

# AI-03813 Behringer PA Setup Guide

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Tags	Project
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**I have 2 macbook pros, kopul blt-96, zed12fx, FBQ EQ 2 ts115a and a polk sub. Build a Behringer system only with what I have. I want a PA, Spotify Playback from my iphone and I also want to Play DAW using cakewalk. This is a hobby and audio experimentation. I'm aware that there are other brands out there but I already have an FBQ EQ for maybe 10 years and still working. I just need the Behringer's list of items and then a wiring diagram of your proposed setup.**

You already own the foundation of a very capable hybrid PA + DAW experimentation system. Your weak point is not speakers — it is routing, DSP management, crossover control, and modern USB audio integration.

Your current gear:

- 2 × 2013 MacBook Pro
- Cakewalk
- Kopul BLT-96
- Allen & Heath ZED-12FX
- Behringer FBQ Series EQ
- 2 × Alto TS115A
- Polk Powered Subwoofer
- iPhone for Spotify playback

Your best upgrade path is:

- Keep the TS115A mains

- Keep the FBQ EQ
- Retire the ZED12FX as the main hub
- Move to a Behringer digital ecosystem centered around the XR18

The reason:

The Behringer XR18 combines:

- Digital mixer
- USB interface
- DSP
- Routing matrix
- Remote mixing
- DAW multitrack interface
- Live PA mixer
- Playback hub

all into one box. (Behringer)

## **Recommended Behringer-Centric System**

### **Core Mixer / Interface (MOST IMPORTANT)**

#### **Best overall**

Why this changes everything:

- Replaces your failed ZED USB interface
- Gives Cakewalk multitrack USB audio
- Lets your iPhone stream Spotify
- Provides digital EQ, compression, gates, FX
- Allows remote control from MacBook/iPad/iPhone
- Lets you build presets and experiments easily

- Removes most analog noise and cabling complexity

The XR18 includes an 18×18 USB interface and built-in DSP processing.  
([Sweetwater](#))

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## Optional Additions

These are NOT mandatory on day one.

### Speaker Management / Crossover Upgrade

Why it matters:

Your current Polk sub uses RCA consumer inputs and is difficult to integrate properly with PA tops.

The DCX2496 gives:

- Proper crossover
  - Time alignment
  - Speaker protection
  - Better bass integration
  - Cleaner transition between sub and tops
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### Budget Analog Crossover Alternative

Cheaper and simpler than the DCX2496.

