DILLINGER LABS

Helix
owner's manual

**SKAA® wireless
Headphones**

**Developed in Canada
built to survive a slapshot**

DILLINGER LABS

1. Introduction

Thanks for choosing Dillinger Labs. You're now the proud owner of Helix, our flagship headphones, powered by SKAA wireless technology.

SKAA prides itself on ease of use and flexibility. Combine these values with Dillinger Labs' commitment to audio quality and you get Helix. Truly great headphones.

We know you are eager to fire up your new gear and we don't want to keep you waiting. Refer to **4. Quick Start Guide** to have your headphones up and running in no time. Once you're moving and grooving, come back and learn all about the ins and outs of Helix.

A few important bytes of information

Have you seen this icon before?

The SKAA Compatible Badge certifies that this Product has been tested and is fully compliant with all of the requirements of the SKAA Standard and has been granted SKAA Certification. This Product will work seamlessly with all other products sporting the SKAA Compatible Badge.

If your transmitter is capable of SKAA Pro, so is Helix!
SKAA Pro reduces the latency of SKAA from 36ms to 19ms. Check out the video on SKAA Pro **here**.

For more information on the SKAA Standard, please visit **SKAA.com**. The SKAA® name as well as its associated marks, logos, and icons are trademarks or registered trademarks of Eleven Engineering Inc.

2. Live in the moment

Using SKAA technology, Helix has a latency as low as 19ms. Just switch your transmitter into SKAA Pro and Helix will switch into SKAA Pro automatically.

But what does this mean and why is it important?

Unlike other wireless headphones which lag behind, Helix breaks free from the status quo by having no noticeable delay between you and the audio source. This allows you to feel directly plugged in but with the freedom of wireless headphones.

3. Super simple control!

As depicted in the image on the right, Helix headphones integrate simple-to-use button controls for you to interact with.

All the controls you need: Bond Button, track control, power, and volume controls are intuitively laid out on the left cup. Keep this info in mind as it will come in handy as we traverse through the manual.

4. Quick Start Guide

Step 1: Connect your chosen SKAA Transmitter to an audio source and, if required, turn the Transmitter on.
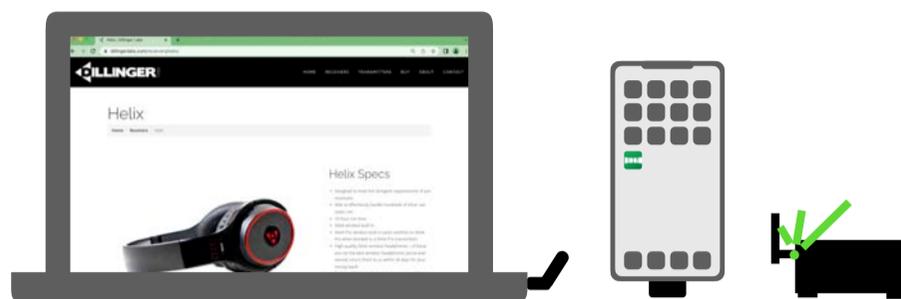
Ursula and Cassandra PC Users:
Mac OS: Navigate to *System Preferences > Sound*, and set the output device to *SKAA Transmitter*.
Microsoft OS: Navigate to *Sound Settings* and select *SKAA Transmitter* as your output device.

Step 2: Play audio on your device.

Step 3: Press n' hold the power switch for 2 seconds. Helix will instantly Bond to the Transmitter and the Bond Indicator will shine solid Amber. You should now hear audio playing.

If the Bond Indicator stays dim Amber and you don't hear any audio, carry out a factory reset by quickly clicking the Bond Button 6 times. Your click speed should be similar to multi-clicking a computer mouse.

Step 4: Adjust volume by pressing the volume button up or down *Note: The output volume of your source device will affect the volume from Helix.*

Bonus Links :
SKAA Wireless Audio Beginner's Guide
SKAA YouTube Channel

5. Saffron™ - The Brains

SKAA technology is known for reliable, high-fidelity audio. To take this one step further we present to you Saffron™ by Eleven Engineering.

Utilizing the advanced multithreaded architecture that Eleven's chips are known for, Saffron is able to run multiple tasks simultaneously, which is key for reliable high-fidelity audio. What makes Saffron really special is that it accomplishes this while consuming the least amount of power of any SKAA chip on Earth, making it the perfect choice for Helix.

6. DSP/DAC - The Brawn

Sound quality and battery life can sometimes be at odds in a product like Helix, but not when designed around Texas Instruments' DSP/DAC technology complete with built-in amplifier.

Your headphones harness the flexibility of PowerTune™ to control power consumption while delivering professional audio quality.
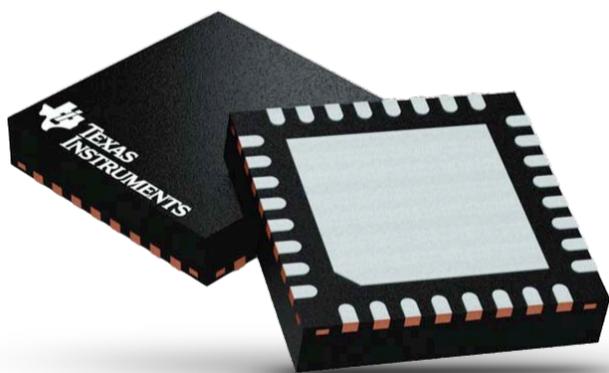
7. Design - The Beauty

Form may follow function, but that doesn't mean that high-quality audio can't flow through beautifully styled headphones. Helix boasts a minimalist yet bold red and black colour scheme tailored by a team of Canucks who want to give a little more OOMPH to your audio collection.

Helix was crafted for comfort during long-term use. A plush headband and ear cups will keep your head just as happy as your ears. Dillinger Labs partnered with Audio Technica, leveraging their design and manufacturing expertise to realize the luxurious powerhouse that now sits in front of you.

8. Printed F Antenna

Wireless headphones are only as good as their range and Helix comes out on top. We've paired SKAA's groundbreaking flexibility and Eleven Engineering's top-of-class Printed F Antenna to maximize your wireless freedom.

Ingenious engineering choices allow Helix to reach up to 25 meters of indoor wireless range when Bonded to a SKAA Transmitter such as a *Dani, Ursula, Akiko, Talisa or any Nadja Hubs*.

9. Intuitive track control

Using the power button as shown in the image below, audio playback can be controlled with just a few simple clicks. A *single click* will play/pause. A *double click* will skip over the song that should never have made it onto your playlist. Lastly, a *triple click* will jump you back to the previous track.

10. Power modes

Helix and SKAA Transmitters work together to optimize battery life when audio isn't playing.

2.5 minutes after audio stops - The Transmitter drops its Bond with Helix, turning Helix's Bond Indicator dim.

3 minutes after Bond loss - Helix enters Standby, reducing power consumption but ready if your transmitter becomes active again.

15 minutes after Bond loss - Helix turns itself off to save battery life. You'll have to power it on with a 2-second press of its power button to get going again.

11. Charging

Helix can continuously play audio while charging, allowing you to keep the tunes blasting on high when battery levels are low.

Each pair of Helix headphones ships with a standard micro USB cable for fast reliable charging.

The micro USB charging port is located on the bottom of the right cup, under a protective cover, as shown below.

Micro USB charging port

12. Batteries

Helix doesn't just sound and look great but also has the battery life to back it up. With two 1100 mAh AAA rechargeable batteries, Helix will keep you jamming for up to 10 hours of continuous use!

10 hours of battery life is great but how long will they last in 2 years, 5 years, or longer? Battery degradation sucks but we've got you covered. In less than 5 minutes you can swap out the batteries with easy-to-find replacements, ensuring that Helix will last as long as the day you bought them.

We've even created a quick replacement guide we'd be happy to send you, just contact us at *dillingerlabs.com/ contact/*.

