WiiM Ultra Hi-Res Music Streamer

1. INTRODUCTION

At WiiM, our mission is to provide the simplest and most affordable Hi-Fi, lossless audio systems. Each product we design features top-tier craftsmanship and an intuitive user interface.

The WiiM Ultra, our flagship music streamer, serves as the central digital hub for your audio ecosystem. Boasting audiophile-grade components, rich audio connections, and a vibrant 3.5” full-color touchscreen, it delivers Hi-Res streaming, advanced room correction, and smart home integration. The WiiM Ultra seamlessly connects to a variety of devices, including turntables, TVs, headphones, AV receivers, subwoofers, smart speakers, wired or wireless headphone, and more, offering a comprehensive and versatile audio solution.

Equipped with the ESS Sabra ES9038 Q2M premium DAC, it delivers industry-leading low distortion and wide dynamic range, featuring a Signal-to-Noise Ratio (SNR) of 121 dB (A-wt) and a Total Harmonic Distortion plus Noise (THD+N) of -116 dB across sample rates from 44.1k to 192k, courtesy of its ultra-low noise clock and optimized power and circuit design. Additionally, it features a cutting-edge TI Burr-Brown PCM1861 ADC, which achieves a 110 dB SNR for analog-to-digital conversion, ideal for input sources like turntables, MP3 players, and TVs. The high-fidelity headphone amplifier TPA6120A2 supports a wide range of headphones.

Simply connect the WiiM Ultra to your stereo receiver, amplifier, or powered speakers, and control it using the user-friendly WiiM Home App or popular platforms like Spotify, TIDAL, Amazon Music, or any Chromecast-enabled apps. Voice control is also a breeze through compatible Echo and Google Home devices, as well as the Alexa App, and Google Home App.

Create synchronized groups with Echo, Google Home, other Alexa-compatible devices, or additional WiiM streamers or amplifiers, and stream music throughout your home or playing different tracks in separate rooms.

Elevate your audio gear with the smart capabilities of the WiiM Ultra, and enjoy unmatched convenience and fidelity.

TYPICAL USE CASES

The WiiM Ultra is designed to enhance your existing audio setup by adding wireless streaming capabilities and smart features. Here are a few common use cases for the WiiM Ultra:

I. **Upgrade your Favorite Legacy Audio Systems**: If you have a traditional stereo system or speakers that you want to integrate into your Spotify, TIDAL, local Music library, Google Chromecast, Amazon Alexa, DLNA, Roon, or LinkPlay ecosystem, the WiiM Ultra allows you to wirelessly stream music to those speakers. It bridges the gap between your older audio equipment and the modern world of streaming music.

II. **High-Quality Audio**: It supports bit-perfect, high-resolution audio formats and delivers rich, detailed sound, enhancing the listening experience of your existing audio system.

III. **Streaming Services and Music Libraries**: The WiiM Ultra allows you to access various streaming services such as Spotify, Amazon Music, or Tidal, bringing a wide range of music to your existing audio setup. You can also connect it to your personal music library stored on a computer, network-attached storage device, or USB disk for seamless playback.

IV. **Podcasts and Internet Radio:** In addition to streaming music, the WiiM Ultra provides access to a wide range of podcasts and internet radio stations. You can browse through different genres, podcasts, or specific radio stations to enjoy on your existing audio system.

V. **Multi-Room Audio:** The WiiM Ultra seamlessly integrates with other 3rd party popular smart speakers and components, or another WiiM/Linkplay device, allowing you to create a whole-home audio system with synchronized music playback in multiple rooms.

VI. **Smart Home Integration:** The WiiM Ultra supports voice control through platforms like Amazon Alexa or Google Assistant, allowing you to control your music hands-free and integrate with other smart home devices.

VII. **Vinyl or CD Integration:** If you have a turntable or CD player that you want to incorporate into your WiiM system, the WiiM Ultra can connect to the analog or digital outputs of these devices. This enables wireless audio streaming to other speakers via another WiiM compatible device, allowing you to relish the sound throughout your entire home, all in sync.

VIII. **Home Theater Integration:** The WiiM Ultra can be used as a bridge between your home theater system and the WiiM ecosystem. By connecting the Ultra to your AV receiver or soundbar, you can stream music wirelessly to your home theater

speakers and synchronize audio playback with other WiiM devices for a cohesive audio experience.

