

Why Power Cables Matter

By Joe Pittman
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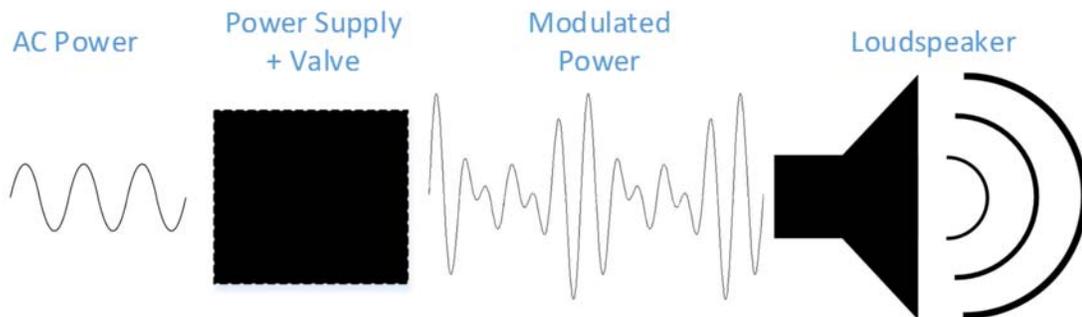
KOSMIC

Why Power Cables Matter

Do power cables really sound different? After all, there are many miles of power cable between the power plant and your music system. How can the last few feet matter?

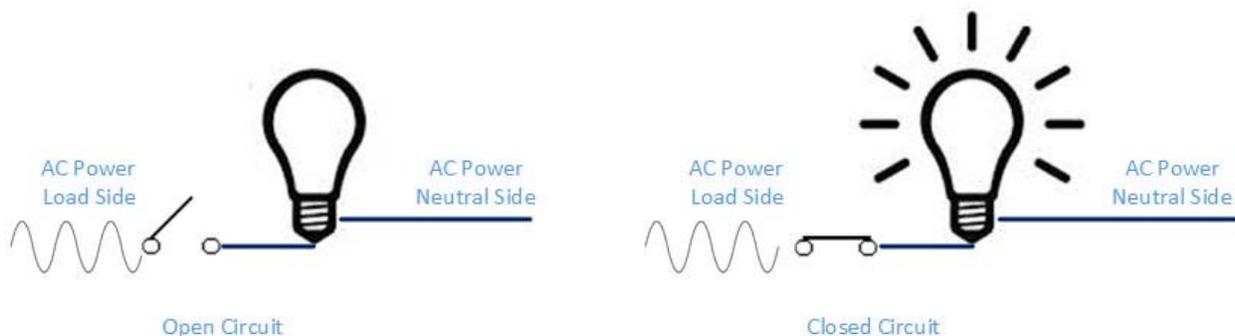
With many high priced power cables in the high-end, it looks like snake-oil and a rip off. But seriously, power cables really do sound different and when designed and constructed appropriately, can improve your system dramatically.

First you need to understand the importance of power in your system. The music you hear in your system is nothing more than modulated power from your wall socket (assuming of course you are using AC power, DC would be another subject). Using the simplest analogy we can think of, see the following diagram:



The power supply is one of the most important aspects of the system. Anything that adversely affects the power such as noise, power fluctuation, power surge, etc., can potentially impact sound quality.

Another simple analogy to understand the role that power cables play is to look at a simple AC light bulb power circuit as follows:



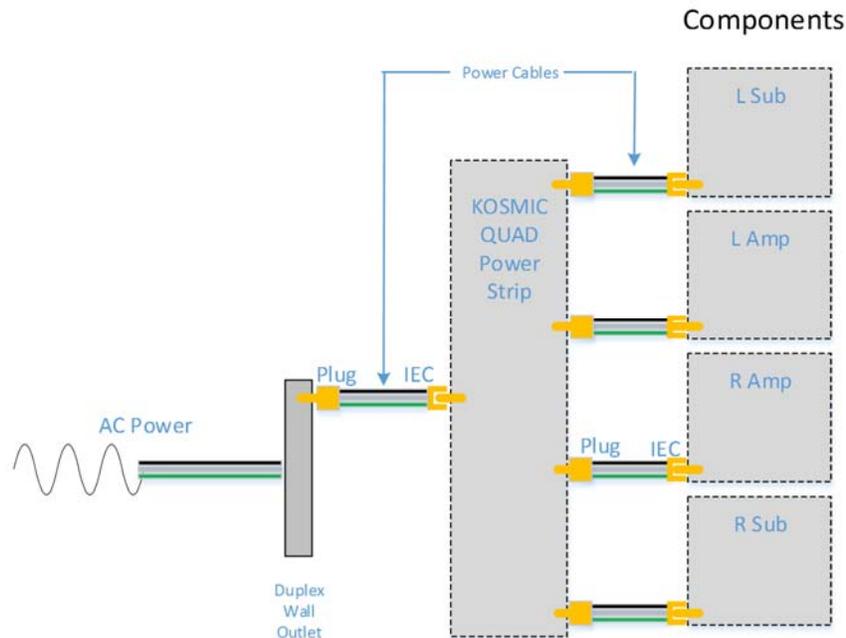
AC power requires two wires in order for current to flow as shown in the diagram above. AC has polarity with a "Load" wire and "Neutral" wire. In the diagram, power flows from left (Load Side) to right (Neutral Side). Power cables in your audio system operate in much the same way as the light bulb example. But instead of feeding a light bulb, we feed power supplies.