13. Battery care

Unlike Lithium Ion batteries that want you to keep their charge between 20-80%, Helix uses batteries that you can drain all the way down to 0% and charge to 100% for a longer run time.

It is recommended to charge Helix after completely draining the battery to ensure the longevity of the battery cells. But as mentioned in *Section 12*, if this isn't always possible don't sweat it as the batteries are easily swappable if needed down the road.

When Helix approaches low battery, the Amber Battery LED will begin flashing beside the Bond indicator. The flashing LED lets you know to plug in the charging adapter.

During the charging process, the Battery LED will stay illuminated indicating that headphones are charging.

When the Battery LED goes out during charging, Helix is fully charged and ready to go.

From a depleted state, the battery requires ~4 hours to be fully recharged.

During charging, if the charging LED begins flashing slowly, we recommend replacing the batteries. A Video tutorial can be requested from *dillingerlabs.com/contact/*

14. SKAA cmd App

The SKAA cmd App provides a useful set of additional features to your headphones & speakers. For example, you can add custom names to each pair of headphones or speakers, easily mute all headphones & speakers or adjust individual volumes. It also lets you quickly identify which speakers & headphones are currently bonded to your phone's Transmitter and much more.
The SKAA cmd App is available for iOS, Android, Mac, and Windows platforms. It can be download from the Apple App Store, Google Play Store, and on www.skaa.com/tlc/skaa-cmd/.

Check out www.skaa.com/tlc/support/ for the dedicated SKAA cmd App user's guide.
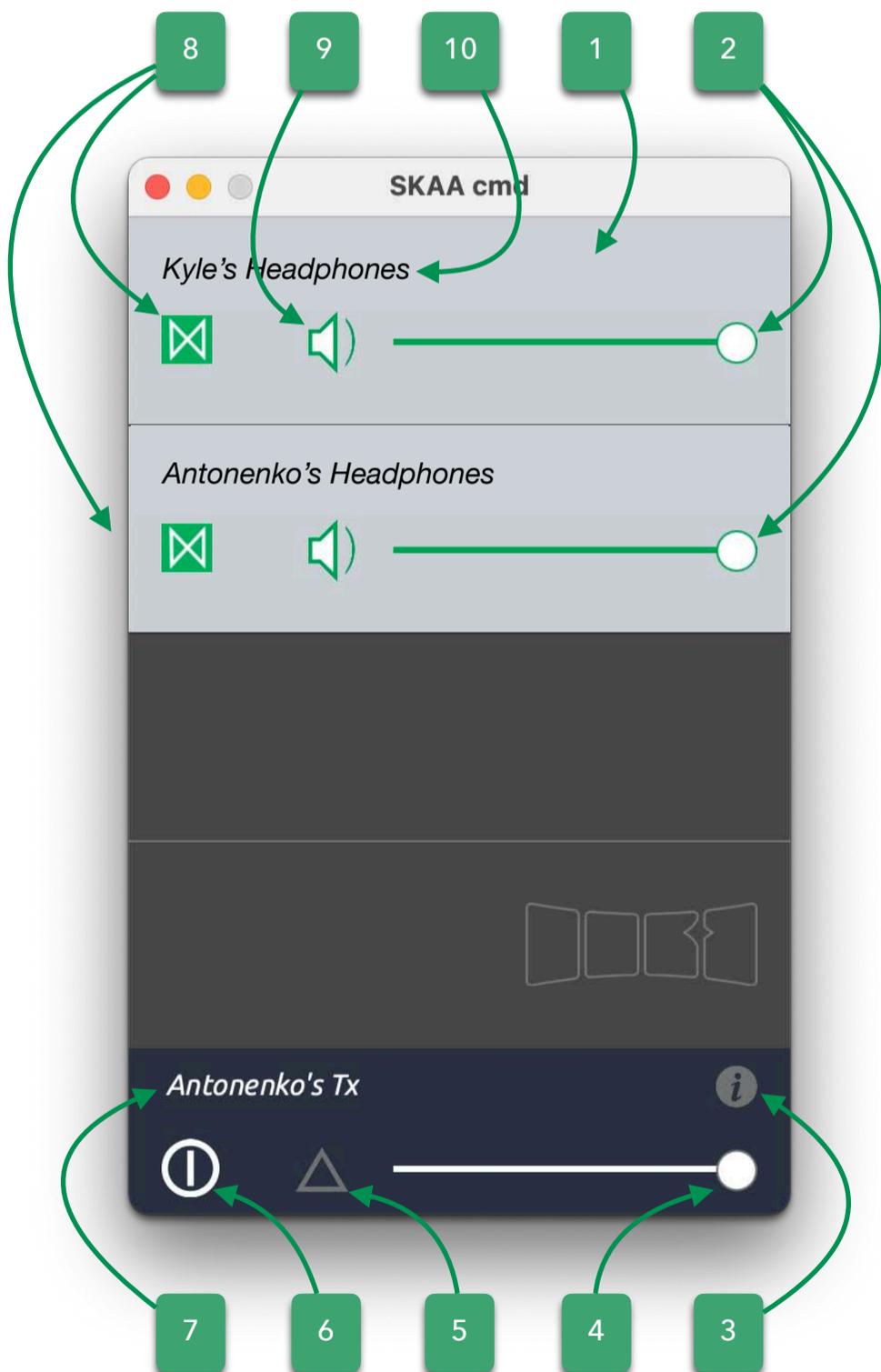
1. The Receiver Bay shows you when a SKAA Receiver or Cluster is bonded.

2. Move this slider to modify the volume of each individual speaker.

3. Click "*i*" to see the App Info Screen.
App Info Screen will show you the app version, app license, libraries used, Transmitter firmware, and screen size.

4. Master volume control. Use this slider to change volume on all speakers and headphones simultaneously.

5. Master mute. Click on the triangle and a laser beam straight out of sci-fi movies will mute all bonded speakers and headphones.

6. This button allows you to customize the power mode.
RED: Keep Transmitter always ON
WHITE: Turn OFF Transmitter after 2.5min of no audio
GREY: Keep Transmitter OFF even when audio is being sent to the Transmitter.

7. Customize the name of your Transmitter.

8. IMPORTANT: The green Bond Block lets you choose whether a Receiver is playing left, right, mono, or both channels.

9. Press to mute individual speakers or headphones. Press again to unmute.

10. Customize the name of your headphones & speakers. Like "Gaming Headphones" or "Rocking Right Speaker".

| 8 | 9 | 10 | 1 | 2 |

SKAA cmd

Kyle's Headphones

Antonenko's Headphones

Antonenko's Tx

| 7 | 6 | 5 | 4 | 3 |

Specifications

Parameter	Conditions	Value
Model number		PL5576
Battery		2 x 1100 mAh replaceable AAA batteries
Battery life	Normal Listening	10-hour battery life with typical use
Charge time	From Empty	~4 hours
Digital resolution		48 kSamples/s, 16 bit
Antenna type		Printed F antenna
Indoor range		15 - 25 meter range based on transmitter used
Weight		259 g
Standard Compatibility	SKAA OS 2.1 and later	Any SKAA or SKAA Pro Transmitter, any Nadja Hub
SKAA Transport Latency	I2S Digital to I2S Digital	36.72ms +/- 1.5 samples
SKAA Pro Transport Latency	I2S Digital to I2S Digital	19.39ms +/- 1.5 samples
SKAA Max Qty Receivers	Concurrently Bonded	4
SKAA Pro Max Qty Receivers	Concurrently Bonded	2
Power Supply Rating		5VDC 2.5W
FCC ID		OP5PL5576
IC Number		3534A-PL5576
CE Status		Certified

13. Important Information

Please read the following information carefully. Failure to follow the safety guidelines may result in personal injury or user dissatisfaction.

1. Never operate or store headphones in close proximity to a heat source.

2. Do not operate Headphones in rain. Headphones are not water resistant.

3. Do not charge headphones during electrical storms.

4. Do not leave headphones plugged in and charging for extended periods of time.

5. Drain the battery fully before charging to prolong battery life.

6. Remember with great audio comes great responsibility. Listening to headphones at maximum volume may lead to partial hearing loss.