OTHER DEVICES NEEDED TO USE WIIM ULTRA

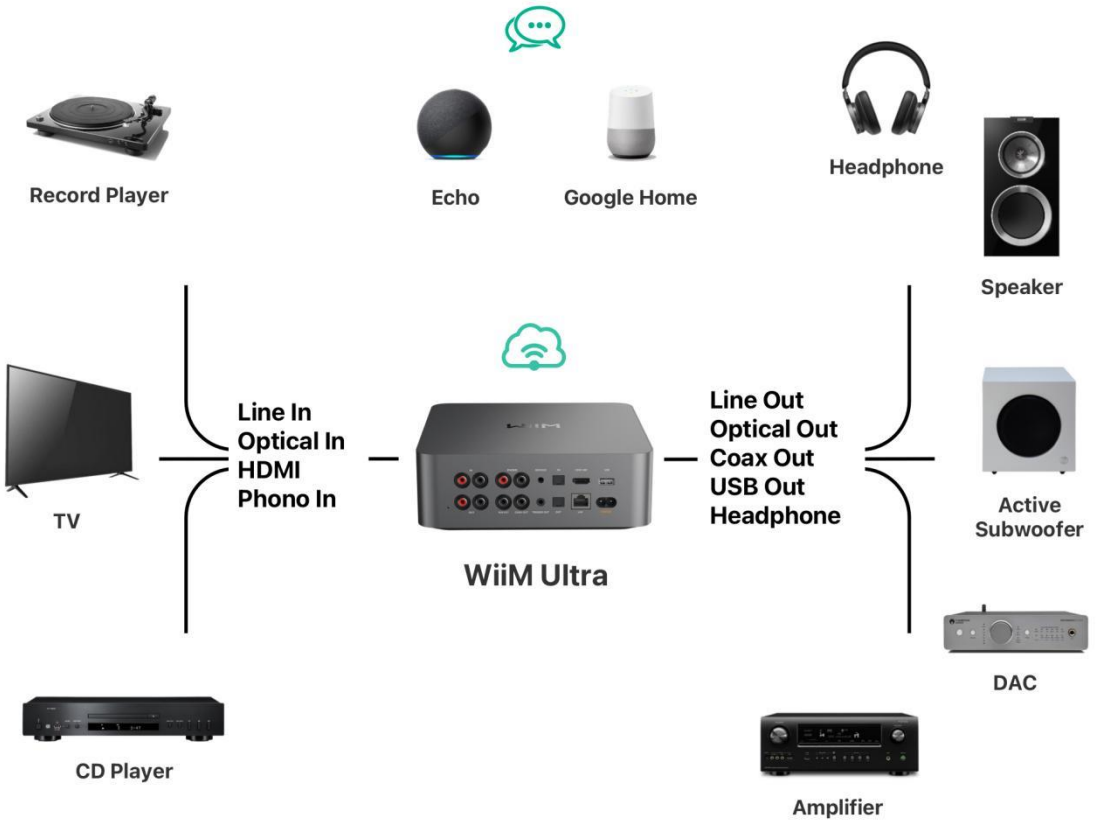
To use the WiiM Ultra, you will need a few essential devices and components. Here's a list of what you'll need:

- **Audio System:** The WiiM Ultra is designed to connect to an existing audio system. This can be a stereo system, powered speakers, passive speakers with an amplifier/receiver, or a home theater setup with an AV receiver, or soundbar. Make sure you have the appropriate audio system in place.
- **Wi-Fi Network:** The WiiM Ultra requires a stable Wi-Fi network connection to function. Ensure that you have a reliable Wi-Fi network available in the area where you plan to set up the WiiM Ultra. You'll need the Wi-Fi network credentials during the setup process.
- **Smartphone or Tablet:** You'll need a compatible smartphone or tablet (iOS or Android) with the WiiM Home app installed. The WiiM Home app is used for initial setup, configuration, and control of the WiiM Ultra.
- **Power Source:** The WiiM Ultra needs to be connected to a power source using the included power cable. Ensure that you have an electrical outlet nearby to power the device.
- **Ethernet Cable (optional):** While the WiiM Ultra primarily connects to your Wi-Fi network, it also has an Ethernet port. If you prefer a wired connection for added stability, you can use an Ethernet cable to connect the WiiM Ultra directly to your router or network switch.

These are the core components required to use the WiiM Ultra. It's important to have an audio system that you want to integrate with the Ultra, a stable Wi-Fi or wired network, and a compatible device with the WiiM Home app for setup and control.

