HELIX Q & A

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

GOT QUESTIONS?
sareeve124@gmail.com

Click on each menu item below to see the complete topic

So What's Here..

25/01/19 17:44

Are Helix Cables compatible with all components ?

Interconnects: to my knowledge ALL Helix Interconnects are compatible with all components

Speaker Cables: Helix Speaker Cables **should NOT** be used with amplifiers employ a Symmetrical, Complimentary, or Balanced outputs.
i.e. Both terminals effectively carry the same signal, just 180 degrees out of phase, similar to a balanced Interconnect

Amps known to employ this architecture:

- Accuphase E-303
- Anthem - Some Models
- Atma-Sphere - all models
- Audio Research - Some Models
- Ayre - all models
- Balanced Audio Technology
- BAT VK-255SE
- Boulder 500AE
- D'Agostino - Some Models
- Musical Fidelity - High End Models
- Pass Labs
- PS Audio BHK Signature 300
- Vitus
- Yamaha some models

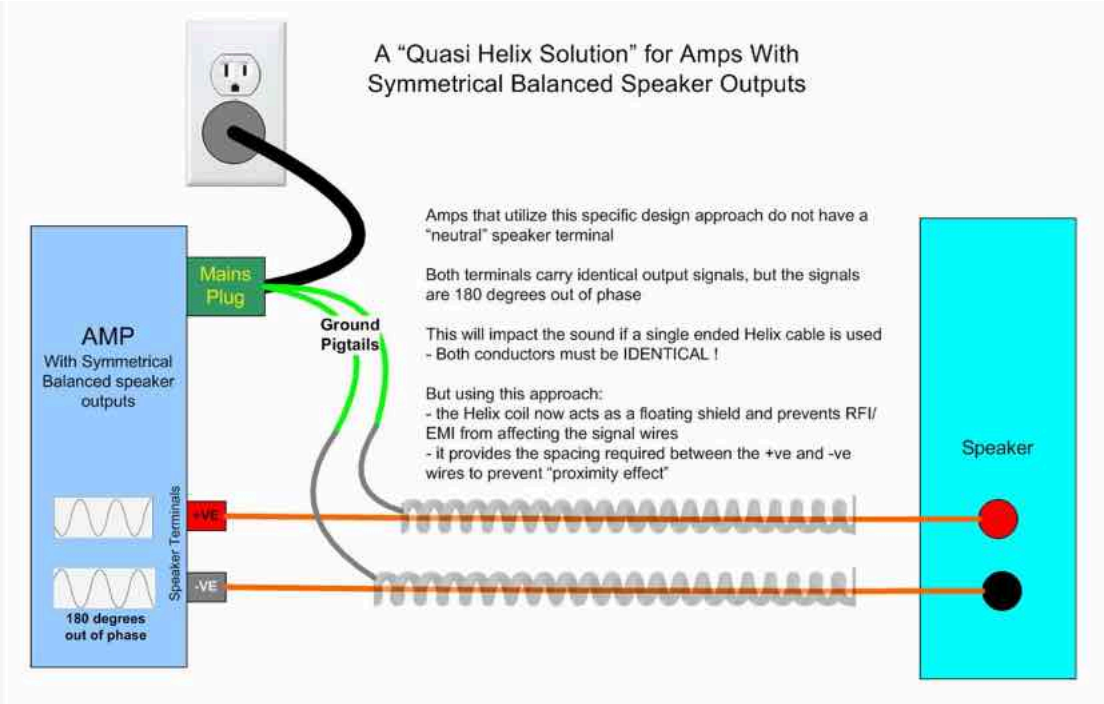
However: after giving this some thought, the following adaption would work very well.

December 2023
November 2023
October 2023
September 2023
August 2023
July 2023
June 2023
May 2023
April 2023
March 2023
February 2023
January 2023
December 2022
November 2022
October 2022
September 2022
August 2022
July 2022
June 2022
May 2022
April 2022
March 2022
February 2022
January 2022
December 2021
November 2021
October 2021
September 2021
August 2021
July 2021
June 2021
May 2021
April 2021
March 2021
February 2021
January 2021
December 2020
November 2020
October 2020
September 2020
August 2020
July 2020
June 2020
May 2020
April 2020
March 2020
February 2020
January 2020
December 2019
November 2019
October 2019
September 2019
August 2019
July 2019
June 2019
May 2019
April 2019
March 2019
February 2019
January 2019
December 2018
November 2018
October 2018
September 2018
August 2018
July 2018
June 2018
May 2018
April 2018
March 2018
February 2018
January 2018
December 2017
November 2017
October 2017
September 2017
August 2017
July 2017
June 2017
May 2017
April 2017
March 2017
February 2017
January 2017
December 2016
November 2016
October 2016
September 2016
August 2016
July 2016
June 2016
May 2016
April 2016
March 2016
February 2016
January 2016
December 2015
November 2015

