reasonable cost.

The XA 2500, however, has its entire enclosure built from a multi-layer inert box technique. Cabinet walls are constructed from 2 wooden layers bonded together with a high loss polymer adhesive. The end result is an inert cabinet design that produces cleaner bass and purer midrange than traditional cabinets built with heavy single wall construction.

3 Grille Design

Acoustically transparent grill cloth is applied over a wood frame

4 Handmade Cabinets

The entire construction and finishing process is done by hand. Each cabinet is assembled by our craftsmen, and sanded several times before the black stain is applied. The result is a cabinet of exceptional workmanship, with sharp corners, smooth sides, and natural beauty.

5 Veneers

We use premium oak veneers for the XA 2500 cabinets. We even go so far as to veneer the inside of the cabinet to ensure that it won't warp or come apart at the edges when exposed to changes in humidity.

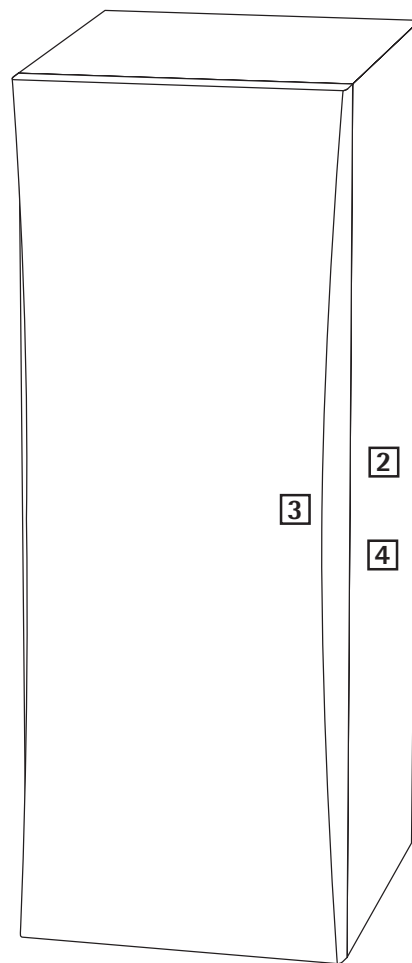
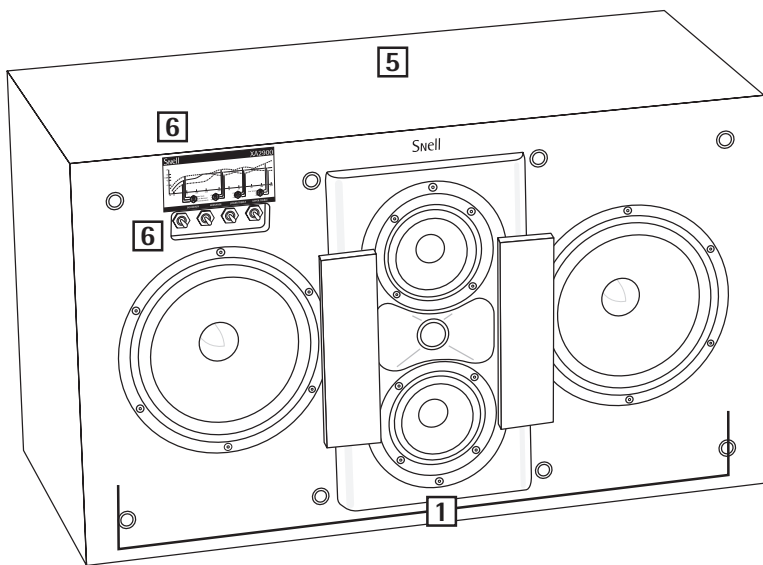
6 Hand-Tuned Crossover

These networks adhere to an in-phase or Linkwitz-Reilly design. (Time alignment and coherency are maintained through the transition region from driver to driver.) Each crossover is individually tuned by our production technicians to within ± 0.5 dB of the master reference, ensuring a consistent sound balance and predictable performance.

7 Toggle Switches

Toggle switches are the finest made in the US, and designed to meet the stringent specifications of the aerospace industry. These rugged switches are extremely reliable.

The switches are carefully tested and their circuits adjusted to provide unprecedented options in adjusting spectral balance as well as outstanding performance.