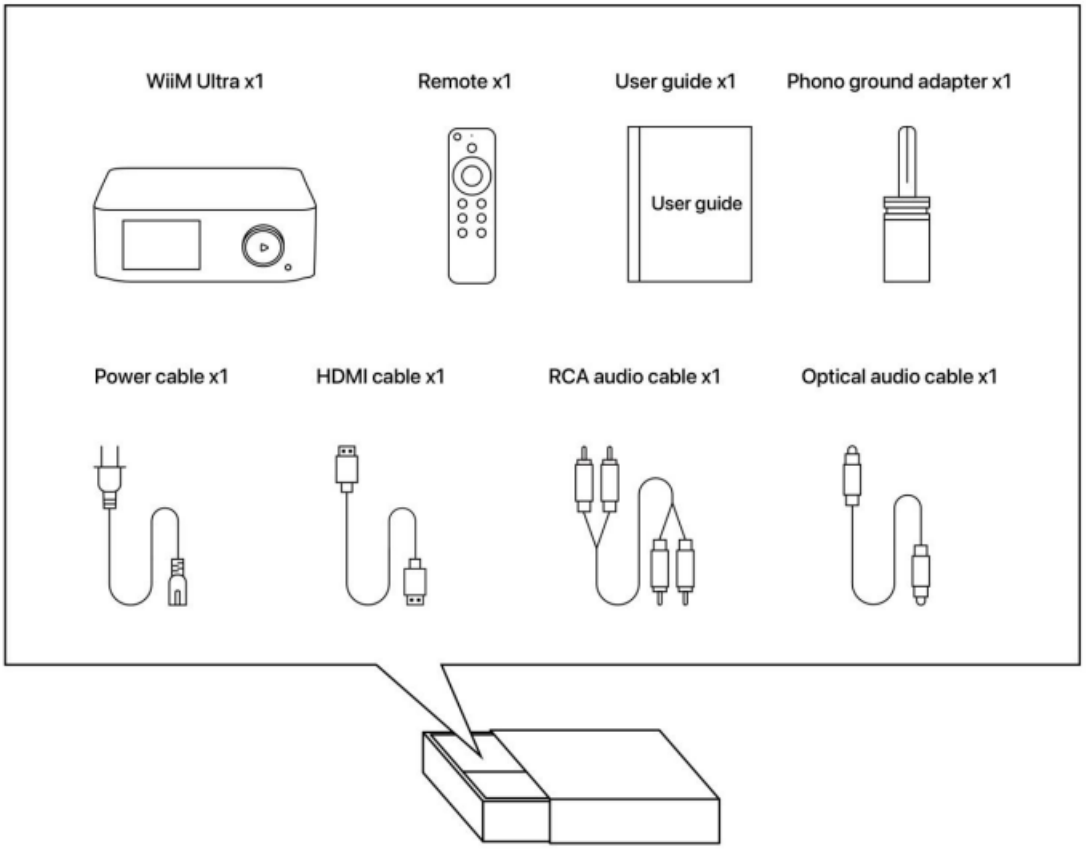
AUDIO DEVICES WORK WITH WIIM ULTRA

The WiiM Ultra can work with your audio source devices, smart speakers, and other legacy stereo systems, DAC, amplifier, speakers, or soundbars etc. The audio source device includes TV, record player and MP3 player. The block diagram below shows how you can connect your audio system with the WiiM Ultra.


Record Player
Echo
Google Home
Headphone
Speaker
TV
Line In
Optical In
HDMI
Phono In
WiiM Ultra
Line Out
Optical Out
Coax Out
USB Out
Headphone
Active
Subwoofer
DAC
CD Player
Amplifier

2. WHAT'S IN BOX

- WiiM Ultra
- Bluetooth voice remote
- Quick start guide
- 100~240V AC power cable
- HDMI cable
- RCA audio cable
- Optical audio cable
- Phono ground adapter