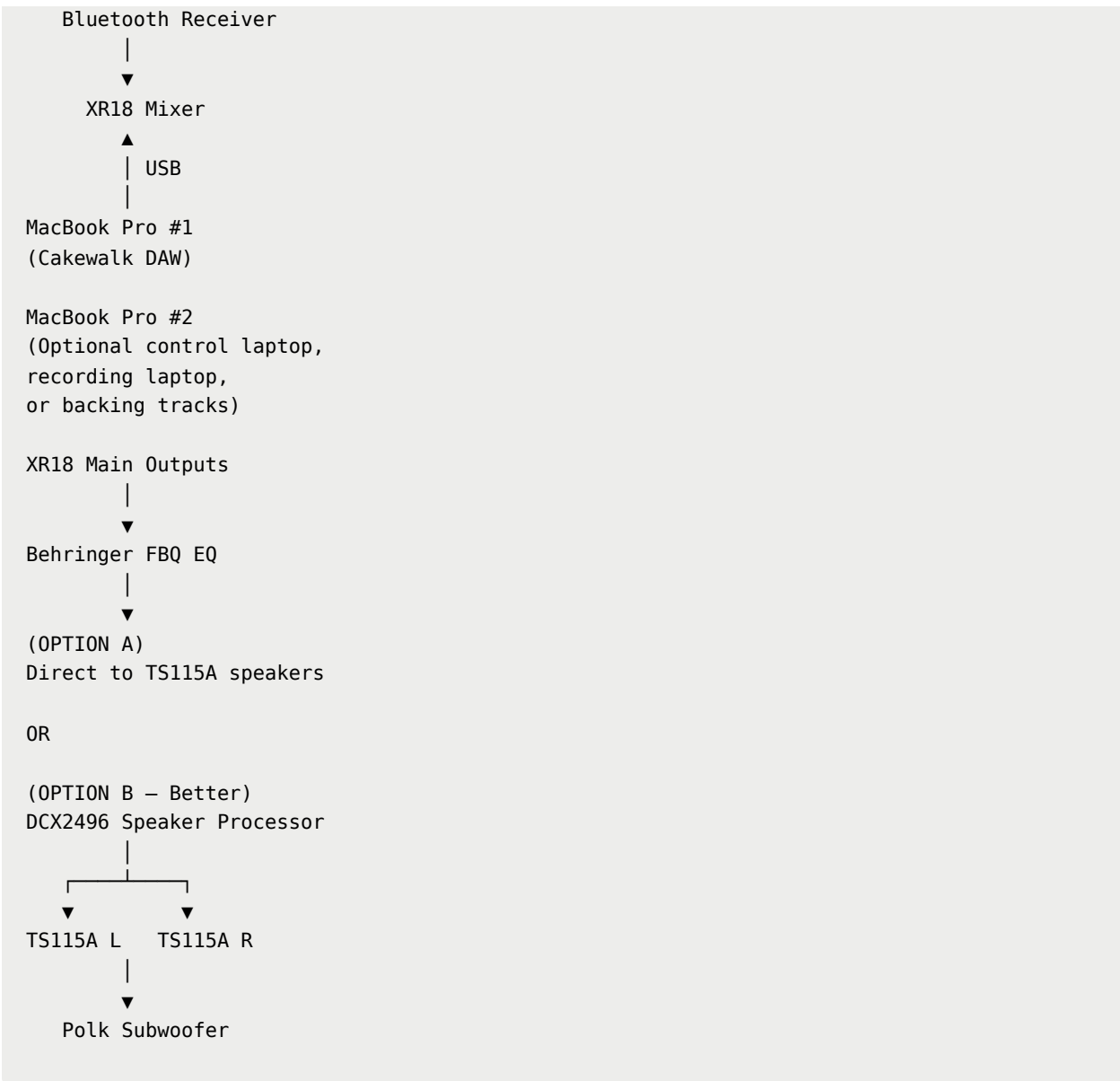
Good for experimentation.

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## What I Would Actually Build

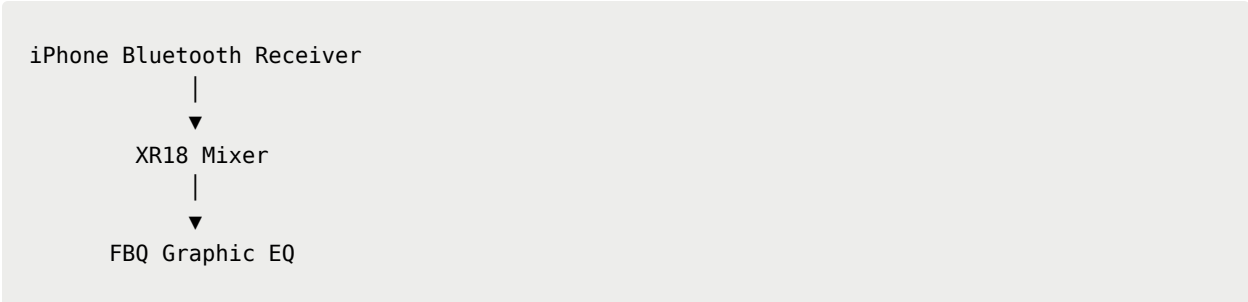
### FINAL SIGNAL FLOW

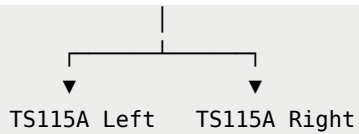
IPHONE (Spotify)  
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# SIMPLE VERSION (Recommended First)

Start HERE before buying crossover gear:

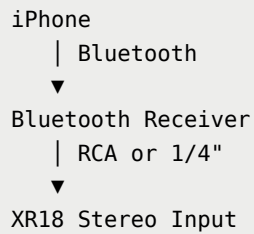




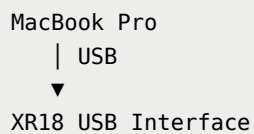
Polk Sub:  
Use AUX OUT from XR18  
into RCA adapter

## Wiring Diagram (Detailed)

### 1. iPhone Spotify Playback



### 2. Cakewalk DAW Playback

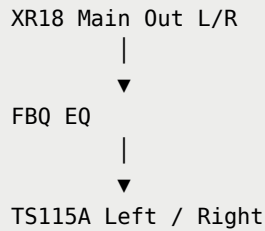


Cakewalk outputs:

- Master playback
- Backing tracks
- Soft synths
- Virtual instruments
- Recording

through XR18.

