

AUDIOTRENDS

L E A R N I N G C E N T R E

How To Set Up A Two Channel Audio System

Audio Systems create the illusion of real musicians performing in an acoustic space. A well-designed two channel Stereo system presents remarkably lifelike, almost palpable images that are located correctly in three dimensions.

High quality audio needn't be limited to one room. [Multi-room](#) systems can surround you with music as you walk through your home. We [custom install](#) multi-room and other systems so that they blend harmoniously into your home.

Properly designed, a state-of-the-art system can do startlingly good job of recreating a musical performance. Properly installed, a well-designed system enhances the aural and visual aesthetic of your home.

System Matching

In a well-matched system:

1. Synergy between the particular components in the system yields higher performance than quality of the individual components would suggest, and
2. No one component dominates the performance limitations of the system; every component is of roughly comparable quality.

In choosing components for your system, we suggest that you try to avoid products with highly coloured tonality. Sometimes these products can be successfully matched in a system by choosing other products, which have offsetting colorations. You will probably find it very difficult to upgrade such a system however. If you change one component, the tonality will swing wildly away from neutral, just as one person hopping off a balanced teeter-totter will make the other person fall to the ground. Instead, we prefer to choose products with highly uncoloured (neutral) tonality, so that

a component can be readily upgraded in the future without disrupting the system's balance.



Avid audiophiles sometimes end up with a collection of components bought either impulsively or because "they were a good deal." A lack of satisfaction at the unbalanced system then drives another cycle of hodge-podge buying to fix the system's deficiencies. As a hobby, this product swapping can be fun. However, if your goal is to attain the highest possible performance level for your given budget, then we have found that it is best to purchase components strategically, not tactically. Buy components only if they fit into your long-range system plans, and resist tempting diversions.

We often use the metaphor of a chain to describe system performance. The weak link in the chain, *i.e.* the poorest performing component, will dominate the performance limitations of the system. When upgrading a system, you will achieve the largest performance gains by upgrading the least good component first. When buying a whole system at once, make sure that you are not overspending in one area and underspending in another.

Sometimes we intentionally mismatch the components in a system—at least for a little while. High performance systems can be too expensive to buy all at once. In this case,

we suggest buying one component at a time. While the system won't achieve its full performance potential until the last component is purchased, this strategy minimizes the total cost of the system and insures that the final system is well planned and evenly balanced.

A well-matched system will very naturally reproduce the music you love, with the highest possible performance for your budget.

System Set-Up Suggestions

How you set-up your system will greatly affect its performance. This section contains set-up considerations and techniques for realizing your system's maximum potential.

Room Design and Acoustic Treatments

The acoustics of your room will heavily influence the sound. We can help you with information on Room Design, Room Dimensions and Room Construction. Please e-mail us for more details.



System Break-in

Very often new components will improve considerably with use. The break-in period varies considerably depending upon the product – from as little as an hour to as many as hundreds of hours. Your owner's manual may have specific break-in instructions; if so, we suggest that you follow them. You can accelerate the break-in period by playing your system while you're not home. Using the Tuner or a CD-player set to repeat, just start the system when you leave home and let it run. Listen periodically to the system and stop the break-in when you notice no further improvement.

For speakers, the volume that you use will be important. For the first few hours, keep the volume low. For the next dozen hours or so, use a moderate volume. From then on, use a higher volume with music contains wide dynamic contrasts. If you are in a hurry, you can accelerate the speakers' break-in with a special procedure. Here it is.

Rapid Speaker Break-in: Place the two speakers face-to-face. Disconnect one speaker from the amplifier and reconnect it out-of-phase by reversing the speaker wires. The speakers will now cooperate with each other in a push-pull fashion, which will break in the surrounds on the drivers more quickly.

Bass Reinforcement

Independent of the room dimensions, materials, and resonances, the position of the speakers and the listening position within the room will influence the audio performance in the bass region. This phenomenon is referred to as bass reinforcement.

The wavelength of a sound is inversely proportional to its frequency; lower frequency notes have longer wavelengths. At very low frequencies, the wavelengths are much longer than the distance between the speakers and the walls. The sound radiated from the speakers reflects off the walls and arrives back at the speaker substantially in phase with the original sound. This reinforces the sound wave and increases the efficiency of the speaker at that frequency. As a result, the bass response in the room may be elevated in volume and extended in depth when compared to the response if open space (or a true anechoic chamber).

As the frequency rises, the reflected wave becomes increasing out of phase with the original wave. This results in cancellation at a certain frequency. This frequency depends solely upon the distance between the speaker and the boundary (wall, floor, ceiling) in question.

All rooms have these effects; they are not a defect of the room or the speaker, but rather an unavoidable consequence of listening in a room. Carefully choosing the distances between the speaker and the

room boundaries will minimize the unevenness of the bass reinforcement and cancellation effects. Some speaker designers provide setup recommendations for their speakers in the owner's manual. We suggest that you at least try these recommendations to see if they work well in your room.

For imaging reasons, we recommend that you position the speakers symmetrically so that the left and right speakers are mirror images of each other. As a good rule of thumb, also position the speakers so that the distance between the speakers and the sidewalls differs from the distance from the back wall by about one third. For example, if the speakers are 1.8 metres from the sidewalls, try positioning them about 1.2 metres into the room. Take your measurements from the centre of the woofer.

Speaker Toe-In

Toe-in refers to the angle between the speaker's main axis and the sidewalls of the room. A speaker placed squarely in the room, firing directly ahead, has zero degrees of toe-in. For convenience, sometimes toe-in is measured not in degrees, but in percent, with 100% representing a speaker rotated so that it is firing directly at the listening position. The amount of toe-in needed depends upon the particular speaker involved, the geometry of the listening position, and the acoustic treatment in the room.

Experimentation will help you determine the optimal toe-in for your situation. As a starting point, please feel free to contact us with our recommendations; we have a tremendous amount of experience in setting up the speakers that we sell. The owner's manual may also have some concrete recommendations for toe-in (and other setup parameters as well).

When setting the toe-in, focus your attention on the size and position of the images. Generally speaking, smaller, more focused images will require somewhat more toe-in than larger, more fleshed-out images. Let your personal preference be your guide here. Also, rooms with highly reflective sidewalls may benefit from a setup with somewhat more toe-in, in order to reduce the amplitude of the sound reflected off the sides.

Turntable Tips

We still love analogue—and we have set-up countless Turntables over the years. When you put a new belt on, the duller side goes towards the platter. If you wish to further improve the pitch stability, you may lightly rub talc into the belt, then wipe off the excess by running the belt through your fingers. This will introduce slippage upon start-up, but don't let that fool you. The wow and flutter is always measurably better in this scenario. This process is not irrevocable. If you don't like the slippage upon start-up, simply wash the talc off the belt with warm water and pure soap (one which leaves no residue).



And please remember, if you ever move your Turntable, you must treat the bearings properly so as not to damage them. And anytime you move your turntable even a fraction of an inch, it should be checked with a level.

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