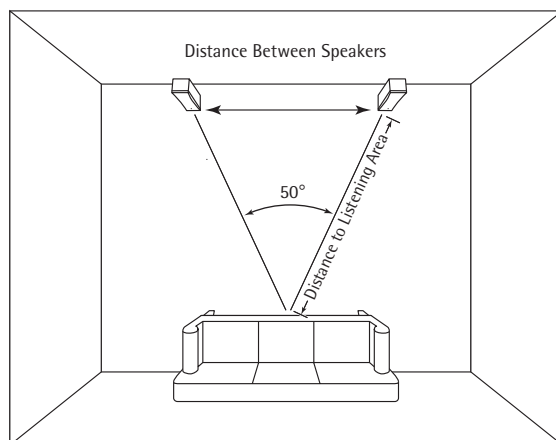


PLACEMENT OF YOUR SPEAKER SYSTEM

Stereo Image

The distance between the speakers determines the width of the stereo image. If the speakers are placed too close together, the image will be too narrow; too far apart and the blend will suffer, creating a hole in the middle. When properly placed, your speakers will create a continuum of virtual images from left to right, with an illusion of sound outside, in front of, and behind the speaker systems. We recommend an angular separation of approximately 50 degrees (when viewed from above). This is equivalent to a separation between the speaker systems that is about 85% of the distance to either of the speakers from the listener location.

The distance from the listener location to the left speaker and the right speaker should be as equal as possible. We advise using a tape measure to ensure the distance from each of the speakers to the primary listening position is the same. The result will be well worth the time and effort.



Room-Related Bass Effects

Your room dimensions will determine the frequencies of a phenomenon call "standing waves". Where the speakers are placed relative to the strong points and weak points (anti-nodes and nodes) of these standing waves significantly affects the bass characteristics of the system. Experiment until you find the speaker locations that produce the best overall sound for your room. Choose a musical selection with a heavy and continuous bass line. Repeat a short section until you have a firm impression of it in your mind. Then try another speaker location. Repeat this process until you are content with the bass response. Your goal should be even reproduction of each bass note without undue prominence of any of them. Moving your listening position may affect the sound as much as moving the speakers. If practical, try different listening locations as well as speaker locations.

See Optimizing the Sound section of this manual for more information.

Toe-In

Toe-in refers to the angling of the speaker systems toward the listener location. Toe-in is a matter of taste. As the degree of toe-in increases, the stereo effect becomes more sharply defined, that is, more like listening to headphones. Toe-in also improves the stereo effect for listeners seated in off-center positions. Having your speakers aligned with their backs parallel to the wall gives a more diffuse sound with a less defined central image. Toeing-in should be the last step in the placement of your speaker system. After finalizing speaker position and listener location, place the speakers with their backs parallel to the back wall or cabinet. Experiment from there, turning the speakers toward the listening area in 10-degree increments, until you achieve the desired effect.

Grille Removal and Installation

The grille is held in place with 8 fastener that snap into cups on the front of the cabinet. To remove the grille grasp the grille frame at the corners and pull it straight off the front of the cabinet. To replace the grille, align the grille frame with the front of the cabinet and push to snap it into place.

CONNECTING THE SPEAKERS

Choosing Cable

We recommend high-quality, minimum 16 gauge speaker cable for runs up to 25 feet (8m) and 12-gauge wire or thicker for longer runs. (We use a custom-configured 14-gauge oxygen-free cable in our crossover networks.)

Connecting with Bare Wire

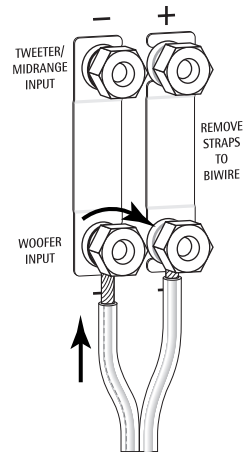
Twist the strand of the wire into a neat bundle. Insert the bare wire into the holes in the terminals and tighten.