October 2015
September 2015
August 2015
July 2015
June 2015
May 2015
April 2015
March 2015
February 2015
January 2015
December 2014
November 2014
October 2014
September 2014
August 2014
July 2014
June 2014
May 2014
April 2014
March 2014
February 2014
January 2014
December 2013
November 2013
October 2013
September 2013
August 2013
July 2013
June 2013
May 2013
April 2013
March 2013
February 2013
January 2013
December 2012
November 2012
October 2012
September 2012
August 2012
July 2012
June 2012
May 2012
April 2012
March 2012
February 2012
January 2012

- Banana Plugs
- cables
- Discussion
- HELIX Spec's
- Interconnects
- Links
- Me
- Parts And Suppliers
- Power Cable
- Power Supply
- Reviews
- Speaker
- Tweaks

RSS Feed



- Each signal conductor (i.e. +ve and -ve) would be 2 x 16 or 2 x 14 bare UP-OCC solid copper.
- Each wire would be inside it's own teflon tube and then gently twisted with connectors attached
- OPTIONAL: That assembly could then be inserted inside a cotton sleeve for further isolation
- The Helix coil would be wound from any generic12 gauge stranded or solid copper from any electrical store
- The coil remains unconnected at the speaker end of the cable
- The Helix is there only to act as a "spacer" for the signal wires
- and provide a "Faraday Cage" around the signal conductor to reduce the impact of RFI/EMI
- The Ground Pigtails would be 18 gauge stranded copper with insulation and added to the power cable for that amp.
- An alternate approach would be to connect the Helix Neutral to a pigtail lead from the ground pin (only) of a mains plug and insert that plug into an available socket

At this point you would have one cable assembly for the +ve conductor and a second for the -ve conductor

- To make it look more conventional (i.e. a single cable)
- each cable assembly could be inserted into an expandable nylon sleeve over the Helix section of the cable
- and then both cable assemblies (with sleeves) could be inserted into a larger expandable sleeve to make a single cable assembly

NOTE: this solution would work for all the amps
i.e both Symmetrical Balanced AND Single Ended designs

Power Cables:

Helix Power cables are not suitable for use in countries that adopt a "balanced" power grid - such as Norway

Helix power cables **should NOT** be used in conjunction with a power conditioner that provides a **"balanced output"**,
i.e. where both Live and Neutral carry the same voltage - just 180 degrees out of phase.

e.g. Equitech Corporation pioneered power conditioning of this nature.

How can you tell if YOUR power conditioner uses this approach?

- simply measure the voltage between the Ground and the Neutral and then the Ground and the Live
- if they show the same voltage then the power output is balanced.

NOTE: connecting a helix speaker cable or power cable to one of the incompatible components listed above WILL NOT cause harm.

- But the sound will not be optimal

Other Issues: A problem of HUM was reported using a Helix Power Cable with a Canary Grand Reference amp, but the cause is yet to be determined

Please note this is NOT an exhaustive list and I will endeavour to keep it updated as I find out about other anomalies

Why a Helix Geometry?

- I had believed for sometime that with a conventional geometry, where the conductors were positioned side by side, there could be noise generate within the cable due to the process of induction between the wires.
- There is also proximity effect and skin effect which can degrade signal transmission
- In order to minimize these effects you need to eliminate side-by-side conductors
- With the Helix Geometry - the neutral wire crosses the signal wire at almost 90 degrees
- No more induction, skin effect or proximity effect - but you now have a much longer neutral wire
- To offset the effect of additional resistance in the neutral wire - use a wire of a larger diameter
- But that can sometime make a cable too thick - in which case I use a double run of wire for the neutral

What does it mean in audible terms? - with less noise being generated within the cable itself, the Helix cables sound more open, with faster dynamics, more details and improved clarity, together with an outstanding image. You also reduce the "filtering effect" resulting in a more neutral sound

How important are Materials?

THE WIRE:

- When building cables most DIYer's focus on the quality of the conductor (or wire)
- e.g. they will opt for OFC Copper, OCC Copper, Silver Coated Copper, or Silver
- So what's the difference? - They each conduct electricity at differing rates
- the International Annealed Copper Standard (IACS) was established to standardize the quality of copper used for electrical purposes
- annealed copper is the benchmark standard - rated at 100%
- The best Silver, by comparison, has an IACS rating of 107%
- the rest are somewhere in between

What does it mean in audible terms? - the sound of cables made using a better quality wire ***will improve dynamics and details****.*

THE INSULATION:

- Even though the metallurgy of a cable will contribute significantly to the performance of the end product, recent collaborations with other DIYers focussed on the type of Insulation used on the wire.
- Each insulation type has a different Dielectric Constant or D.C. - Teflon has a D.C. of 2.1 and PVC has a D.C. of 3.18

- For interconnect cables and speaker cables, cotton has proven to be an exceptional insulation with a D.C. around 1.3
- For power cables the insulation has to withstand much higher voltages, therefore cotton is not a good choice.
- ***You should select wire with a mains rated insulation that can withstand voltage up to 600 volts***
- Duelund has mains rated wire with their proprietary Polymer insulation, which is better than Teflon
- The best insulation for power cables I have found to date is an insulation called AirLok which has a D.C. just less than 1.45
- VH Audio is one vendor that sells wire with AirLok insulation that is specifically rated for mains use i.e. 600 volts.
- BUT be aware that not all wires with AirLok Insulation is rated for mains use - ***so look for the 600 volts rating***

*What does this mean in audible terms? - lowering the D.C. of the insulation used **will improve clarity** and detail and with that, a more precise and expansive image.*

Which Helix cable should I make first?