7. Do not take headphones apart unless replacing the batteries (contact for detailed instructions). The warranty will be voided.

*Dillinger Labs advises the reader that this owner's manual is being continuously updated to reflect the most up-to-date and accurate information regarding Helix Headphones. Please check our **website** periodically for the most recent version of this manual.*

*Should you have any comments or questions about SKAA or Dillinger Labs products, we invite you to write to us **here**.*

*Check out SKAA's **YouTube channel** to familiarize yourself with an array of fantastic SKAA products.*
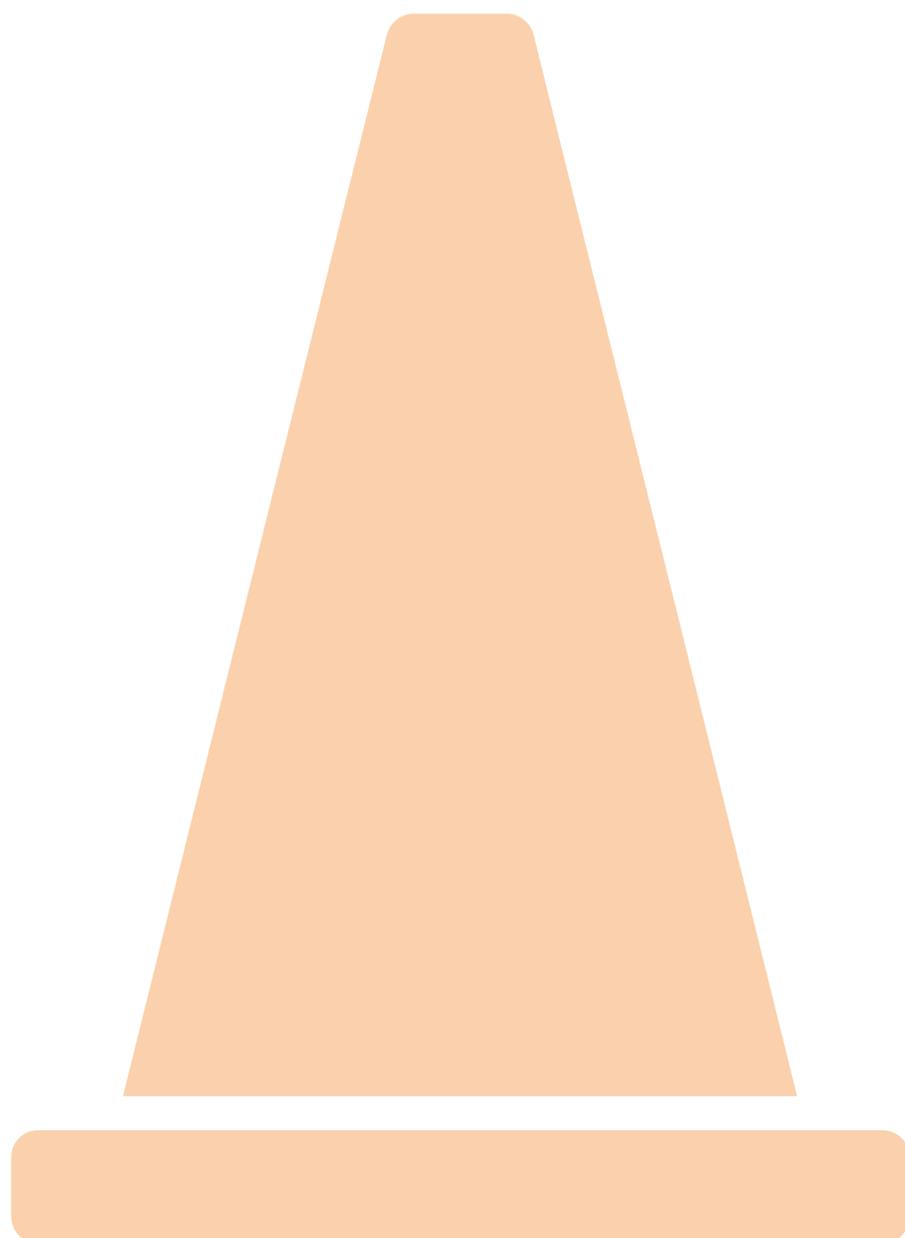
SKAA® RECEIVER USER'S GUIDE

Each SKAA receiver uses a *Green List* to remember your *favourite* audio sources (SKAA transmitters). A Green glowing Indicator on your receiver means you are listening to a favourite, or hunting for one. You can also *explore* to find new transmitters—an Amber Indicator means you are *exploring* for transmitters which are not on your Green List. The ◁▶ Bond Button on your receiver lets you select which audio source (SKAA transmitter) you're listening to.

Essentials

| ◁▶ *Button*	*Command*	*Indicator*
Hold a few seconds	<u>Add / Delete</u> Manually add / delete the current transmitter to / from your Green List	🟡 to 🟢 = Added 🔴 (flash) = Deleted
-	<u>Auto Add</u> SKAA will automatically add the current Amber transmitter to your Green List if you listen to it for 30 minutes	🟡 to 🟢 = Added
1 Click	<u>Green Mode</u> Rotate through your list of *favourite* transmitters (Green List) — when a favourite transmitter is found, the search stops and audio plays from that transmitter	🟢 (dim) = Hunting 🟢 (flash) = Next one 🟢 (bright) = Bonded
2 Clicks	<u>Amber Mode</u> *Explore* for new, unknown transmitters (ones which are not already on your Green List)	🟡 (dim) = Hunting 🟡 (bright) = Bonded

More Commands

◁▶ *Button*	*Command*	*Indicator*
3 Clicks	<u>Mute</u> do again to Unmute; any Click command will first Unmute and then do its function	🟡, 🟢 or 🔴 = Muted (slow flash)
4 Clicks	<u>Red Mode</u> If you have 2 or more transmitters on your Green List, power on just the one you want to hear and it plays automatically.	🔴 (dim) = Hunting 🔴 (bright) = Bonded
6 Clicks	<u>Factory Reset</u> Clear Green List. Start Over!	🔴 (flash) = Reset Done
Hold during power on	Make a Cluster of Receivers: 1. Power off all transmitters and receivers 2. Power on the Master receiver while holding down its Bond Button—hold the button down until the Indicator begins to flash Red 3. With the remaining receivers within 3 meters of the Master receiver, power on the first one, wait for its Indicator to flash Red and then power on the second one; continue until all of them are powered on 4. Once all of the Indicators stop flashing (turn solid Red), power off all of the receivers	🔴 (flash) = Receiver has entered 'Cluster Up' mode 🔴 (bright) = The Cluster has been successfully made