Connecting with Banana Plugs, Pins or Spade Lugs

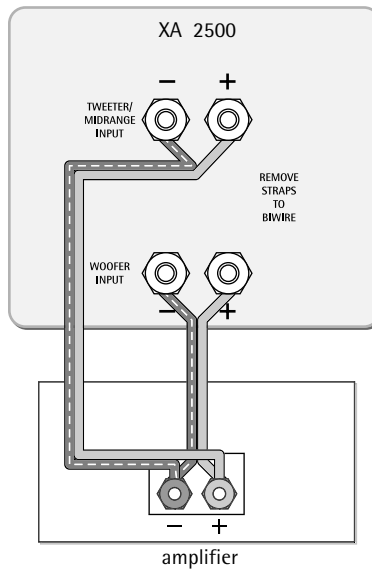
The binding posts accept single banana plugs and pins, and can accommodate 5/16" or larger spade lugs.

Basic Connections

Keep the speaker terminal jumper straps in place. When making connections between the amplifier and speaker be sure to connect + to + (red) and - to - (black).

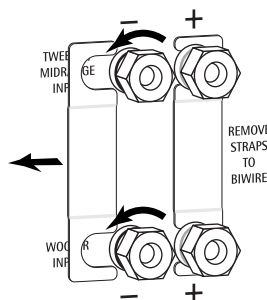


Warning! To prevent electrical shock, always switch off the amplifier or receiver when making connections to the speaker system.



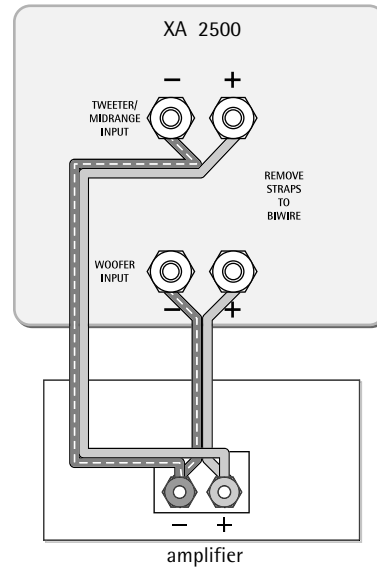
Jumper Removal

Loosen both sets of terminals and slide the jumpers to the side.



Bi-Wiring

1. Use equal lengths of the appropriate wire when bi-wiring each speaker. Consult your dealer for cable options.
2. Unscrew both sets of terminals and remove the jumper straps.

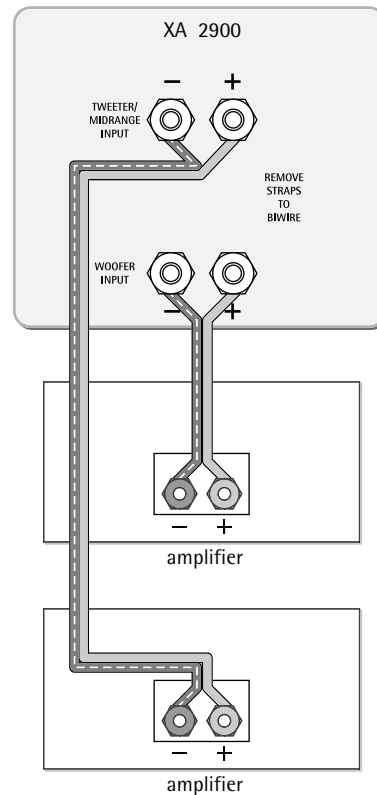


Bi-Amplifying

Using one amplifier for the bass and one for the high end

1. Unscrew both sets of terminals and remove the jumper straps.
2. Connect the cables from the bottom set of terminals to the low frequency amplifier driving the bass units.
3. Connect the cables from the top set of terminals to the high frequency amplifier driving the tweeters.

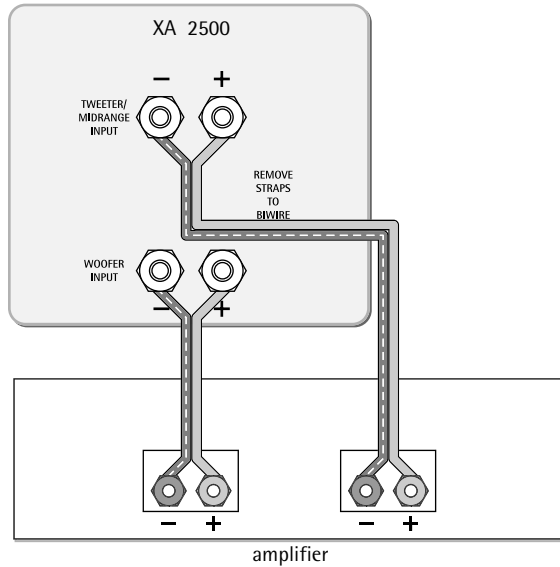
Do not use an external crossover. It will interfere with the phase and frequency response.



