OUTLAW AUDIO

The Outlaws' Guide to the WiiM Ultra + Model 2220

WiiM Ultra — Hi-Res Streaming Preamplifier · 3.5" Touchscreen · ESS Sabre ES9038Q2M DAC

Outlaw Audio Model 2220 — 200W Monoblock Power Amplifier (×2) · 200W / 8Ω · 300W / 4Ω

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How To Use This Guide

Thank you for pairing the WiiM Ultra with Outlaw Audio's Model 2220 monoblock amplifiers. This is a high-performance, no-compromise approach to stereo: a dedicated class-AB monoblock on each speaker channel, driven by one of the most capable streaming preamps available at any price.

What This Guide Won't Do

Details not reproduced here include network setup beyond basic app configuration, advanced WiiM app features, and full product specifications. Refer to the original manuals for those.

What This Guide Will Do

This guide walks you through — clearly and completely — how to physically connect, configure, and verify a stereo monoblock system built around the WiiM Ultra and two Model 2220 amplifiers.

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System Overview: One WiiM Ultra drives two Outlaw Audio Model 2220 Monoblock amplifiers — Amp 1 for the left channel, Amp 2 for the right. The WiiM Ultra's RCA Line Out feeds each amplifier. A 12V trigger chain powers both amplifiers on and off automatically. All volume control is handled by the WiiM Ultra.

STEP 1

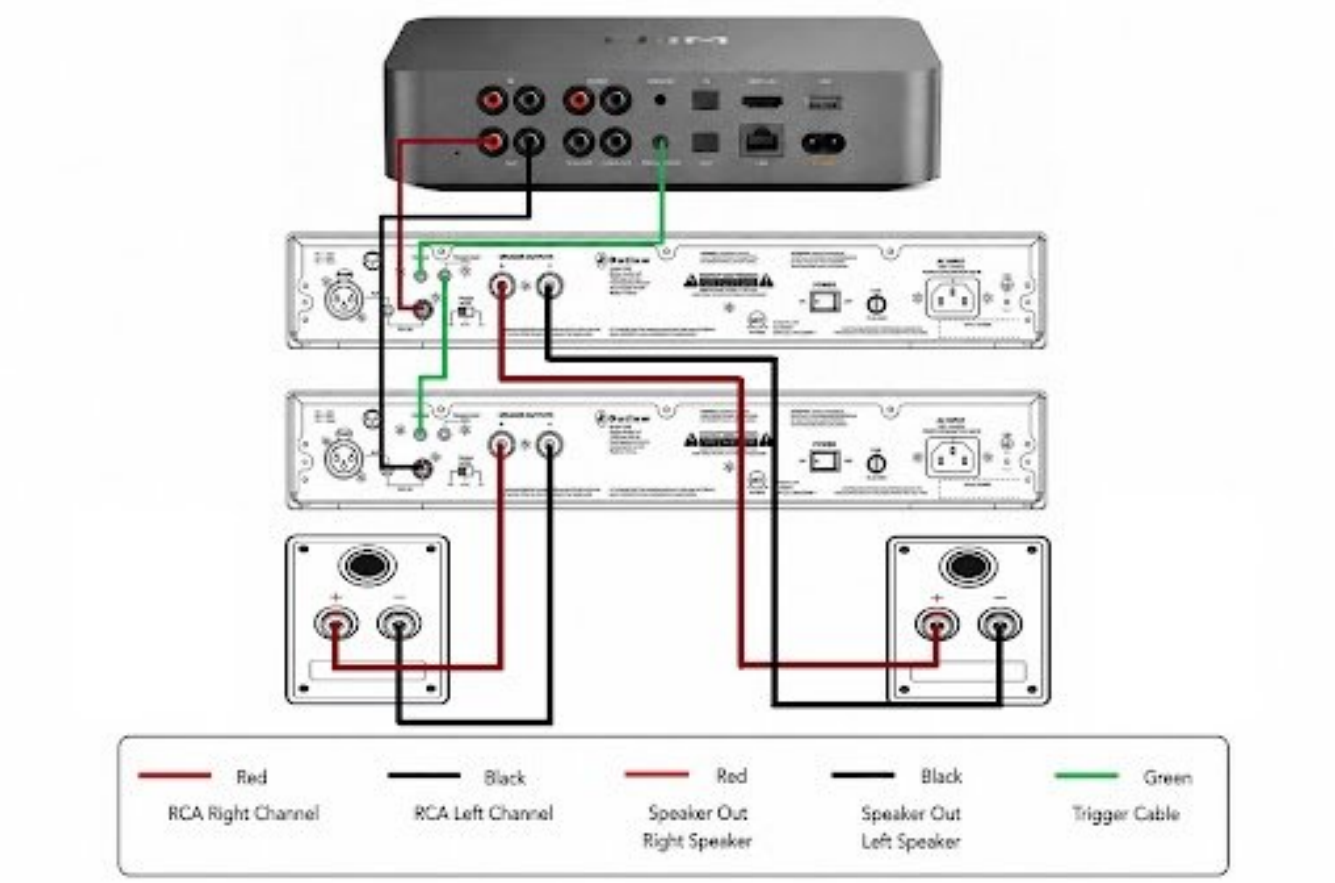
Gather Your Cables and Equipment

Confirm you have all of the following on hand before you begin.