QUESTIONS AND ANSWERS

Question	Answer
How does the Green List work?	You can store up to 10 SKAA transmitters on your Green List. These are your "favourite" audio sources. Every time you add a transmitter, it is assigned the first open spot on the Green List. When you single click the ◁▐▶ Bond Button, the receiver hunts through the Green List much like a car radio hunts for radio stations when you press seek. If the Indicator is dim Green and flashes every few seconds, this tells you the receiver is hunting through the Green List. Say you have 5 transmitters on your Green List; your receiver will hunt through the list one by one: 1, 2, 3, 4, 5 and then back to 1 and so on. The dim Green Indicator flashes every time the receiver moves to the next spot on the list. This hunting goes on for up to 1 minute. If your receiver doesn't find any of your favourite transmitters, it stops hunting and just waits for the last bonded favourite. If your receiver does find one of your favourite transmitters, the hunting stops, the Indicator turns bright green, and your receiver starts playing audio from that favourite. A dim Green Indicator that is NOT flashing means the receiver is just sitting on one spot, waiting for a specific favourite transmitter to show up.
How do I bond with a specific Green transmitter?	Play audio from your source device and ensure it has a SKAA transmitter connected. Click the ◁▐▶ Bond Button on your receiver. The receiver hunts through the Green List, flashing the Indicator as it goes. Once your receiver finds one of your favourite transmitters, it bonds to it and plays audio from that transmitter. If that isn't the transmitter you wanted, click the Bond Button once more. Repeat until your receiver bonds with the transmitter you want and you're hearing the correct audio playing.
How do I select transmitters if I can't reach my Bond Button?	Say you want to put your receiver on a high shelf where you can't reach the Bond Button easily. First, set up your Green List: add all of the transmitters you'll want to use. Then 4-click the ◁▐▶ Bond Button to enter Red Mode. Now put the receiver up on the high shelf. Power on just one of your transmitters and power off all others. The receiver automatically bonds to the transmitter that's on.
How do I delete a transmitter from my Green List?	Factory Reset (6 Clicks of the Bond Button) clears the Green List and lets you start over from scratch. If however, you'd like to delete just one transmitter from your Green List, first bond your receiver to the transmitter you wish to delete. See the section above: How do I bond with a specific Green transmitter?. Once you are bonded to it, hold down the ◁▐▶ Bond Button for a few seconds until you see the Indicator flash Red –this Red flash means the transmitter has been deleted.
What is a Cluster?	Clusters are an optional convenience for "power users". A Cluster is several SKAA receivers behaving as one product. A left & right speaker pair, for example, or a sound bar and subwoofer.
What is the Master receiver?	In any Cluster, there is a single Master receiver, and all of the other receivers in the Cluster follow its behaviour. You can control the entire Cluster by operating the ◁▐▶ Bond Button of the Master. A receiver must have a physical Bond Button in order to become the Master.
How do I "uncluster" several receivers?	Do the Make a Cluster of Receivers procedure once for each receiver, but omit Step 3. Do them one at a time. This gives each of the receivers a functioning ◁▐▶ Bond Button, and each of them will thereafter operate independently.
What are some tips for making Clusters?	Each step in the Make a Cluster of Receivers procedure has a 10-second time limit. When you see the Master's Indicator start to flash Red, you have 10 seconds to power on the next receiver. When that receiver's Indicator starts to flash Red, you have 10 more seconds to power on the next one, and so on.
Why does only one of my Bond Buttons work?	When you make a Cluster from several receivers, the first one powered on in the Make a Cluster of Receivers procedure becomes the Master of the Cluster. Only the Master's ◁▐▶ Bond Button works because a Cluster uses just one Green List –the Master's Green List. The Bond Button of each of the other receivers will work only for the Mute / Unmute function (3-Click of the Bond Button).
Can any group of receivers be made into a Cluster?	No. The receivers must be members of the same product family. If they are not, the Make a Cluster of Receivers procedure won't work. This is because only receivers which were designed to work together (as a single product) can be made into a Cluster.

Helix Use Case #1

Music on the go

SKAA compatible

Helix

Cassandra or Diz Transmitter
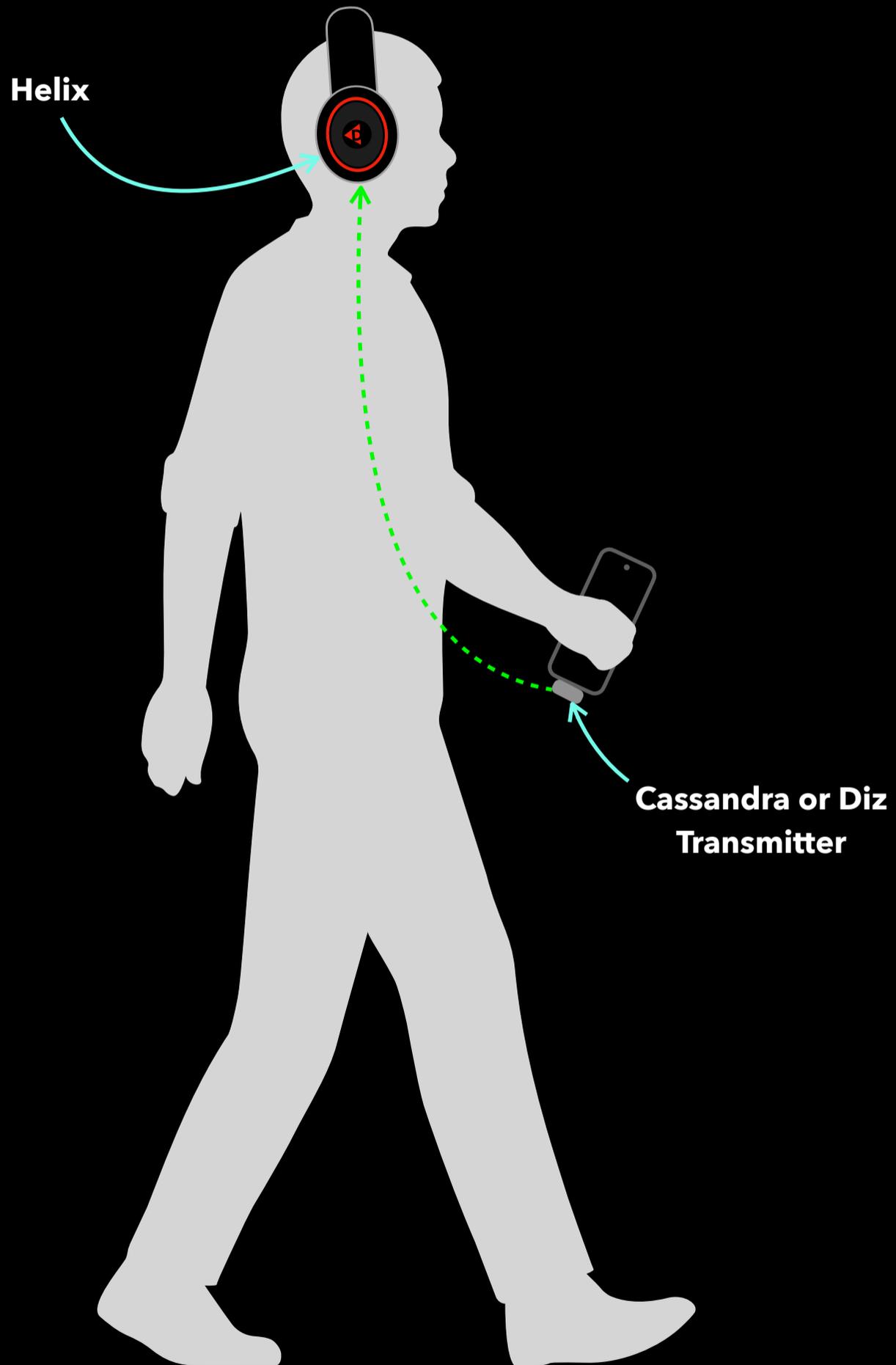
Legend: — — → **SKAA - 36 ms latency** — — → **SKAA Pro - 19 ms latency** ⌒→ Wire