Using one amplifier for each speaker

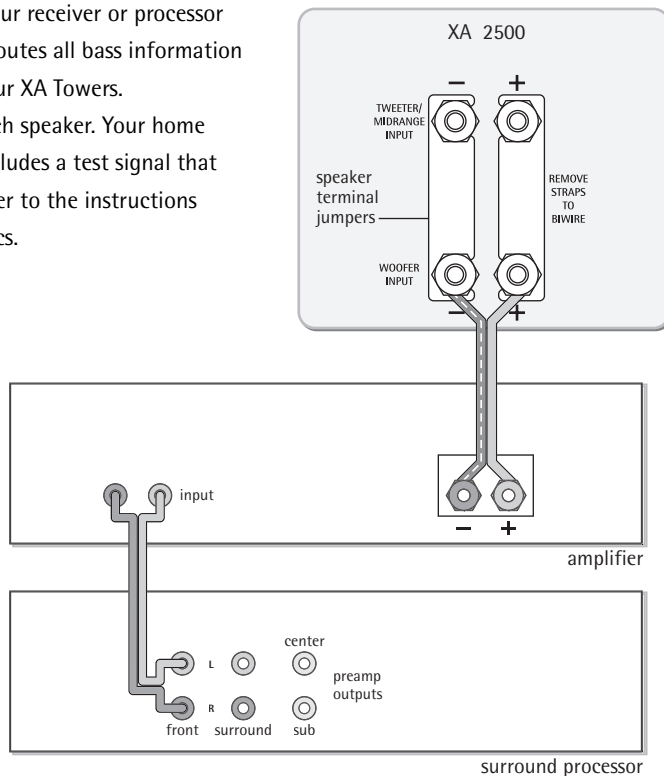
Make sure that the amplifiers are identical.

1. Unscrew both sets of terminals and remove the jumper straps.
2. Connect the cables from the bottom set of terminals to the first amplifier's right channel.
3. Connect the cables from the top set of terminals to the first amplifier's left channel.
4. Repeat steps 2 and 3 above for the second amplifier.



Using with a multichannel Surround Processor

1. Select the Large setting on your receiver or processor for your main speakers. This routes all bass information (typically below 100Hz) to your XA Towers.
2. Match the sound levels of each speaker. Your home theater system most likely includes a test signal that simplifies level matching. Refer to the instructions provided with these electronics.



OPTIMIZING THE SOUND, SYSTEM ADJUSTMENTS

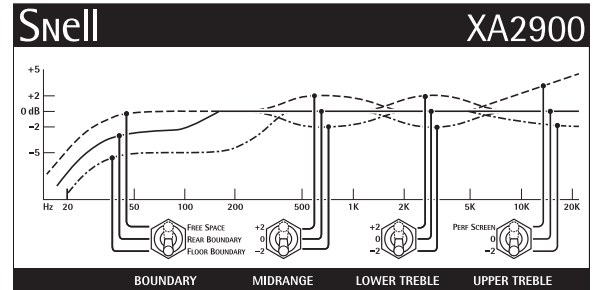
Probably the most unique feature of the XA 2500 is its total adjustability via a number of band trim switches. At Snell, our experience with installing and optimizing our systems into a variety of homes has taught us the value of fine adjustments to a speaker's balance to suit both the acoustics of the room and the characteristics of allied equipment.

To do this we have split the sonic spectrum up into 4 sections. Each section has an electrical switch with 3 subtly different settings. In the following section we will describe what to listen for in each band and how to adjust them for optimum performance.

First please note that all adjustments are subtle with approximately 1.5dB difference per position. No combination of settings of the rear panel switches can make the XA 2900 sound bad. Also note that it is acceptable to leave them all in their middle position as this will give the flattest balance in a very good room with very neutral electronics. We just feel that, with a little patience and experimentation, that an even better performance is achievable in most cases with judicious adjustment of the various controls.

The Boundry Switch allows you to adjust the bass response of the low frequency range below 400 Hz to compensate for the effect room placement has on bass response. When the XA2500 is located at least 12 inches (30cm) away from the surrounding walls use the upper "Free Space" switch position. If the XA 2500 is placed against a wall but at least 12 inches off the floor use the middle "Rear Boundry" switch position. When the XA 2500 is placed on the floor and against a wall use the lower "Floor Placment" switch position.