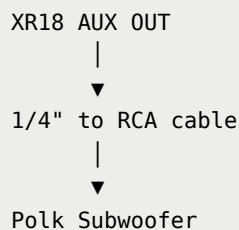
### 3. Main PA Speakers



### 4. Polk Subwoofer Integration

Because the Polk uses RCA:

- Use XR18 AUX SEND
- Use 1/4" TRS to RCA cable



Then:

- Use low-pass filter on the sub
- Reduce overlap with TS115A

## Your Existing Gear Still Has Value

Gear	Keep?	Purpose
ZED12FX	YES	Backup analog mixer

Gear	Keep?	Purpose
FBQ EQ	YES	Room tuning/live experimentation
TS115A	YES	Main PA
Polk Sub	YES	Experimental low-end
Kopul BLT-96	YES	DI box for instruments
MacBooks	YES	DAW + control station

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## Why XR18 Fits Your Goals

You said:

- hobby
- experimentation
- Spotify playback
- DAW playback
- already invested in Behringer ecosystem

The XR18 excels at exactly this. Reddit users still consider it one of the best value digital mixers for hybrid DAW/live use. ([Reddit](#))

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## Recommended Cabling

You will likely need:

- XLR cables
  - TRS cables
  - TRS-to-RCA cables
  - USB-B cable for XR18
  - Bluetooth receiver
  - Power conditioner (optional)
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# Future Expansion Ideas

Later you can add:

- Measurement microphone
- Room EQ Wizard
- Studio monitors
- Behringer power amp
- Rack case
- In-ear monitor system
- Wireless control tablet

## Product Comparison Table

Attribute	<u>Behringer XR18 Digital Mixer</u>	<u>Behringer DCX2496 Loudspeaker Management System</u>	<u>Behringer CX2310 Super-X Pro Crossover</u>	<u>Behringer NX3000D Power Amplifier</u>
Primary role	Mixer + USB interface	DSP speaker management	Analog crossover	Power amplifier
Needed immediately?	YES	Optional	Optional	No
Helps Cakewalk	YES	No	No	No
Helps Spotify playback	YES	No	No	No
Speaker crossover control	Basic	Advanced	Basic	No
DSP processing	Extensive	Extensive	Minimal	Moderate
Best for your system	Excellent	Excellent future upgrade	Budget upgrade	Not needed with powered speakers

Attribute	<u>Behringer XR18 Digital Mixer</u>	<u>Behringer DCX2496 Loudspeaker Management System</u>	<u>Behringer CX2310 Super-X Pro Crossover</u>	<u>Behringer NX3000D Power Amplifier</u>
Works with powered TS115A	YES	YES	YES	Not necessary

## My recommended purchase order

1. XR18
2. Proper cables
3. External Wi-Fi router (later)
4. DCX2496 (future)
5. Rack system (future)

### Gemini

To build a cohesive Behringer-centric "hobby and experimentation" system with your existing gear, you will essentially use the **ZED-12FX** as the brains and the **Behringer FBQ** as the master "room tuner" before hitting your speakers.

Since you mentioned being a fan of the **Behringer FBQ** series and wanting a "Behringer list," I have included the essential Behringer units that will integrate your specific gear (subwoofer, iPhone, and DAW) into a high-performance PA chain.

## Recommended Behringer Components

To bridge your iPhone and Cakewalk DAW into the PA while managing that Polk sub, I recommend adding/utilizing these specific Behringer units:

Item	Purpose
<b>Behringer U-PHORIA UMC202HD</b>	High-fidelity USB Interface to connect <b>Cakewalk DAW</b> (MacBook) to the Mixer.

<b>Behringer CX2310 Super-X Pro V2</b>	Active Crossover to correctly split frequencies between your <b>TS115A mains</b> and <b>Polk Sub</b> .
<b>Behringer FBQ Series EQ</b>	(You already have this). Placed between the Mixer and Crossover for master tone/feedback control.