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Let's look at a real word example. In my Reference Room 1 system, I am driving Genesis G2.2jr loudspeakers with monoblock amplifiers for the midrange and tweeter ribbons and internal ServoSub amplifiers for the bass. There are a total of four amplifiers, each requiring a power cable. The amplifier power cables are plugged into a 4 outlet power strip (in this case, the KOSMIC QUAD) which in turn is plugged into one wall outlet. Each power cable is our reference 2m long Absolute Fidelity Power Interface cable.

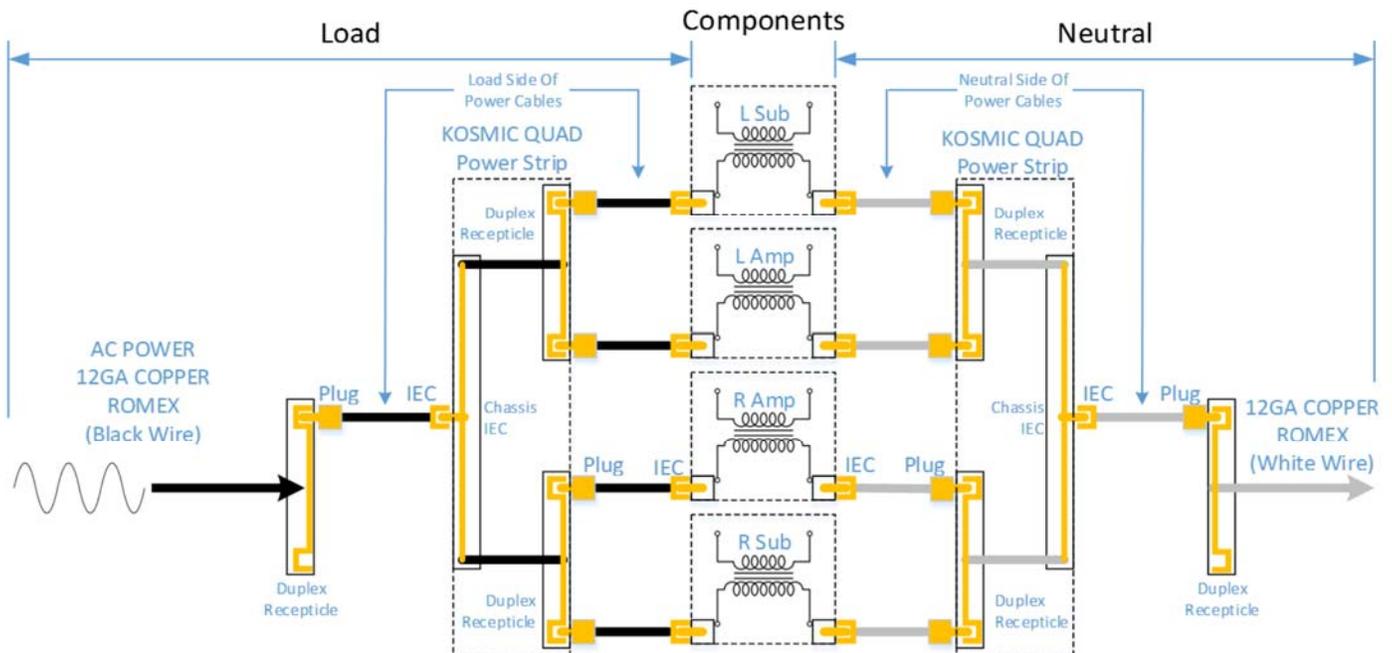
Power cables typically have three wires. One wire for the "Load", one for the "Neutral", one for "Ground". Physically, the cables are hooked-up according to the following diagram:



Components Look Like They Are At The End Of The Power Circuit

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When we straighten out the power flow like the light bulb example, with power flowing from left to right, we get the following power diagram for my amplifier example. As you can see, the amplifier power supplies are in the middle, not the end of the power circuit. Every wire and connection in the chain can have a profound impact on the overall system performance.



Component Power Supplies Are In The Middle Of The Power Circuit, Not The End

Although power cables appear to be the end of a really long chain of power wiring, you can see they are not. And if you think about it, power cables are really an extension of the power supplies and can be a real bottleneck to performance. This is a good example of how some aspects of high performance audio can be counter-intuitive. Although there is a lot of snake-oil in the high end, good power cables are the real deal and worthy of your consideration.

What Bad Power Cables Do:

- Constrict power delivery and reduce dynamics, killing the life in the music.
- Roll off the high frequencies, robbing openness and air.
- Raise the noise floor by passing magnetic and radio frequency interference (EMI/RFI)

What Good Power Cables Do:

- Do not constrict power and have exceptional dynamics, breathing life into the music.
- No roll off at the frequency extremes, you hear all of the highs as well as the lows.
- Lower the noise floor by reducing electro magnetic and radio frequency interference (EMI/RFI)

Well, I hope you have found this KOSMIC White Paper useful. If you have any questions or comments, please email me (joe@kosmic.us) and I'll get back to you. Best regards and happy listening. Joe Pittman