- I normally recommend making the speaker cables first, because they are the easiest to fabricate and they provide the most noticeable improvement in sound quality
- Next I would recommend the Interconnect cable, because it eliminates noise on the neutral side of the attached components, which improves clarity and imaging
- Power cables should be the last to be built, because without the Interconnect or Speaker cables the full impact of the Helix geometry power cable cannot be completely observed

With Respect to Power Cables:

What gauge wire should I use for the various components ?

- I have found that for Amplifiers a 12 gauge Live conductor with dual 12 gauge neutral and ground conductors works the best
- For source components I have found that an 18 gauge solid silver conductor provides significant benefit, with dual 14 gauge neutral wires

Do I have to solder the spades to the wires?

- I have found that crimping + soldering provides the best results,
- Crimping Only, works almost as well, so omitting the solder will not cause a significant impact to sound quality
- Bare wires do not perform as well as spades and it is highly probable that the clamping device in the plug/connector will work loose over time.
- Not only are spades an important safety consideration, they do actually improve performance

With Respect to Interconnect cables:

Can a Helix Interconnect Cable be used as a SPDIF (digital) interconnect?

- Absolutely - they are excellent for digital transfers and the KLE Innovations RCA's ensure they are completely compatible with 50, 75 and 100 ohm digital interfaces
- Internal reflections, a common problem in other SPDIF cables are mitigated by using the KLE Innovations RCA plugs
- Based on my own observations, the KLE Innovations Silver Harmony provides adequate capabilities to handle all digital transfers up to 24 bit 192kHz
- If you require larger/faster transfer rates I would recommend upgrading the RCA to the Pure Harmony or Absolute Harmony model
- You can also use cables shorter than 1.5 meters for digital transfers - I have used Helix cables as short as 45 cm without any noticeable degradation in signal transfers.
- A minimum length of 1.5 meters is often cited as providing the best performance for other cable geometries.

All Cables:

Do I need to ad a wire “mesh” screen to interconnects? e.g. similar to COAX cables

- No - the helix neutral & ground conductors act as a very effective screen
- It also acts as a Faraday Cage and protects the signal/live wire from external RFI/EMI

Do I have to use the components (plugs, wire etc..) listed on the site ?

- Absolutely not, you are free to use whichever materials you feel are best suited to your budget.
- However, all materials listed on the site are those I have found to provide exceptional sound quality.
- Unfortunately I cannot provide an opinion as to the performance or materials you may wish to select, my apologies.

How does the Helix geometry compare to other “cable geometries”, such as the ribbon style geometry

- The helix geometry is superior to other geometries in that they prevent noise form entering all connected components via the conductors
- The Helix geometry can be used to build Speaker, Interconnect and Power Cables. Other geometries may not “scale” so well to power cables in particular
- The helix windings serve as a very effective screen to deter noise pollution from external RFI/EMI sources entering your system

Can I use Helix cables on any audio/video equipment ?

- To my knowledge helix cables offer significant improvements to sound quality on both Tube and Solid State equipment
- Power cables tend to offer a more noticeable improvement on those components the have a less robust power supply
- When used on large mono block amplifiers the improvements in sound quality tend to be more subtle in nature, but still noticeable.
- **WARNING: HELIX Speaker cables WILL NOT work with amps of a fully balanced "Symmetrical" design, such as the the Vitus and some fully balanced designs from Musical Fidelity**

They look very complicated to build - are they?

- Perhaps the first cable you build will present some challenges during construction.
- But once you get the hang of winding the helix coil with the aid of a rod and drill then subsequent sets of cables will be much easier to fabricate
- I recommend winding a “test coil”, using a piece of household wire to start with.

Will using multiple conductors for the live (or signal) conductors make a difference?

- It will change the capacitance and inductance of the cable somewhat, but without trying it it is hard to “guesstimate” the impact
- This may not be too much of an issue for the components you are using, but you should be aware these changes do exist.

Does the direction of the winding of the helix coil make any difference?

- **IT DOES - PLEASE READ** : Inside The Helix Geometry.
- It will not harm your components if the Helix Coil is wound in the other direction
- it just sounds better when the helix coil is wound in the correct direction.

AND - IF YOU HAVE ANY OTHER QUESTIONS - JUST ASK