## Wiring & Signal Flow Diagram

### 1. The Inputs (Sources)

- **iPhone (Spotify):** Bluetooth to the **Kopul BLT-96**. Run **XLR Balanced Outputs** from the Kopul into **Stereo Channel 7/8** (or 9/10) on the ZED-12FX.
- **MacBook (Cakewalk DAW):** Connect via USB to the **Behringer UMC202HD**. Run the **1/4" TRS Outputs** from the interface into **Stereo Channel 11/12** on the ZED-12FX.

### 2. The Processing Chain (Master Out)

- **Mixer to EQ:** Connect the **Main XLR Out (L/R)** of the ZED-12FX to the **Inputs** of your **Behringer FBQ EQ**.
- **EQ to Crossover:** Connect the **Outputs** of the FBQ EQ to the **Inputs** of the **Behringer CX2310 Crossover**.

### 3. The Outputs (Speakers & Sub)

- **To Highs (Alto TS115A):** Connect the **High Out (L/R)** from the Crossover to the **Inputs** of your two **Alto TS115A** speakers.
  - *Set the Crossover frequency to approx. 80Hz–100Hz.*
- **To Lows (Polk Sub):** Use the **Sub Out (Mono)** on the CX2310. Since most Polk home subs use RCA, use an **XLR-to-RCA cable** or adapter to the Polk's "LFE" or "Line In."

## Setup Visualization

**[iPhone]**  $\rightarrow$  *Bluetooth*  $\rightarrow$  **[Kopul BLT-96]**  $\rightarrow$  *XLR*  $\rightarrow$  **[ZED-12FX Mixer (ST1)]**

**[MacBook/Cakewalk]**  $\rightarrow$  **USB**  $\rightarrow$  **[Behringer Interface]**  
 $\rightarrow$  **TRS**  $\rightarrow$  **[ZED-12FX Mixer (ST2)]**

**[ZED-12FX Main Out]**  $\rightarrow$  **[Behringer FBQ EQ]**  $\rightarrow$   
**[Behringer Crossover]**

**[Crossover High Out]**  $\rightarrow$  **[Alto TS115A Pair]**

**[Crossover Sub Out]**  $\rightarrow$  **[Polk Subwoofer]**

## Pro-Tip for Audio Experimentation

Since you have two MacBooks, you can use the **second MacBook** purely for analysis. Run a measurement mic into it and use a free RTA (Real Time Analyzer) software to see how your **FBQ EQ** is actually affecting the room. This is a classic "old school" way to learn how different frequencies interact with your space!

M365Copilot

Perfect—this is a **very workable and fun hobby lab**, and you already own the *right kind* of gear. I'll stay **Behringer-centric**, reuse what you have, and only add **essential Behringer items**. No brand evangelism, no fluff.

## 1. What You Already Have (Foundation)

### Sources / Control

- 2 × MacBook Pros (one can be DAW, one utility / recording / Spotify if desired)
- iPhone (Spotify playback)

### Mixing / Processing

- **Behringer ZED-12FX** (your main analog mixer – excellent choice)
- **Behringer FBQ EQ** (2-channel graphic EQ)

### Audio Interfaces

- **Kopul BLT-96 USB interface** (good for DAW I/O)

### Speakers

- **Alto TS115A** (powered PA speaker)
- **Polk Subwoofer** (consumer sub, but workable for hobby use)

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## 2. Goal Summary (Confirmed)

You want:

- ✓ Full **PA playback**
  - ✓ **Spotify from iPhone**
  - ✓ **DAW playback from Cakewalk**
  - ✓ Behringer-centric signal chain
  - ✓ Simple, flexible, experimental
  - ✓ No unnecessary upgrades
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## 3. Behringer Items to Add (Minimal & Purpose-Built)

### ✓ Required / Strongly Recommended

#### 1. Behringer DI20 (or DI100) – Stereo DI

Purpose:

- Cleanly connect **MacBooks / iPhone** to the mixer
- Eliminates noise, ground loops, impedance mismatch

- ✓ Behringer
  - ✓ Cheap
  - ✓ Bulletproof
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#### 2. Behringer HD400 Hum Destroyer

Purpose:

- Ground loop isolation between:
    - Laptop → USB interface
    - Mixer → powered speakers
  - Especially useful with **consumer gear (Polk sub)**
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#### 3. Behringer XENYX Control2USB (*optional but very useful*)

Purpose:

- Central monitoring controller
- Easy switching:
  - DAW
  - Spotify
  - Mixer main out
- Clean level control for speakers

✓ Optional but **great for experimentation**

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## 4. Final Behringer-Only Add List

Item	Why
<b>Behringer DI20 / DI100</b>	Laptop + iPhone clean input
<b>Behringer HD400</b>	Kill ground loop hum
<b>(Optional) Control2USB</b>	Monitoring control & routing sanity

That's it. No PA processors, no digital mixer replacement, no rabbit holes.