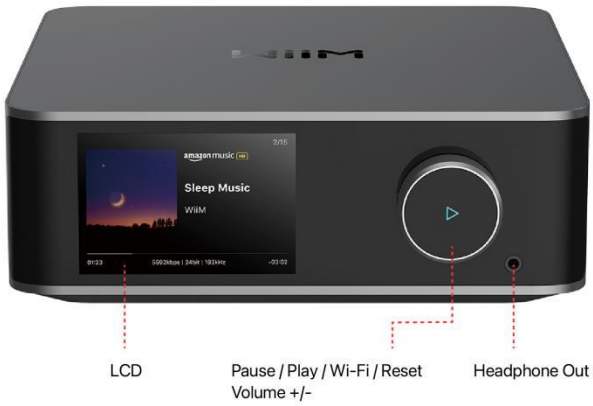


3. TECHNICAL SPECIFICATIONS

Feature	Description
Power Input	100-240V AC input, 50/60 Hz, 0.5A Max
Audio	Digital Audio Output: Bit-perfect output, up to 192 kHz, 24-bit with digital optical, coaxial, and USB audio output. Analog Audio Output: Supports up to 384 kHz, 32-bit with its internal DAC. Audio precision is kept when using volume control with analog output for 16-bit or 24-bit audio.
Network	Wi-Fi 6E, 802.11 b/g/n/ax 2.4 GHz, 5 GHz, and 6 GHz triple bands. 10/100M Ethernet.
Bluetooth	Bluetooth 5.3, A2DP, AVRCP Support SBC, AAC, LC3 Codec
Audio Input	1 x Analog RCA Line IN, 2 Vrms, up to 192kHz/24-bit 1 x Analog Phono IN, MM/MC 1 x Optical IN, up to 192kHz/24-bit 1 x HDMI ARC, up to 192kHz/24-bit
Audio Output	1 x Analog RCA Line OUT, up to 2 Vrms 1 x Digital Optical OUT, up to 192kHz/24-bit

	1 x Digital Coaxial OUT, up to 192kHz/24-bit 1 x Digital USB OUT, up to 192kHz/24-bit 1 x Analog Headphone (HP) OUT
SNR (built-in DAC)	Line Out: 121 dB HP Out: 119 dB
THD+N (built-in DAC)	Line Out: 0.00018%, -115 dB
Audio Codec	MP3, AAC, ALAC, APE, FLAC, WAV, WMA, OGG, AIFF
Streaming Protocol	Chromecast Audio, DLNA, Spotify Connect, TIDAL Connect, Amazon Music Casting, Qplay 2.0, Squeezelite, Roon Ready (TBA)
Streaming Services in App	Spotify, Amazon Music, Deezer, TuneIn, Tidal, Qobuz, SoundCloud, Pandora, iHeartRadio, vTuner, Napster, Sound machine, etc.
LED	Four-color status LED - Red, Green, Blue, and White
Control	Volume knob, play/pause, setup, and more
Weight	3.13 lbs (1.42 kg)
Dimension	8.3 x 7.87 x 2.83 in (211 x 200 x 72 mm)

4. CONTROLS, PORTS, AND LIGHTS



BUTTONS AND INPUT/OUT INTERFACE

Control / IO Interface	Functions
Power	100-240V 50/60Hz AC Power
Volume Knob	Push down to Play/Pause, network or Bluetooth pairing, or restore to the factory setting Turn clockwise: Increase volume Turn anti-clockwise: Decrease volume
Line In	Standard RCA
Phono In	Gain: 41dB MM / 59dB MC MM: THD+N -75dB, SNR 76dB@5mV; MC: THD+N -58dB, SNR 56dB@0.5mV RIAA accuracy: < ±0.5dB / 20Hz - 20kHz
Optical In	Optical audio input up to 192 kHz/24-bit
HDMI ARC	Stereo PCM, Dolby Digital (DTS is not supported)
Line Out	Maximum output: 2.1V RMS SNR: 121 dB (A-wt) THD+N (1 kHz): 0.00018% (-115 dB) for 44.1k to 192k FR curve: +/- 0.05 dB
Optical Out	Up to 192 kHz/24-bit, low jitter
Coax Out	Up to 192 kHz/24-bit, low jitter

Headphone Out	300 ohms: SNR (119 dB), THD+N (-99 dB) 32 ohms: SNR (119 dB), THD+N (-92 dB)
USB Audio Out	UAC 2.0
Sub Out	Connect to the powered subwoofer, 2.0 Vrms
12 V Trigger Out	3.5 mm port for cable connection to your amplifier for automated power control. Note: Consult your amplifier's user guide for specifics on utilizing its 12V trigger input.
MIC	Activated solely for the purpose of automatically calculating audio latency to ensure seamless multiroom synchronization. This includes compatibility with various platforms like Alexa MRM, Chromecast MRM, and Linkplay MRM. The MIC is engaged only during latency measurement.
LAN	10/100Mbps Ethernet port

LIGHTS

State	**Color**	**Flashing/Solid**
Boot-up	White	Flashing (fast)
OOBE/Ready to Setup	White	Flashing (slow)
BT ready to pair	Green	Flashing (slow)
Connecting to Wi-Fi	White, Green	Flashing (fast)
Connected to network	White	Solid
BT mode, paired	Green	Solid

Aux-in mode	Green	Solid
OTA	White, Green	Flashing (slow)
Restore to factory setting	White, Red	Flashing (slow)
Not connected to the network (and not in setup mode)	Red	Solid
Faulty Error	Red	Flashing (slow)

NOTES:

WRGB: Four-color LED, no color mix

W: Wi-Fi as the audio source (product default mode)

G: Audio source from Analog, digital audio input, or BT

R: Error (Not connected to a network or faulty error)

Three modes: Solid, flashing slow, flashing fast