



OWNERS MANUAL

“CLASSIC-Series”

Welcome to the Music!

Acoustic Technologies, LLC introduces its signature product, the *“Classic-Series”* loudspeaker which combines a new design paradigm with a new bass technology. The *“Classic-Series”* is the culmination of extensive research into the natural reproduction of musical recordings.



Musical reproduction is about physics and perception. That is, a loudspeaker must adequately and accurately transduce the physical attributes of recorded sounds so that our ears and brain can process/perceive that sound as music. The physical aspect of sound basically can be characterized by three parameters: amplitude, frequency and time. Over the past few decades, mainstream loudspeaker designers have chosen to optimize their designs with the goals of increasing the speaker's frequency range and diminishing harmonic distortion. To this end, the majority of designs have followed a multiple driver layout, which necessitates the use of filters (crossovers) to linearly exchange the frequency response between drivers. In addition, loudspeaker designs with multiple drivers must also meld together the divergent dispersion patterns of each driver to achieve a coherent positioning of the reproduced sound. These multiple driver designs are characterized (and limited) by their so-called “sweet spot,” a relatively small area in front and between a pair of loudspeakers at which the listener will experience the optimal sound of the speaker system.

Unlike conventional loudspeaker systems, our *“Classic-Series”* is optimized in both the frequency and time domains. Using only a single wide band driver and our proprietary technology, we are now able to coherently present lower frequency information in a relatively small package. This new technology utilizes our proprietary cabinet design to acoustically amplify the lower frequencies produced by the single small-diameter driver much in the manner that musical instruments do.

The only place where unintentional timing and phase distortions can be introduced into a competently designed modern hi-fidelity reproduction chain is at the loudspeaker interface. Using a single small-diameter driver with great dispersion characteristics, a minimal excursion, and no crossover or equalization of any kind results in great coherency of sound with little to no added phase distortion. The construction of the driver, including, a titanium cone (stiff and very light), high gauss neodymium magnet and a maximum excursion of only 0.5 mm, minimizes phase modulation (Doppler) distortion while insuring quick starts and stops, with fast lifelike transient response, excellent rise, sustain, and decay characteristics and a transparent “see-through” quality to the music.



As a result, with little to no time domain added distortion, imaging and soundstage are rendered naturally with proper width, depth and height. Within the soundstage, instruments, and performers maintain their virtual positions no matter where you are at your listening room, just as in a real “live” performance. Once again, this natural presentation of musical performances extends from the speaker’s design. In our speaker, 99.99% silver wire connects the driver directly to the binding posts without any signal processing or electronic components of any kind. Thus, there is nothing added to alter the signal presented to the driver’s inputs. We invite you to enjoy a new perspective on all your favorite music as our “*Classic-Series*” speakers reproduce the spatial capabilities inherently residing in all of your stereo recordings.

Set Up

Mechanicals

Begin by carefully removing the protective clear plastic caps which cover the drivers. The plastic cap is friction fitted to the outside circumference of the driver and the caps can be removed by grasping the outer periphery of the cap and pulling the cap outward away from the speaker. Please save the caps as they are reusable and can be very useful in protecting the drivers from accidental mishaps when the speakers are not in use.

The binding posts are located in the opening at the bottom rear of each speaker. As you face the back of the speaker, the negative side of the speaker cable should be fastened to the left post labeled (-) and the positive side of the cable to the right post labeled (+).



Of course, please remember to turn down your volume control before first use of the speakers. Although the drivers are robust and the speakers are capable of producing a prodigious level of sound, please err on the side of caution until you get accustomed to the appropriate settings on your equipment.

Talking points

These speakers are designed to be “real world” speakers which are easy to live with, have a compact form factor, and are simple to set-up. Because of its unique design, however, in many ways placement of the speakers is counter-intuitive.

The unique design of our loudspeakers reproduces musical recordings with proper coherence, phase and timing. This allows you to easily sort out the music from the clutter of nonrelated sounds and reflections. For this reason the “Classic-Series” loudspeakers are very forgiving of reflective surfaces, and do not require a sterile non-reflective environment. Our speakers usually can be placed in normal furnished rooms with great success.

The use of a single driver presents only one frontal dispersion pattern to deal with. With the source originating at about 39 inches (ca. 1 m) above floor level and issuing a uniformly wide dispersion pattern, most low laying objects become nonfactors in terms of speaker placement. This allows for speaker placement in many positions not usually available to conventional speaker systems.

The “*Classic-Series*” loudspeakers deliver the recorded performance with proper corresponding width, depth and height, commonly referred to as staging and imaging. As you are about to experience for yourself, this most often results in staging and imaging which extends many feet wide of and behind of the speaker (virtually eliminating the walls in your room), as well as portraying proportional height information. When set up correctly these speakers do not have a listening “sweet spot” and will retain a realistically wide, deep, and tall soundstage in which the performers remain in their virtual positions no matter where you are listening from within the room.

Basic Placement

We suggest a starting placement of the speakers at 5 ft. (ca. 1.5 m) apart (inner edge to inner edge) and 1.5 ft. (ca. 0.5 m) to 5 ft. (ca. 1.5 m) from the front wall (the wall behind the speakers). Yes, we understand most speakers achieve their stage width by their wide placement but this is because they seldom place images outside their far edges or with much width behind them. As you are about to experience, this is not the case with our speakers. As mentioned earlier, when set up correctly these speakers do not have a listening “sweet spot”. This may go against all (your) conventional “audio wisdom” and will make you reassess the standard method of speaker placement and correspondingly of home audio reproduction in general.