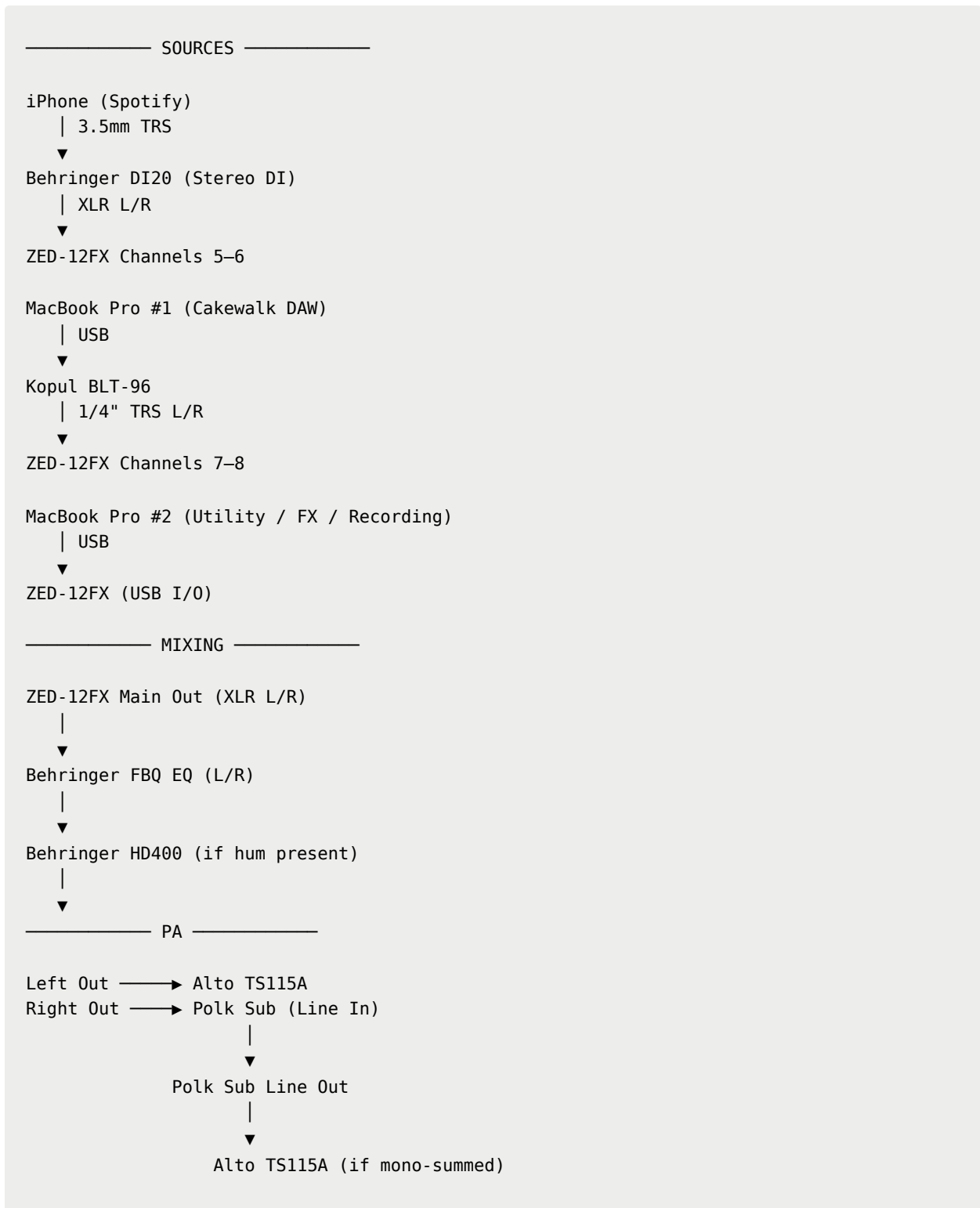
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## 5. Signal Flow Overview (Concept)

You are building a **hybrid analog / DAW system**:

