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MY GOAL: -
To bring great sounding cables and "Tweaks" to the DIY Audio Enthusiast :-)

PLEASE NOTE: -
I have NO affiliation to the products or companies mentioned on these pages

The products mentioned are those that I have used over time and found to perform very well.

For links to products mentioned in the text see [*Product Links](#) below

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-
sareeve124@gmail.com

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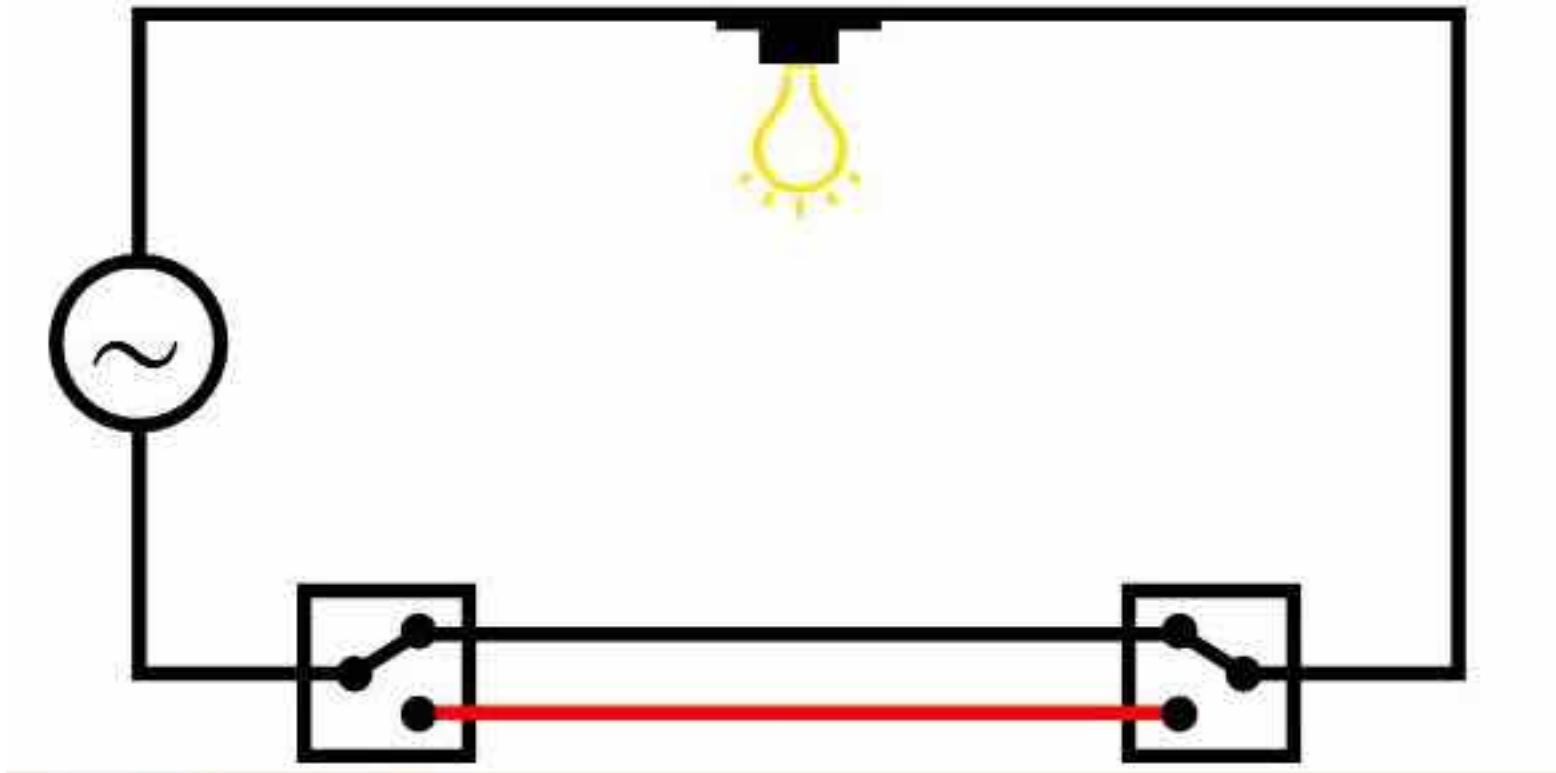
The Significance of Cable Architectures

11/12/14 21:58 *HELIX USB Cable [* Cable Architecture](#) | [The Significance of Cable Architecture](#)

I started looking at cable architectures a while back. It was initiated by an experience with a home lighting repair.

I was installing a new two way switch on a hallway light, the type with a switch at each end of the hallway (see diagram below). I decided to play it safe and use my multimeter to verify the open/closed position of the switches.

With the switch in the OFF position everything checked out, but with the switch in the ON position I found that there was a reading of 42 volts on what was supposed to be the "dead conductor" i.e. the red conductor in the diagram below.



I found an article on the web which verified that in this particular situation it is common for one of the conductors in standard household power cable to register an "induced voltage".

Turns out my digital multi-meter had such a high resistance that it drew no current so the reading was unusually high. However, my analogue meter, which draws a little more current still registered a reading of 13 volts.

That's a lot of "noise".