Helix Use Case #2

Studio Recording

Mixer

Helix

Helix

Dani Transmitter

Thru

Dani Transmitter
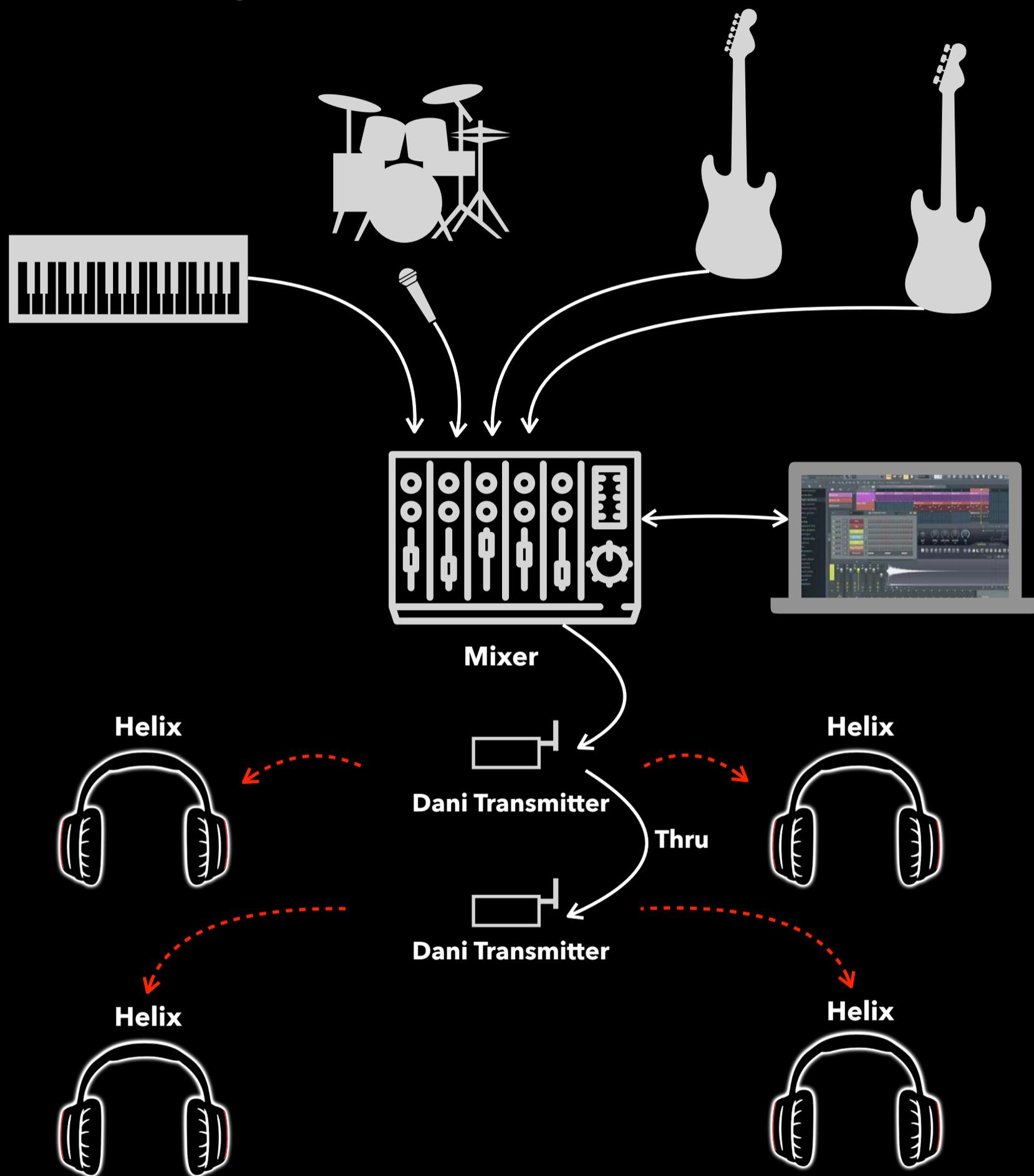
Helix

Helix

Legend: - - - → SKAA - 36 ms latency   - - - → SKAA Pro - 19 ms latency   ⌒→ Wire

Helix Use Case #3

Podcasting

Helix   Helix

Helix   Helix
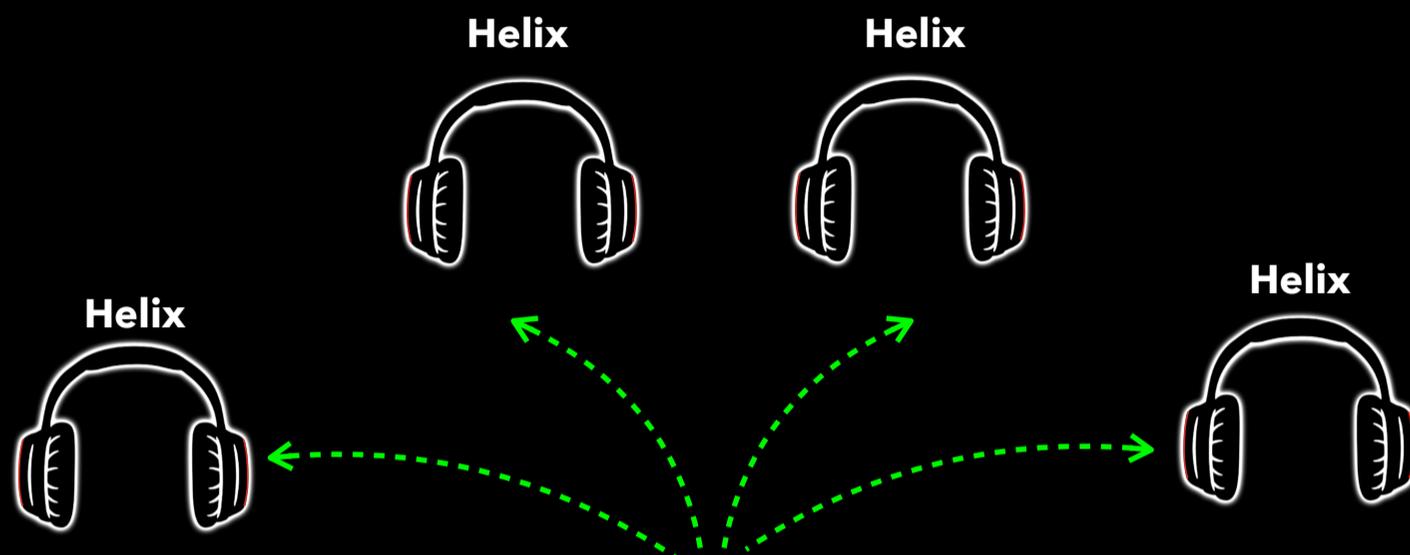
SKAA Enabled Cerwin Vega Pro Mixer
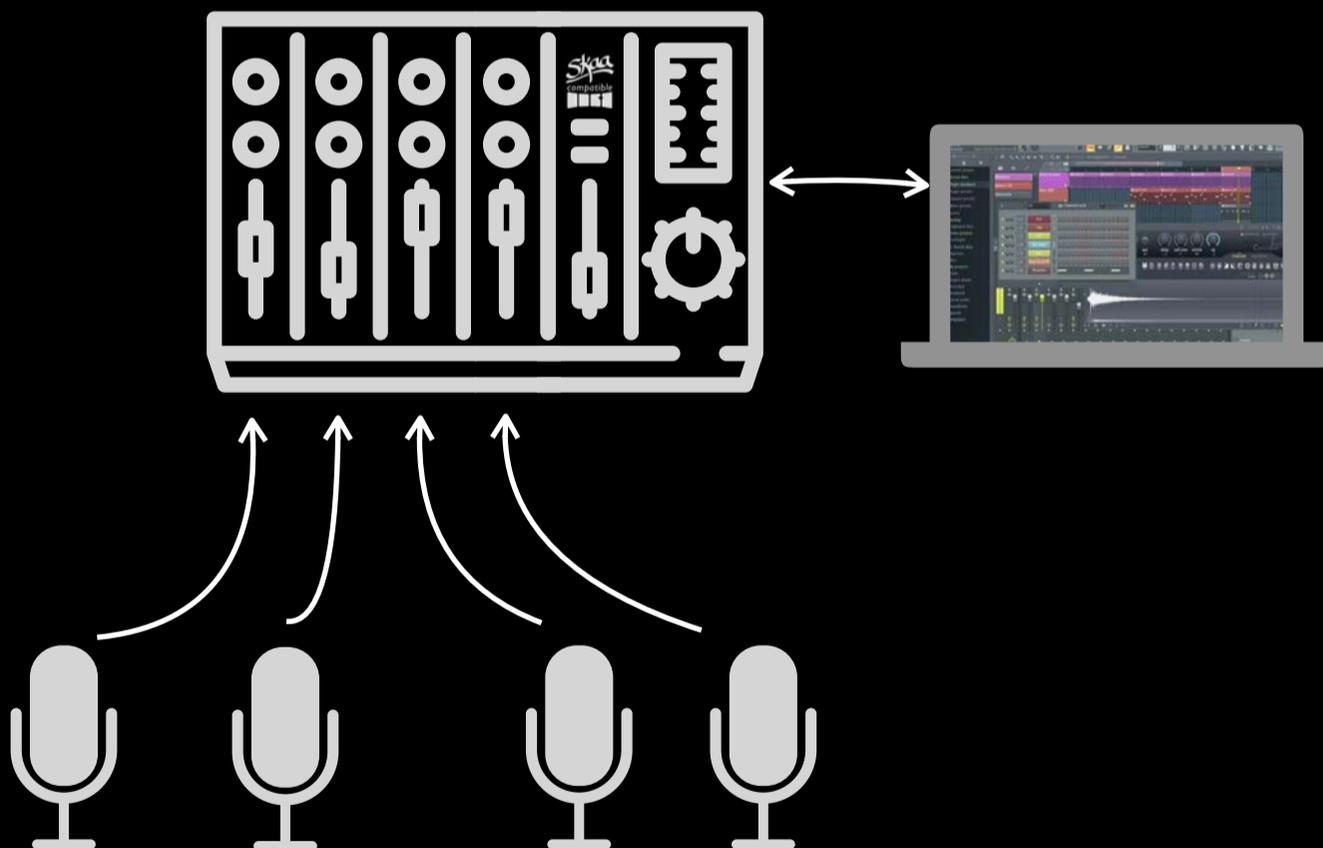
Legend: --→ **SKAA - 36 ms latency**   --→ **SKAA Pro - 19 ms latency**   → **Wire**