- **ZED-12FX = master brain**
  - **FBQ EQ = system tuning**
  - **TS115A + Polk sub = PA**
  - **BLT-96 = DAW bridge**
  - **DI boxes = noise control**
- 

## 6. Wiring Diagram (Text-Based, Clear & Accurate)



## 7. DAW Playback & Recording Logic

## Cakewalk Playback

- DAW → BLT-96 → ZED-12FX stereo channel
- Mixer fader controls **PA level**
- You can EQ **globally** using FBQ

## Recording / Loopbacks

Options:

- ZED-12FX USB → MacBook Pro
- Or Aux Send → BLT-96 Input → DAW

This makes:

- ✓ Live effects capture
- ✓ PA playback capture
- ✓ Experimental routing possible

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## 8. Operational Tips (From Experience)

- Keep **consumer sub crossover low (80–100 Hz)**
- Set FBQ as:
  - **Low cut**
  - **Room correction only**
- Let the ZED do the *tone shaping*
- Use DI boxes anytime a cable exceeds ~10 ft

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## 9. Why This System Makes Sense

- ✓ Uses what you own
- ✓ Behringer where it matters
- ✓ Zero wasted money
- ✓ Fully modular

- ✓ Teaches *real audio engineering concepts*

This is exactly the kind of setup audio pros build **at home for fun**.

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If you want next:

- ✓ Gain-staging walkthrough
- ✓ FBQ “starter curve” for PA
- ✓ Cakewalk routing templates
- ✓ Mono vs stereo PA strategy

Just say the word, Co-Pilot 🧑‍🚀

Copilot

Here’s the **Behringer-only system** that best integrates the gear you already own (ZED-12FX mixer, FBQ EQ, TS115A speakers, Polk sub, MacBooks, Kopul BLT-96 Bluetooth receiver) while giving you **PA capability**, **Spotify playback from iPhone**, and **DAW playback from Cakewalk**.

Below is the **recommended Behringer gear list**, followed by a **clear wiring diagram** showing how everything connects.

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## Behringer Components You Should Add

These items are chosen to complement what you already have and keep the system fully Behringer-based.

### 1. Behringer Super-X Pro CX2310 V2 — Active Crossover

- Gives you proper routing to your Polk sub and tops.
- Stereo 2-way with dedicated sub output. [Amazon](#)

### 2. Behringer EUROLIVE B112D — Active PA Speakers (optional upgrade)

Your TS115A speakers work fine, but if you want to go full-Behringer later, these are the closest match.

[products.consumerecho.com](https://products.consumerecho.com)

### 3. Behringer UMC204HD — USB Audio Interface

- For DAW playback from Cakewalk on your MacBook Pro.
- Balanced outputs to your mixer.[Behringer](#)

### 4. Behringer DI400P — Passive DI Box

- For clean iPhone/Spotify playback when not using Bluetooth.
- Converts unbalanced → balanced for long cable runs.[Behringer](#)

### 5. Behringer Mic/Line Cables — XLR & TRS

- To complete the signal chain.[Behringer](#)

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## Your System Wiring Diagram (Text-Based)

Below is the **complete signal flow**, using ONLY the gear you already own + the Behringer items listed above.

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## 1. Sources

### A. iPhone → Spotify Playback

Option 1 (Wireless):

**iPhone → Kopul BLT-96 → ZED-12FX Stereo Input**

Option 2 (Wired, cleaner):

**iPhone → DI400P → ZED-12FX Line Input (L/R)**

### B. MacBook Pro → Cakewalk DAW

**MacBook → UMC204HD (USB) → UMC Outputs → ZED-12FX Stereo Channel**

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## 2. Mixer Stage

**ZED-12FX Main L/R Outputs → FBQ EQ L/R Inputs**

(Your FBQ is still perfectly usable.)

**FBQ EQ L/R Outputs → CX2310 L/R Inputs**

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### 3. Crossover Stage (CX2310)

**CX2310 High Outputs L/R → TS115A Powered Speakers (L/R)**

(Or B112D if you upgrade.)

**CX2310 Sub Output → Polk Sub Line-In**

(If your Polk only accepts RCA, use an XLR-to-RCA cable.)