Equipment / Cable	Qty	Notes
WiiM Ultra streaming preamplifier	1	
Outlaw Audio Model 2220 monoblock amplifier	2	One per channel
RCA stereo cable	1	Included with WiiM Ultra. Red = right, white = left
3.5mm mono mini-plug cable	2	2 included in box with WiiM. One from WiiM to Right Amp, one from Right Amp to Left Amp.
Speaker wire (16 AWG minimum)	2 runs	14 AWG or heavier for runs over 10 ft
IEC power cord	2	Supplied with each Model 2220
AC power adapter	1	Supplied with WiiM Ultra

NOTE Use the supplied 3.5mm *mono* mini-plug cables as stereo connectors may not function properly.

CAUTION Always make all source, trigger and speaker connections first, before connecting the AC power cords to avoid any damage to equipment and speakers.



STEP 2

Make the RCA Audio Connections

The WiiM Ultra has one stereo RCA Line Out on its rear panel (top-left of the output row). Split this into two mono feeds — white plug to Amp 1 (left), red plug to Amp 2 (right).

1. Power off all equipment and unplug from AC before making any connections.
2. Locate the **LINE OUT L and R** ports on the WiiM Ultra — the two large RCA jacks at the far left of the top output row.
3. Connect the **red (right)** RCA plug to the **RCA Input** on **Model 2220 #1** — your right-channel amplifier.
4. Connect the **black (left)** plug on the WiiM to the **RCA Input** on **Model 2220 #2** — your left-channel amplifier.
5. Press each plug firmly straight in. **Never twist.** Loose RCA connections cause intermittent audio.
6. On each Model 2220 rear panel, set the **Input Switch** to **RCA**.

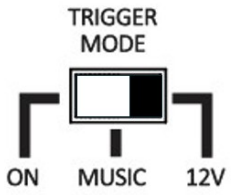
CAUTION The **Input Switch** on each Model 2220 must be set to **RCA** — not XLR. Verify this on both amplifiers.

STEP 3

Connect the 12V Trigger Cables

The 12V Trigger Out port is in the output row of the WiiM Ultra rear panel (fourth from left). The trigger chain powers both amplifiers automatically when the WiiM Ultra is active.

1. Take the **first 3.5mm mono cable**. Plug one end into the **12V Trigger Out** port on the WiiM Ultra.
2. Plug the other end into the **Remote Trigger Input** on the rear panel of **Model 2220 #1**.
3. Take the **second 3.5mm mono cable**. Plug one end into the **Remote Trigger Output** on Model 2220 #1.
4. Plug the other end into the **Remote Trigger Input** on **Model 2220 #2**. The daisy-chain is complete.
5. On both Model 2220 amplifiers, set the Trigger Mode Switch to 12V, which is the middle position for the switch.



Trigger Mode Switch — set to 12V (middle position)

NOTE The WiiM Ultra's 12V Trigger Out is rated at DC 12V / 200 mA. The Model 2220 requires only 3.6–32V DC at 5 mA. Do not daisy-chain more than three triggered units from a single source.

STEP 4

Connect the Speaker Wire

1. Before making speaker connections always make certain that the WiiM and the amplifiers are turned off and preferably have the power cords disconnected from the AC outlets.
2. When making the amplifier to speaker connections use wire that is at least 16 Gauge (AWG) or heavier for runs under 10 ft and at least 14 Gauge (AWG) or heavier for longer runs. Before making the connections check to find the markings on the cable that help you differentiate between the positive and negative sides of the cable.
3. When making the connections at both the amplifier and speaker sides be certain to check that the wire strands from the positive and negative sides do not touch each other. Using spade lugs or other connectors on the cable will help reduce unintentional short circuits that might cause damage to your amplifiers or speakers.
4. Run speaker wire from the Speaker Output terminals on Model 2220 #1, the right channel, to the Right Speaker. Make certain the connections go from the Positive (+) terminal on the amplifier to the Positive (+) terminal on the speaker and from the Negative (–) terminal on the amplifier to the Negative (–) terminal on the speaker. The Positive terminals are typically Red and the Negative terminals are typically Black but always double check for the + and – markings on the amplifier and speaker.
5. Make the same connections as shown above from the Speaker Output terminals on Model 2220 #2, the left channel, to the Left Speaker.

STEP 5

Configure Rear-Panel Switches and Power On

Before plugging in the power cords and turning the WiiM and amplifiers on verify that the rear-panel switches match the settings in the following table.