But let’s start with the basics. The “sweet spot” is that listening position from which the best soundstage presentation is heard and is most often thought to be a center seat equidistant from each of the loudspeakers. The most commonly suggested method of achieving this is by the use of an equilateral triangle (triangle with three equal sides) where each speaker is placed at each corner of the base and the listening “sweet spot” is at the apex. Since we are starting with a smaller width placement than normal, please start by using an isosceles triangle instead, that is, set the initial seating position in the center of the speakers but further away from the speakers than the distance between the speakers.

Width

For evaluation purposes, please start with the speakers facing forward and the width between them at 5 ft. (ca. 1.5 m) (inner edge to inner edge) anywhere within 1.5 ft. (ca. 0.5 m) to 5 ft. (ca. 1.5 m) from the front wall. Your listening position should be situated equidistant between them at whatever distance you prefer or are accustomed to. Please select and play pieces of music that you enjoy and know well. Trust your ears! Increase the width gradually and repeat the process until you achieve the most musically enjoyable balance of soundstage and image coherence. Please don’t over analyze these placements but do take notice of the

changes in sound as you increase the width. Most likely there will be a “wide” range of suitable widths where the music sounds correct and a smaller range that will favor your personal musical predilections.

Once you are satisfied with the sound at your selected seating position, we encourage you to change gears and to move out of your comfort zone ... to another seating position. Yes, that’s right, leave the speakers where they are and change your seating position. You should notice that moving around the room changes only your position relative to the (virtual) performers and that the detail, image and soundstage remain true to how they would be presented if you were listening to an actual live performance at similar changes in position. Feel free to move about the room and listen to the speakers at different angles, or even with your back to them. Listen from behind the plane of the speakers both in between and wide of them. Sit or lay on the floor in front of the speakers for a different perspective. Experiment and have fun exploring the capabilities of the speakers.

Depth

Now that you have started to appreciate some of the speaker’s abilities, let’s turn to where to place them in your room for the best combination of sound and convenience. As with all speakers, the room/speaker interaction takes on great importance when considering placement. In this sense, the room can be considered as an extension of the speaker. Again the unique design of the “*Classic-Series*” will necessitate some rethinking of the standard suggestions for stereo speaker placement but will also offer up many new placement possibilities.

The two most important factors involving negative room interactions are resonances and reflections. Resonance problems can arise as you introduce any loudspeaker into any enclosed listening environment. With all the possible variables in room dimensions and layouts there are no fast and clear rules for speaker placement. Within a room there will be nodes and antinodes and it is never a good practice to place any speaker in positions that exacerbates these resonant locations. We suggest trying to vary the depth placement in the same manner that you handled width placement and allow your ears to guide you to a position that sounds best to you. With the “*Classic-Series*” loudspeakers, “depth” placement is far less critical than finding the best width between the speakers. However, depth placement may permit tailoring the frequency response to that which you prefer and setting up for the comfort of your favorite seating position. Within the room, reflections are minimized with our speakers because a) the speaker’s single 3-inch diameter wide band driver is situated 39 inches (ca. 1 m) above floor level and b) the acoustic synthesis of bass frequencies. Sometimes simpler is better.

Getting back to resonances, our “*Classic-Series*” acoustically produces bass, utilizing our patent-pending cabinet design which amplifies the lower frequencies produced by the diminutive single wide band driver. This acoustic style of bass production energizes a listening room much the way musical instruments would at a live venue. It is also amenable to boundary reinforcement if more bass is desired. The largest useful boundaries are the walls of the room. There will be increasing bass reinforcement as you place the speakers nearer to them. However, We do not actually suggest corner placement or positioning directly against the wall as we usually experience too much reinforcement, which results in a less balanced (bass heavy) frequency response.

Advanced Set Up

We now introduce a corollary to our speaker’s natural staging and imaging capabilities. Instead of moving to different seating positions to get a different perspective on your music, you can remain in a single seating position and have the stage and images move around you. If you rotate either both or only one speaker around its axis, the sound will change as if you had changed your seating position in the audience. Try this for yourself. While keeping the rightmost speaker pointed straight ahead, toe out the left speaker 10°, 45°, 90°, and, for grins, 180° successively stopping to listen at each step. You will notice that at each step this is akin to moving farther to the right in the audience. For example, at 10° your placement is still in good virtual seats and with each successive turn you get closer and closer to being in the cheap seats. At 180° you will get a kind of inversion back to the center. Experiment, try toeing the speakers in or out and listen. Try having the left and right speakers asymmetrically placed. Does this make a significant difference? Try having both the left and right speakers slightly canted equally in the same direction, what do they sound like? This particular positioning may be useful in redirecting or reducing standing waves in a rectangularly shaped room, while a different positioning may prove helpful with other problematic situations or rooms.

Final Placement

Now that you know the capabilities of your speakers, just try them in any suitable location which you believe will sound good. It may be as simple as having them 5 ft. (ca. 1.5 m) apart and 1.5 ft (ca. 0.5 m) from the front wall as we have done at most public demonstrations, or something less obvious but more conducive to your environment. Have fun and ... welcome to the music!