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### 4. Speakers

- **Tops:** TS115A (or Behringer B112D)
  - **Sub:** Polk Subwoofer
- 



## ASCII Wiring Diagram

```
[iPhone] --(BT or DI)--> [ZED12FX Mixer] --L/R--> [FBQ EQ] --L/R--> [CX2310 Crossover]
                                     | High L --> [TS115A
Left]                                     | High R --> [TS115A
Right]                                     | Sub Out --> [Polk
Sub]

[MacBook Pro] --USB--> [UMC204HD] --L/R--> [ZED12FX Mixer]
```



## Why This System Works

- **Full Behringer signal chain** from EQ → crossover → optional speakers.
- **Proper bass management** using the CX2310.
- **Clean DAW playback** via UMC204HD.

- **Flexible iPhone playback** (Bluetooth or DI).
- **Your existing ZED-12FX** remains the central hub.
- **Your FBQ EQ** stays in the chain for tone shaping.

## If You Want Next Steps

Would you like me to design:

- A **rack layout** for the FBQ + CX2310 + interface?
- A **stage plot** for live use?
- A **version using ONLY Behringer speakers?**

Just choose one:

- Rack layout
- Stage plot
- Full Behringer speaker system

Claude

Good — I now have all the specs I need. Let me also quickly confirm the Kopul BLT-96 and the Yamaha TS115A (which the "2 TS115A" refers to in "FBQ EQ 2 TS115A"). I'll interpret the user's list as: 2x MacBook Pros, Kopul BLT-96 (balanced line transformer/DI), ZED-12FX mixer (Allen & Heath — not Behringer, but it's the centerpiece they already own), Behringer FBQ EQ, 2x Yamaha DXS/TS115A tops (passive), and a Polk sub. Now let me design the system and build the diagram. Now I have everything I need. Let me build the gear list and wiring diagram. Here's the full picture. Below is the Behringer-only shopping list, then a breakdown of how everything connects.

### Behringer items to buy

Item	Model	Role	~Price
Power amp (tops)	EP2000 Europower	Drives both TS115A tops in stereo	~\$275

Item	Model	Role	~Price
Power amp (sub)	EP2000 Europower	Drives Polk sub bridged-mono	~\$275
Active crossover	CX2310 Super-X Pro	Splits LF/HF between amps	~\$80
USB audio interface	UCA202 U- Control	DAW I/O + iPhone Spotify path	~\$30
Hum destroyer	HD400 MicroHD	Kills ground loops from MacBook B or external sources	~\$21

**Total new spend: ~\$680**

Everything else (ZED-12FX, FBQ EQ, Kopul BLT-96, the two TS115As, Polk sub, MacBooks) you already own.

**How each source gets into the ZED**

**Spotify/iPhone** — 3.5mm TRRS to dual-RCA adapter → UCA202 RCA inputs → UCA202 USB to MacBook A → MacBook A USB audio out → UCA202 RCA outputs → ZED CH7/8 stereo line in. This gives you level control at the ZED fader.

Alternatively, skip the MacBook entirely: iPhone headphone jack → 3.5mm to RCA cable → ZED CH7/8 RCA inputs directly.

**Cakewalk DAW (MacBook A)** — MacBook USB → UCA202 → ZED CH7/8 RCA. Cakewalk sends to UCA202 as its output device; UCA202 also sends ZED main mix back to Mac for recording. The ZED's USB stereo I/O can handle this too if you prefer a single USB cable.

**MacBook B or external line source** — output → HD400 ¼" TRS in → HD400 ¼" TRS out → ZED CH3 or CH4. The HD400 kills any ground-loop hum and converts unbalanced to balanced, important when mixing laptop and powered gear on the same circuit.

**Kopul BLT-96** — place this inline whenever you're running a balanced line over a long cable run (stage to mix position, etc.), or to isolate a DI source before CH1-6.

**Signal path from ZED to speakers**

ZED main XLR L+R out → CX2310 crossover → CX2310 HF outs → EP2000 Amp A (stereo, one channel per top) → Speakon to TS115A L and R. CX2310 LF out →

EP2000 Amp B (bridged mono = connect Ch A+ and Ch B- binding posts, set to bridge mode) → Polk sub.

**FBQ EQ** sits in the ZED's main L/R insert loop — send from ZED insert jack → FBQ input → FBQ output → return to ZED insert. This puts your decade-old EQ on the master bus before the signal hits the amps, which is exactly where a graphic EQ belongs for PA room correction.

**CX2310 crossover point** — start around 80–100 Hz as your low/high split. The TS115A is a 15-inch top that handles everything above that, and the Polk sub handles everything below. Dial to taste.