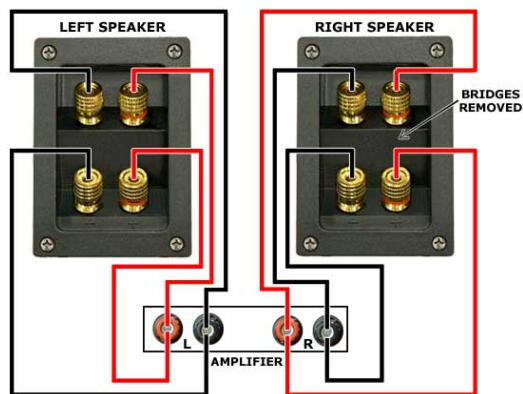


The Benefits of Bi-Wiring & Bi-Amping – Darren Springthorpe

Have you ever noticed how many binding post terminals there are on the back of speakers? Ever wondered why there are differences in the number of these terminals? How many input binding post terminals is enough, how many do your speakers have? and what does it all mean?

Many speaker manufacturers design speakers with only one pair of binding posts, this limits the system design capabilities and ultimately the speaker performance.

Changes in speaker design are now providing multiple pairs of binding posts; these changes are due to changes in the way the crossover is designed.



It also allows multi- amplification, and multi- wiring, more commonly known as Bi-wiring and Bi-amping.

Bi-amping requires Bi-wiring, although Bi-wiring a system can be achieved without the need of bi-amping. Both these techniques of system design improve resolution performance of the speakers while also creating improved flexibility of overall system design.

A passive multi drive unit loud speaker enclosure contains a crossover network,



this is a filter wired between each drive unit and the input binding post terminals. Crossovers not only divide the powered audio signal into different frequency ranges, (appropriate to the working range of the drive unit) but also equalize each driver's frequency response.

Bi-Wiring Speakers

In the case of bi-wiring, the answer lies in the cable connecting the speaker to the amplifier. Speaker Cable construction variations subtly influence frequencies, providing separate inputs to the speaker allows the use of different cable types, each optimized for the specific sonic characteristics of the speaker amplifier combination.

The ability to finely tune a system to the room comes via the ability to subtly influence the behaviour of the high and low frequencies. Adding more speaker cable doesn't give the speaker more power from the amplifier. The point of bi wiring is to tuning the system nothing more.

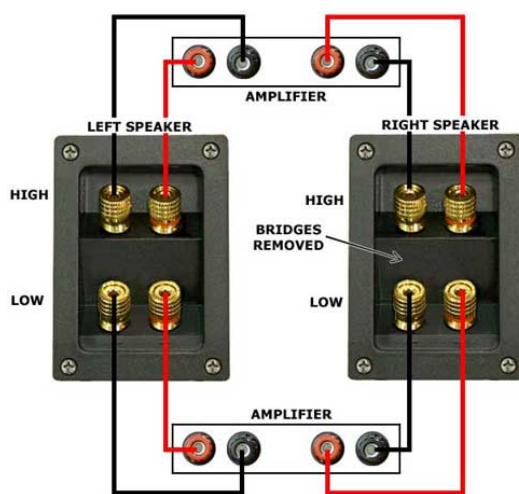
Bi-Amping Speakers

In the case of bi-amping the answer is in the Amplifier driving the speakers, more

to the point the number of amplifiers driving the speakers. One amplifier output channel per pair of terminals. Cable selection can also be tuned to the same degree as in bi wiring. Sonic matching each component of the signal path optimizes the speaker amplifier combination, increasing the realism and resolution of the system.

Many pundits of bi-amping will fervently argue the need to scrape the passive crossover, and replace it with an electronic one. There are perceived benefits to incorporating an electronic crossover, however those benefits are really only apparent when the speaker was originally designed with that in mind.

Many bi-amp models of system design require an electronic crossover. This is especially true of studio and production equipment. It would also be ideal in theory with domestic models, if the speaker's original design was to be ACTIVE; however the reality more often than not is down side. The original design, sonic characteristics, and imaging capabilities of passive crossover speakers close down, (which is probably what influenced your purchasing decision in the first place).



Systems modelled on a Bi-Amp design provide significantly greater flexibility and calibration control. Beware of varying gain, phase and colouration between different amplifiers as this will cause many a headache.

What's the Best?

To achieve the best sonic results with bi-amping and bi-wiring system models, use 4 mono power amplifiers, results are better than 2 stereo amps, but either is better and will easily out perform a single amp model at the same price. A Mono block power amplifier per input binding post is the ideal.

Separate the inputs to each driver filter, each driver's distortion is kept to itself and the total system distortion goes down. The resolution of some modern drivers is now so good that the improvements in power control and delivery from system of this design are readily detectable by

even the novice of listeners.

If you've not experienced a system of this design, do yourself a favour, visit Audio Trends and immerse your ears in the sweetest sound to be heard.

Where to Start

Bi-amping without the need to scrape the crossover significantly improves the speaker: amplifier: power supply ratio, improving head room capabilities reducing distortions of all frequency bandwidths.

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