



# **FlooGoo™ FMA120 Bluetooth Audio Source Dongle**

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## **User Guide v1.9**

Flairmesh Technologies

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## Introduction



LED status	Explanation
Flash slowly	Idle
Flash fast	Searching for pairing
Flash 2 times in 2 seconds	Connected, audio idle
Flash 3 times in 2 seconds	Audio or broadcast streaming

The FMA120 is a dual-mode Bluetooth 5.4 USB audio source dongle designed to upgrade audio sources such as phones, laptops, TVs, and other devices. It introduces advanced features like the aptX Adaptive and Lossless codecs, as well as Auracast™ broadcast audio functionality. Additionally, it supports low-energy (LE) audio unicast for both music and voice, ensuring compatibility with Bluetooth headsets, speakers, earbuds, and hearing aids.

It acts as a standard USB audio device with both speaker and microphone channels. When it is activated as the audio input and output device by either a Windows PC or a TV supporting USB audio, the dongle sets up a Bluetooth audio connection to transmit audio to/from the remote device. For instance, in applications like Skype, which use both the microphone and speaker channels, classic Bluetooth headsets utilize the Hands-Free Profile (HFP), while LE audio headsets use the Telephony and Media Audio Profile (TMAP). In both scenarios, a two-way audio call is established on the headset.

## Quick Start

When using the dongle for the first time, it will automatically search for nearby Bluetooth headsets. Ensure your headsets are in pairing mode and positioned close to the dongle, as it prioritizes pairing with the nearest device.

**Note:** For LE audio-enabled hearing aids, please use the “FlooCast” app to enable the “Prefer using LE audio for dual-mode devices” option before pairing.

## Advanced Functionalities

To access the advanced functions of the dongle, please download the corresponding host app for your system.

For Windows, you can download the app from the Microsoft Store at the following link:

[FlooCast on Microsoft Store](#)

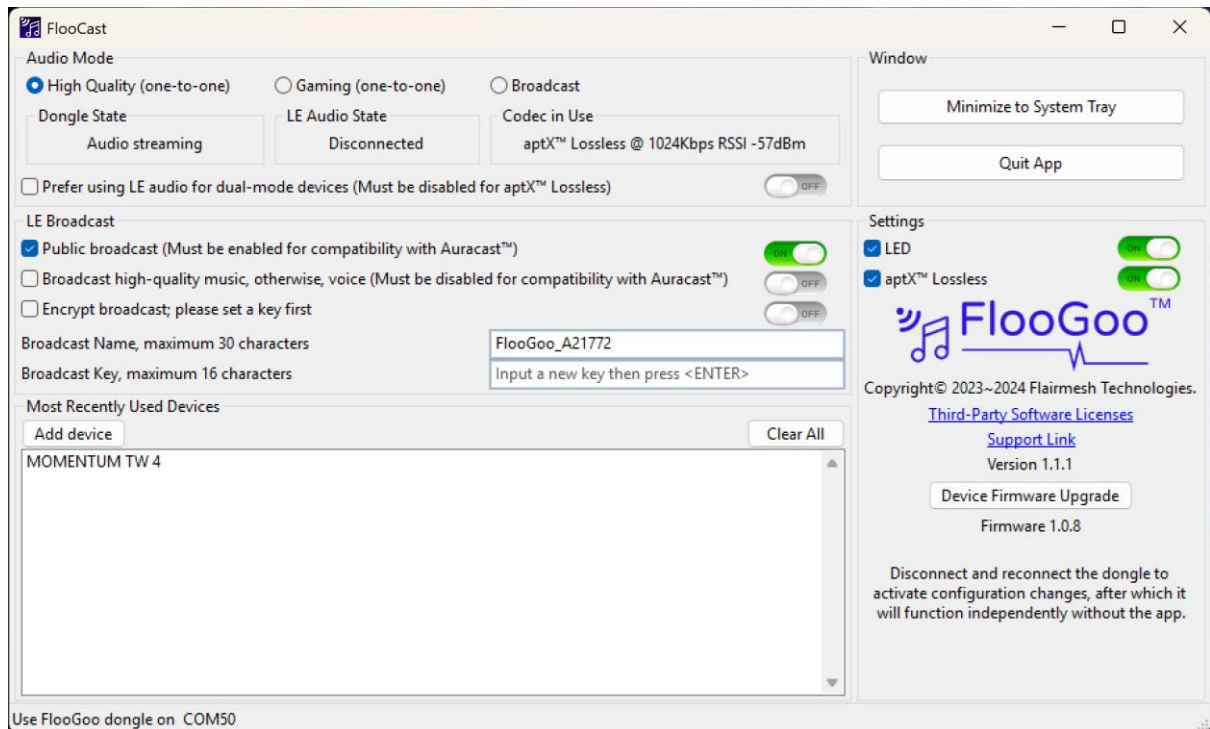
For Mac, we provide compiled app available for download at the following links. Alternatively, you can run it from the source code on GitHub.

[AppleSilicon](#)

[Intel](#)

For Linux, the app is available as an open-source GitHub repository provided below:

[FlooCast on GitHub](#)



Please note that the device firmware update function is exclusively available in the Windows app.

The dongle has three modes: high quality, gaming, and broadcast. The active codec will be displayed in the 'Codec in Use' panel, along with the overall dongle state in the 'Dongle State' and the low-energy audio state in the 'LE Audio State' panel accordingly. The table below displays the preferred audio codec when supported by the remote device under high-quality and gaming mode. If the preferred codec is not supported by the remote device, SBC is the default for classic Bluetooth devices, while LC3 is the default for LE audio devices.