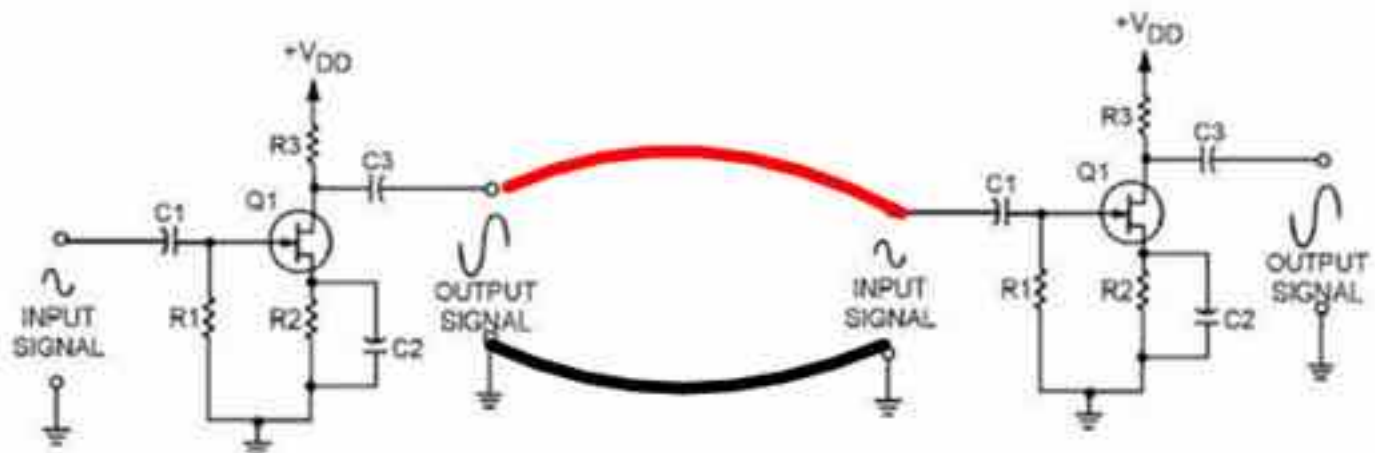
So how does that relate to audio cables?

Most all cables used in audio have conductors that are in extremely close proximity and run parallel to each other, but one common perception of that cable is, one conductor is the positive and carries the signal and the other is the neutral and acts as the return path.

Added to that simplistic view, we also tend to think of the cable as a single entity as in the diagram below.



But if we view the cable from the perspective of the circuitry of the connected components we get an entirely different picture



Fact is, there is no "real relationship" between the two conductors:

- One conductor (red) carries the signal
- Whereas the other (black) simply maintains a link between the neutral side of the two connected components

The neutral therefore, is NOT the return path for the Signal as many folk believe, but in stark contrast to the signal conductor, should always carry the same potential value as the neutral (or ground side) of the two connected circuits...which is - ZERO VOLTS.

So, in a cable having a conventional architecture, i.e. two parallel conductors in very close proximity, it is not beyond the realm of possibilities that the signal conductor would induce some noise into the neutral conductor, which in turn pollutes the neutral sides of the circuits of both components.

This affects the operation of both components, resulting in a degraded audio signal !

Another reality is, the two conductors do not even have to be of the same length OR even made from the same material

- the signal conductor is best made from extremely high quality copper or silver
- but the neutral conductor can be of a lower grade of copper with little, if any, impact

This is a consideration few audio cable fabricators are yet to grasp. Many cite their cables are made from high purity silver or copper, even the shield and we all go Ga-Ga! Unfortunately it's the consumer that is wasting their money - NOT the manufacturer!

Some of the more recent cables to come onto the market aim to eliminate the induced noise by utilizing a less conventional "cable architecture".

- One very simple and effective architecture is to employ a simple braid, similar to that used in **Kimber Kables**

- Another very effective architecture would be to wind the neutral around the signal conductor, such as the architecture utilized in interconnect cables from **Anticables**.

- And then there are the more "exotic architectures", such as that utilized in Interconnect and Speaker Cables from **KLE Innovations**.

- The "fine details" of their gZero Architecture is a closely guarded secret.
 - What is known - their architecture incorporates multiple conductors of various materials, each having an "optimal gauge" for the required duty, which are fabricated by hand in a complex "noise cancelling geometry".
- They also utilize very hi-tech proprietary materials for their connectors which also contributes to maximum signal transfer and noise reduction.
- This approach elevates not only their cables, but also **your existing components**, to a whole new level of performance!

Bottom Line...

Noise is present in every cable that utilizes the more conventional cable architecture having parallel conductors and applies to Interconnects, Speaker and Power Cables.

Don't be fooled by cable companies citing simple geometries such as...

"twisted pair construction minimizes radio frequency and electromagnetic interference for clear, noise-free sound".

This may be the case, but it's only the tip of this particular iceberg!

For more theory pertaining to this see [Electromagnetic Interference - Considerations in Structured Cabling Systems from Siemens](#). Elimination of ALL noise not only improves the performance of the cable but also improves the performance of each connected component, allowing them to perform to their optimum abilities which results in...

- improved clarity,
- better imaging,
- faster dynamics,
- smoother high's,
- deeper lows with improved control,
- greater presence in the mid range and
- a natural, more realistic, even "holographic" performance.

One "anomaly" that I have observed...

When using the KLE Innovations Interconnect and speaker cables and also my own DIY and power cables, i.e. when compared to other cables of a more conventional architecture...

The attached components run significantly cooler!

So if you are looking for audio cables of any type - take a **close look** at the architecture before you buy.

You'll be a much happier camper 😊

For information on my own DIY cable designs see the following posts on this blog...

[DIY Power Cables - The "POWER.HELIX"](#)
[DIY Interconnect Cables - The "Helix Mark V"](#)
[DIY Speaker Cables - The HELIX Speaker](#)

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