These recommendations are only a starting point. Listening test should be used to determine if the initial switch setting is the best choice. Listen to music that has a wide range of sounds along with a strong bass component. If bass range sounds or male voices sound "thick" or "tubby" try using a lower Boundry switch setting. Do not set the Boundry switch to a higher than necessary position in an attempt to achieve "impressive" sounding bass. This will produce an unnatural balance that will mask higher parts of the sound range.



The Midrange Switch affects the upper harmonics of human voice, especially vowel sounds like "i" and "eh". Again, listen and choose which of the 3 positions seems most neutral.

Next switch up the spectrum would be for **lower treble**. Excesses here give hardness to the character, whereas absences lend "sweetness". Some electronics and source components can add harness to the chain and could be compensated with the lower position. The upper position might be used if the room's acoustics are particularly dull.

The topmost spectrum adjustment is for the **upper treble**. This range gives sparkle to the sound and contains the highest harmonics of instruments, especially percussion instrument as well as the bite of some brass instruments.

All of the adjustments can be usefully employed to compensate for room acoustic issues. Also your listening distance might have some bearing. Close listening distances might warrant some reductions of the top two controls to prevent the system from sounding overbearing. At greater listening distances the same controls can offset the distant perspective that naturally occurs.

POWER-HANDLING

The power recommendation for the system assumes you will operate the amplifier in a way that will not produce distortion. All speakers can be damaged by a modest amplifier if it is producing distortion. If you hear a gritty noise or other signs of strain, immediately turn down the volume. Prolonged or repeated operation of your speakers with a distorted signal can cause damage that is not covered by the warranty.

CARING FOR YOUR SPEAKERS

For Painted Finishes (Including baffles, backs, and bases.)

Use a soft terry cloth towel slightly dampened with water, glass cleaner or a diluted mild detergent. The towel should be just damp enough to wipe the surface clean without leaving a trail of moisture. Be very careful to not apply pressure to the fronts of the drive units. Do not use abrasive cleaners or any cleaner containing chemicals harsher than those found in glass cleaner.

For Oiled Natural Wood Finishes

To remove dust and fingerprints, use the same technique as above. If your veneer begins to dry, apply a light coat of rose or lemon wood oil. This should return the wood to its original richness. Do not use spray waxes. These will create a buildup and eventually cause the veneer to appear dull. Note: Your veneers appearance and color will naturally mature and perhaps darken over time. Avoid placing speakers in extreme conditions. If direct sunlight is unavoidable, be sure that there is nothing partially covering the veneer in order to prevent "tan lines". Avoid placing speakers where they could be subjected to standing water. It will cause the wood to swell, breaking apart glue joints and ruining the air seal. Grilles You can remove the grilles from the speaker system and wipe them with a damp cloth to remove any dust.

LIMITED WARRANTY

For five years from the date of purchase, Snell Acoustics will repair for the original owner any defect in materials or workmanship that occurs in normal use of the speaker system, without charge for parts and labor. Your responsibilities are to use the product according to the instructions supplied, to provide safe and secure transportation to an authorized Snell Acoustics service representative, and to present proof of purchase from an authorized Snell dealer in the form of your sales slip when requesting service. Excluded from this warranty is damage that results from abuse, misuse, accidents, shipping, repairs, or modifications by anyone other than an authorized Snell Acoustics service representative. This warranty is void if the serial number has been removed or defaced. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

If Service Seems Necessary

Contact the dealer from whom you purchased the speaker system. If that is not possible, call us at 978- 538-6262, or write to:

Snell Acoustics
300 Jubilee Drive, PO Box 3717
Peabody, MA 01961

We will promptly advise you of what action to take. If it is necessary to return your speaker system to the factory, please ship it prepaid in the original factory packaging. Please note that Snell Acoustics will not be held liable for shipping damage due to improper packaging. After it has been repaired, we will return it freight-prepaid in the U.S. or Canada.

Snell

300 Jubilee Drive, PO Box 3717
Peabody, MA 01961

phone: 978-538-6262

fax: 978-538-6266

email: info@snellacoustics.com

www.snellacoustics.com

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