Helix Use Case #4

DJ with Headphones

Helix

Dani Transmitter

Aquarius Speaker

L

Aquarius Speaker

R

Streetheart Receiver

Powered Subwoofer

Powered Subwoofer
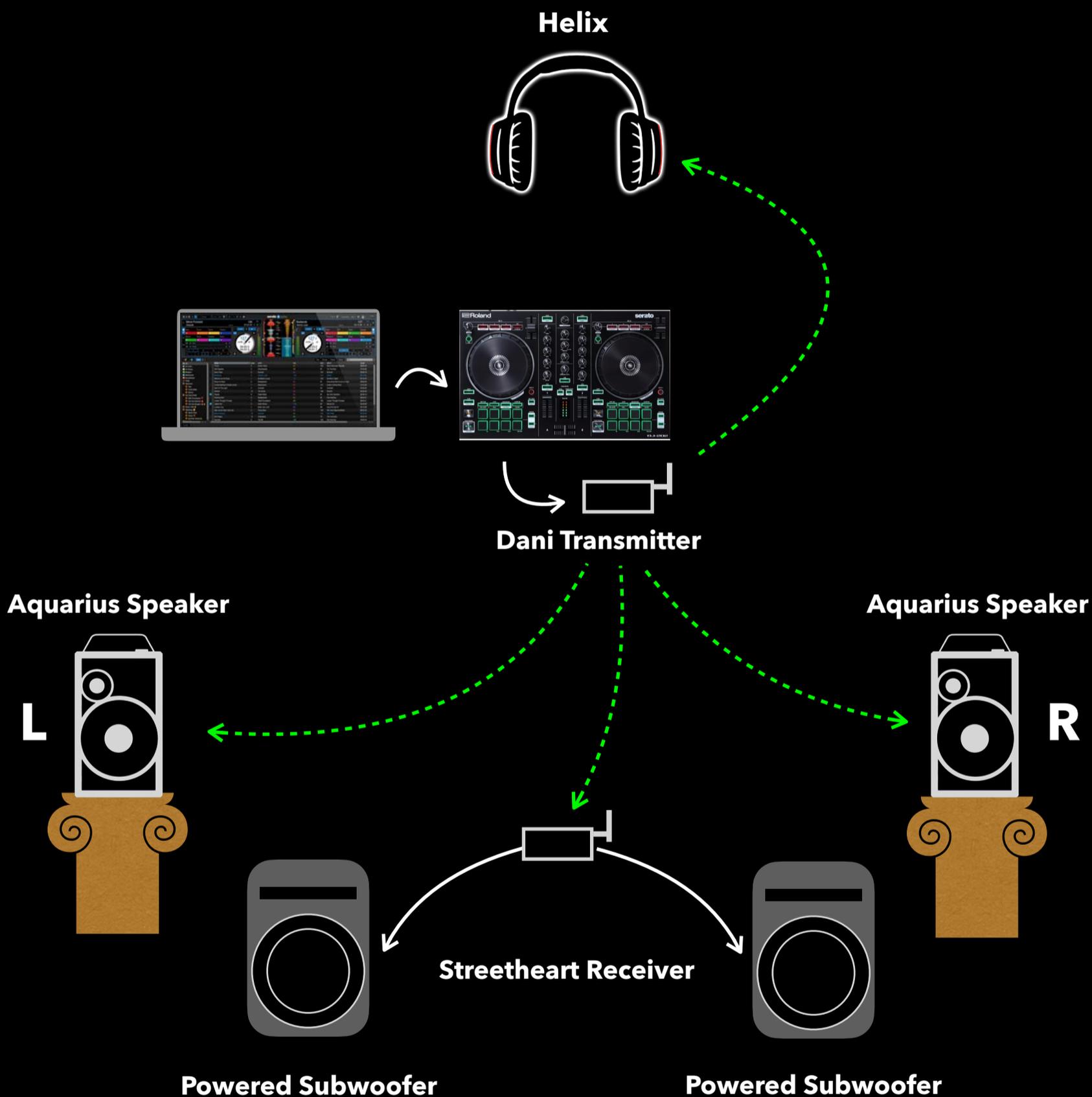
Check out these other awesome products at www.skaastore.com

Legend: - - - → SKAA - 36 ms latency   - - - → SKAA Pro - 19 ms latency   ⌒→ Wire