Device	Switch / Setting	Correct Position	Why
Both Model 2220 amplifiers	Input Switch	**RCA**	Using RCA cables, not XLR
Both Model 2220 amplifiers	Trigger Mode Switch	**12V**	Enables auto power-on from WiiM trigger
Both Model 2220 amplifiers	AC Power Switch (rear)	**ON**	Must be on for trigger to work
WiiM App	Audio Output	**Line Out**	Routes audio to the RCA output jacks

STEP 6

WiiM Home App Setup and First Power-On

Once all the connections have been made and switch settings verified, follow these steps.

1. Plug in both Model 2220 amplifiers and the WiiM Ultra. Turn the rear **AC Power Switch** on both amplifiers to **ON**. With Trigger Mode set to 12V, each amplifier enters standby — the front blue LED glows *dimly*.
2. Power on the WiiM Ultra. Wait for it to boot fully (LED turns solid white when connected to Wi-Fi).
3. Download the **WiiM Home app** (iOS or Android) and complete initial network setup if not already done.
4. In the WiiM Home app, open **Device Settings** for the WiiM Ultra. Under **Sound**, select **Audio Output** and confirm it is set to **Line Out**.
5. Start playing music. Both Model 2220 amplifiers should automatically power on (LED brightens to bright blue) after a brief delay.
6. All volume adjustments are made in the WiiM Home app or via the WiiM Ultra's front-panel knob. **The Model 2220 amplifiers have no volume control.**

NOTE The WiiM Ultra also supports a **fixed-level Line Out mode** that bypasses the digital volume control. For direct-to-amp configurations like this one, the default *variable* Line Out mode is correct.

About Volume Control

Because the Model 2220 is a fixed-gain monoblock, the WiiM Ultra serves as the system's volume control and preamplifier. For best signal-to-noise performance, set the WiiM volume to a moderate level (60–80%) and adjust from there.

Troubleshooting Guide

Work through this checklist in order. Most problems trace back to one of these items.

Symptom	What to Check
Model 2220 does not turn on when WiiM plays	Verify Trigger Mode Switch on each Model 2220 is set to 12V. Confirm trigger cables are fully seated at both ends. Check that the rear AC Power Switch on each Model 2220 is ON.
One speaker has no audio	Check the RCA plug for that channel is firmly connected at both ends. Confirm the Input Switch on that Model 2220 is set to RCA. Try swapping the cable.
No audio from either speaker	In the WiiM Home app, confirm Audio Output is set to Line Out. Check volume is not at zero or muted. Verify RCA connections at the WiiM Ultra LINE OUT ports.
Model 2220 front LED glows red	The amplifier has entered protection mode. Turn it off via the rear AC power switch and allow up to 30 minutes to cool. Check speaker wires for shorts.
Low-frequency hum	A ground loop is likely. Use the chassis ground post on the rear of each Model 2220 to bond it to the WiiM Ultra chassis. Keep RCA cables away from AC power cords.
Thin bass or vague stereo image	Check speaker wire polarity on both channels. One reversed connection puts the speakers out of phase. Red (+) to positive, black (–) to negative at both ends of each run.
WiiM Ultra not found in app	Confirm both devices are on the same Wi-Fi network. Restart the app. If still not found, press and hold the reset button on the WiiM Ultra rear panel for 5 seconds and re-run setup.
Trigger works for one amp but not both	Check the trigger cable from Amp 1 Trigger Out to Amp 2 Trigger In. Confirm the Trigger Mode Switch on Amp 2 is set to 12V.

NOTE For warranty service on the Model 2220 contact Outlaw Audio at **www.outlawaudio.com**. For WiiM Ultra support visit **www.wiimhome.com**.

Quick-Reference Summary

Use this page as a condensed reference once the system is installed.

Connection	From	To
RCA left channel	WiiM Ultra LINE OUT (white)	Model 2220 #1 RCA IN
RCA right channel	WiiM Ultra LINE OUT (red)	Model 2220 #2 RCA IN
12V Trigger #1	WiiM Ultra TRIG OUT	Model 2220 #1 TRIG IN
12V Trigger #2	Model 2220 #1 TRIG OUT	Model 2220 #2 TRIG IN
Speaker wire	Model 2220 #1 SPKR OUT	Left speaker
Speaker wire	Model 2220 #2 SPKR OUT	Right speaker

Switch Settings at a Glance

Device	Switch	Set To
Model 2220 #1	Input Switch	RCA
Model 2220 #1	Trigger Mode Switch	12V
Model 2220 #1	AC Power Switch (rear)	ON
Model 2220 #2	Input Switch	RCA
Model 2220 #2	Trigger Mode Switch	12V
Model 2220 #2	AC Power Switch (rear)	ON
WiiM Ultra (app)	Audio Output	Line Out

Notes

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Sources: Outlaw Audio Model 2220 Owner's Manual · WiiM Ultra User Manual v1.2.5 · For personal use only