Helix Use Case #5

Computer with Helix
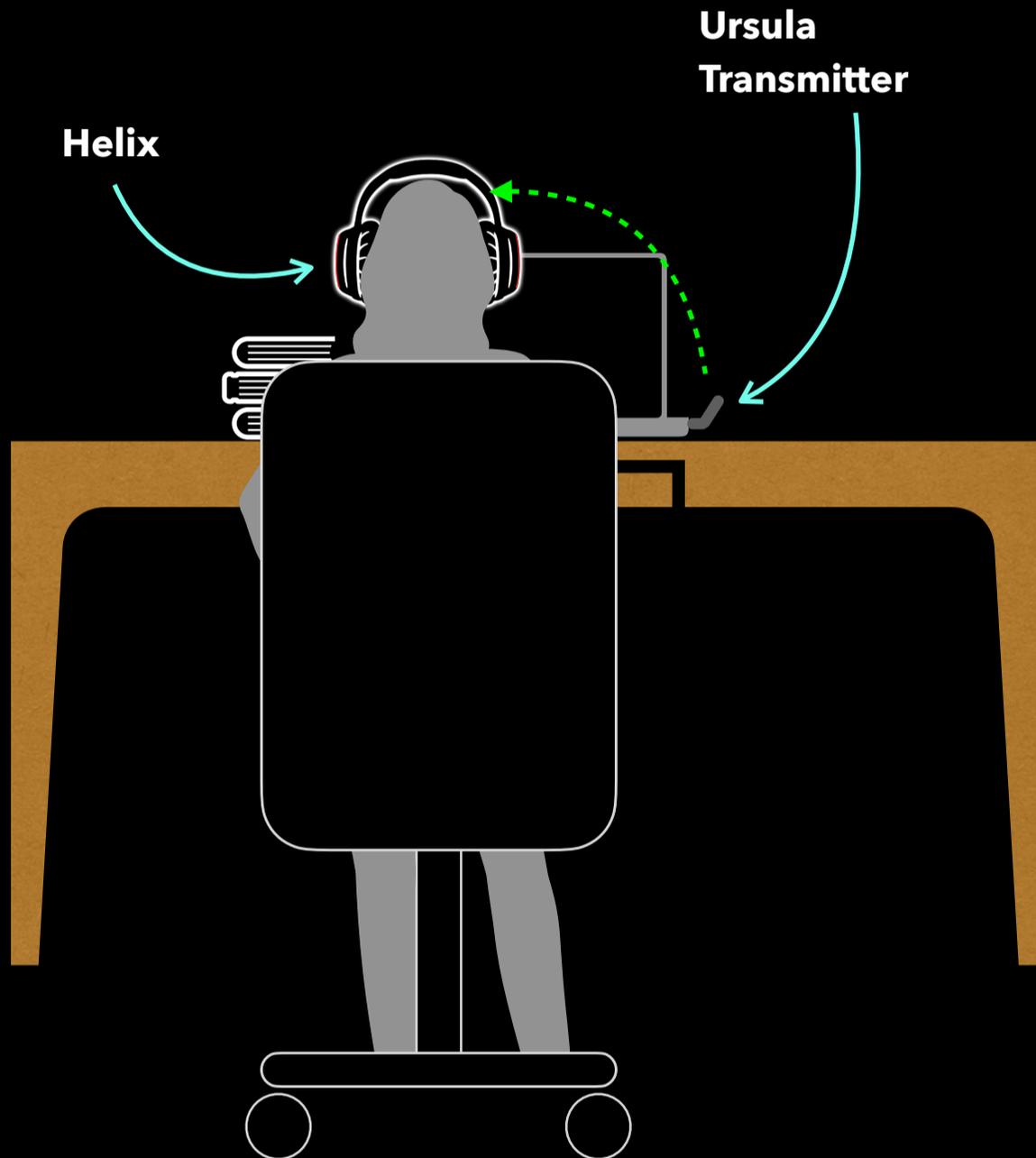
SKAA
compatible

Ursula
Transmitter

Helix

Helix Use Case #6

Gaming

SKAA
compatible

Ursula Transmitter

Television

Game Console*

Helix

Helix
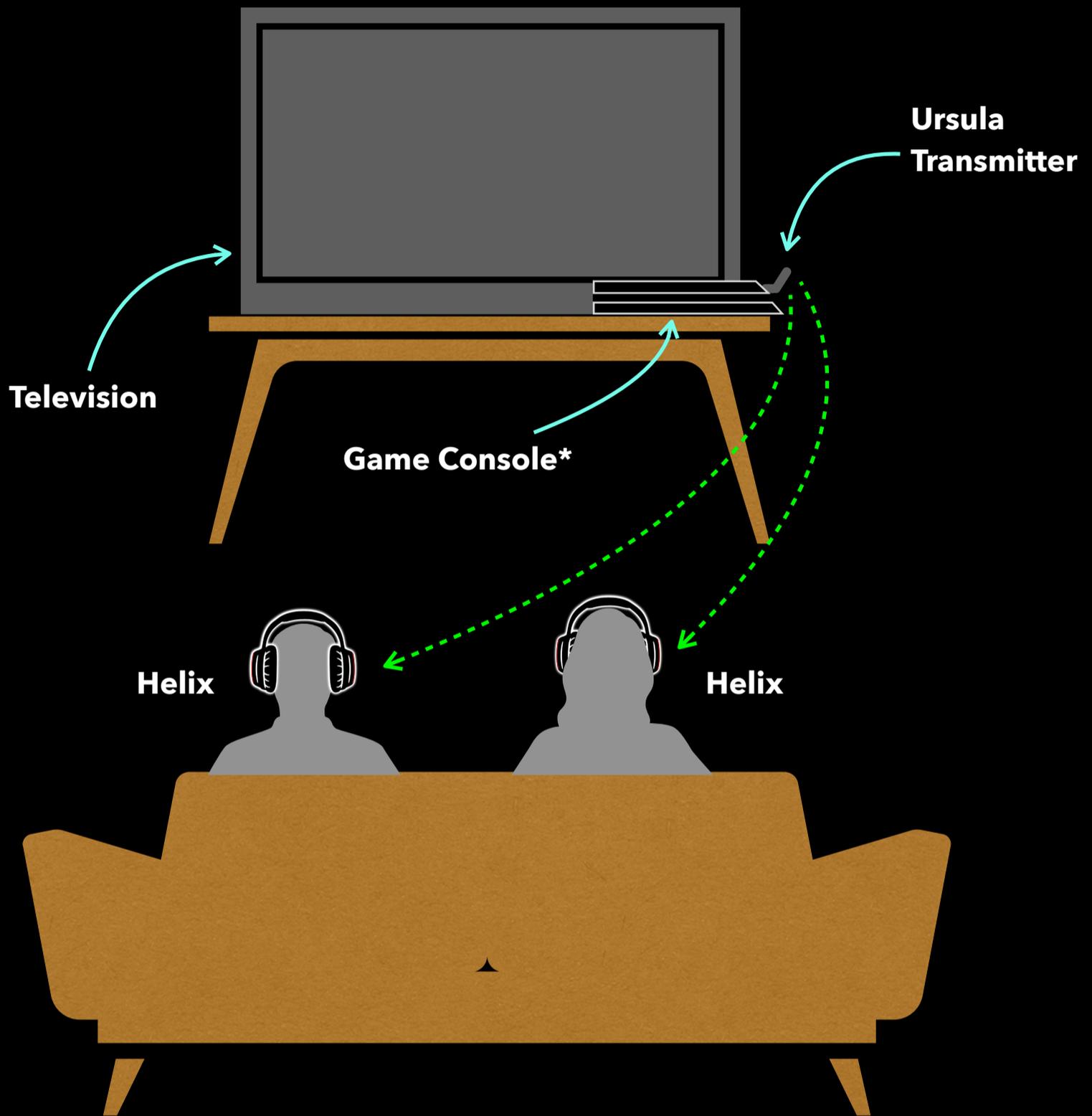
*Check your game console manual to see if it supports USB audio
At the time of writing, the following SKAA Transmitters are console compatible

SKAA Transmitter Compatibility	Cassandra (USB-C)	Ursula (USB-A)	Akiko (3.5mm)	Talisa (SPDIF)
Nintendo Switch	No	Dock	Handheld	No
Playstation 4	No	Yes	No	Yes
Playstation 5	Console	Yes	No	No
Steam Deck	Yes	No	Yes	No
Xbox One X/S	No	No	No	Yes

Legend: SKAA - 36 ms latency   SKAA Pro - 19 ms latency   Wire

Helix Use Case #7

Watching movies
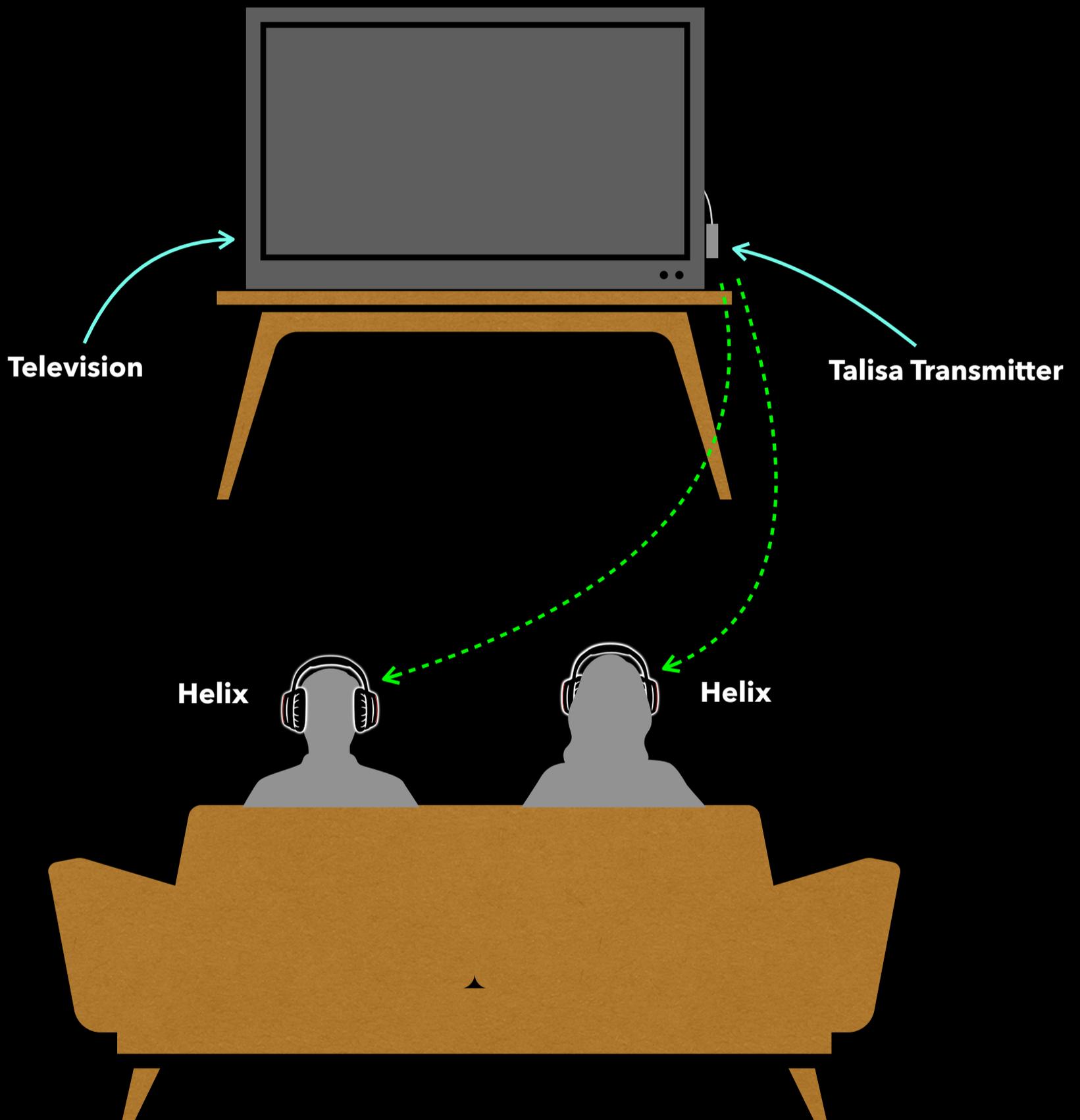
Television

Talisa Transmitter

Helix

Helix

Legend:

SKAA - 36 ms latency

SKAA Pro - 19 ms latency

Wire

Using Dani in split channel mode

SKAA compatible

*L

XLR

main out (set to mono in deck)

cable XLR-F to ¼" TRS

TRS

Dani

1 = FOH

2 = CUE

TS

TRS

headphone out (set to mono in deck)

Helix

stereo to L & R splitter cable

Leave one end unconnected

*R   *R
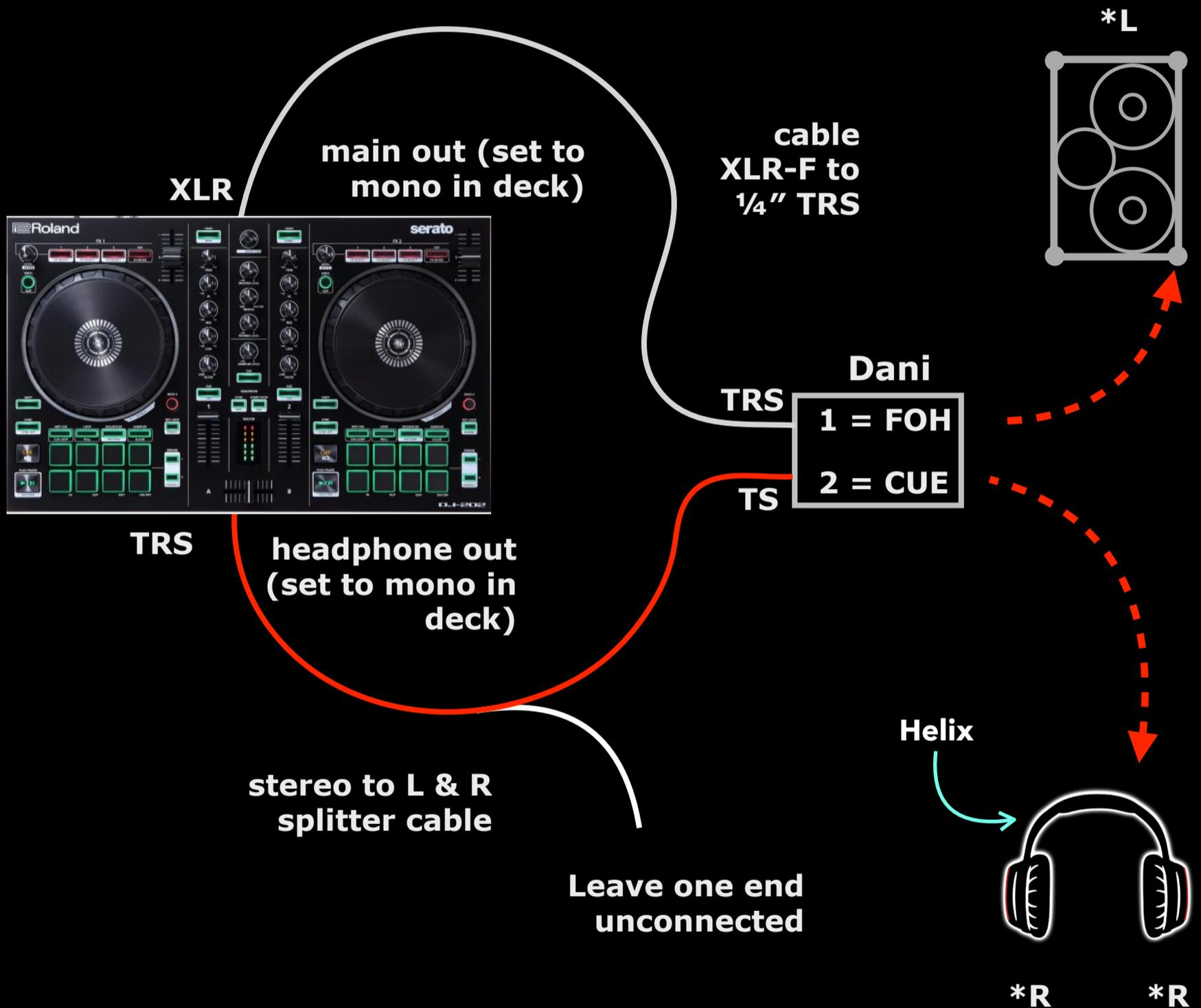
*   channel routing in receiver set using SKAA cmd app

Legend: - - - → SKAA - 36 ms latency   - - - → SKAA Pro - 19 ms latency   ⌒→ Wire

Helix Use Case #9

Using Dani in split channel mode

SKAA compatible

XLR

main out (set to mono in deck)

cable XLR-F to ¼" TRS

*L   *L

Dani

TRS

1 = FOH

2 = CUE

TS

TRS   **headphone out (set to mono in deck)**

Helix

stereo to L & R splitter cable

one end unconnected

*R   *R   *R   *R

Helix

*   channel routing in receiver set using SKAA cmd app

Legend: ⟶ **SKAA - 36 ms latency**   ⟶ **SKAA Pro - 19 ms latency**   ⟶ **Wire**