	Music Unicast		Bi-directional Voice	
	Classic BT	LE Audio	Classic BT	LE Audio
High-quality	aptX, HD, Adaptive/Lossless*/SBC	LC3*	aptX Voice mSBC/CVSD	LC3*
Gaming	aptX Adaptive/SBC	aptX Lite/LC3*	aptX Voice mSBC/CVSD	aptX Lite/LC3*

\* aptX Lossless will be enabled automatically when connected to a compatible device. Please also ensure that the sample rate is set as 44.1kHz or 48kHz. Confirmed working devices include Bose QuietComfort Ultra, Bowers & Wilkins Pi8, Cambridge Melomania P100, Creative Aurvana Ace 2, Denon PerL Pro, Earfun Air Pro 4, NuraTru Pro, Sennheiser MOMENTUM True Wireless 4 and Sonos Ace.

\* As LE audio technology advances, LC3 support continues to expand to more devices through firmware updates. With firmware version 1.0.8, confirmed compatible devices include Creative Aurvana Ace 2 (aptX Lite), Samsung Galaxy Buds 2 and 3 Pro, Sony LinkBuds S, and Creative Zen Air. From firmware version 1.0.8.7, support was extended to hearing aids such as Jabra Enhance Pro 20, Oticon Intent, Philips HearLink 9050, ReSound Nexia, and Starkey Edge AI.

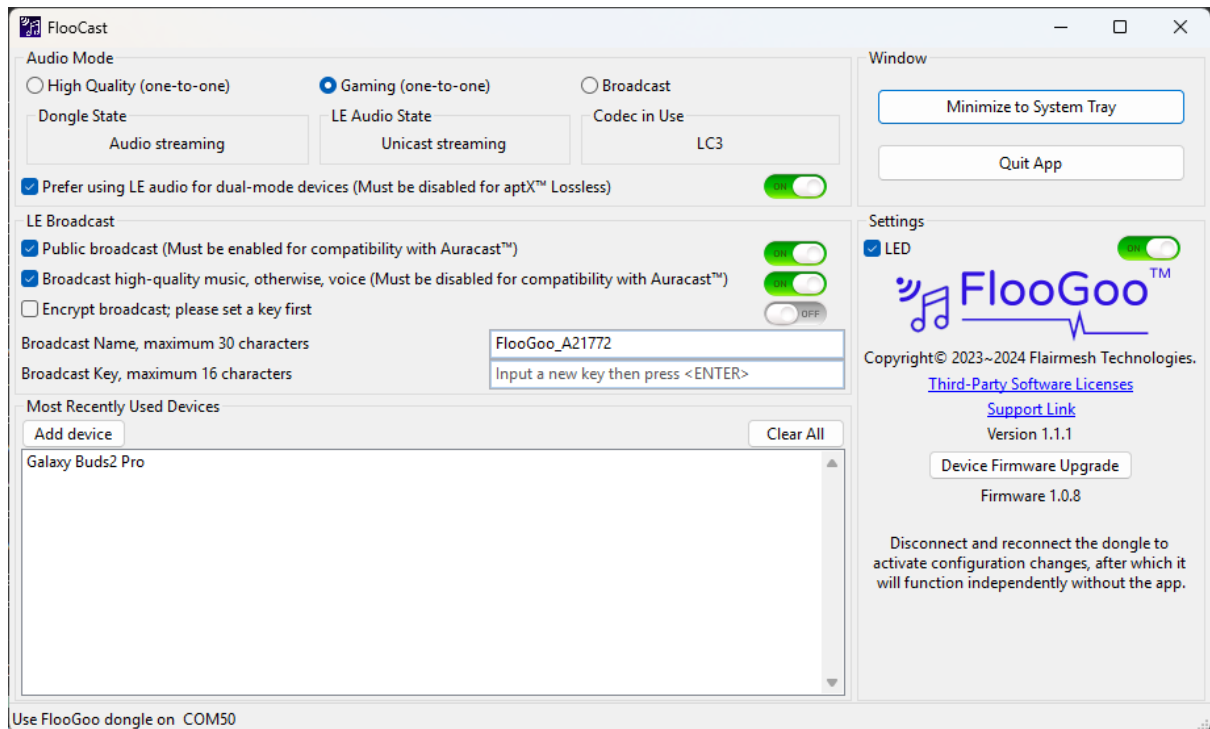
In broadcast mode, LC3 is utilized as mandated by the LE audio standard.

After launching the app, it will retrieve and display the current working mode along with other settings of the dongle.

To manually initiate a new pairing, click the 'Add device' button in the 'Most Recently Used Devices' section, and the dongle will search for the closest Bluetooth headset device in pairing mode, automatically establishing a connection. The name of the paired and connected device will be displayed in the list along with those devices that have been used before.

Any altered settings are stored directly within the dongle. Some settings take effect immediately, while broadcast settings apply the next time the dongle powers on. The app is used to set up pairing and manage configurations; however, the dongle will automatically reconnect to the most recently used device, so the app is only needed when configuring new settings.

As the FMA120 is a dual-mode audio source dongle, it can operate with both classic Bluetooth headsets and the latest Bluetooth low-energy audio headsets. For headsets that also support dual-mode, the app allows you to set your preference for either using classic Bluetooth or LE audio to stream audio.



To pair LE audio devices such as Samsung Buds 2/3 Pro, Sony LinkBuds S, ReSound Nexia, Jabra Enhance Pro 20, Oticon Intent, Philips HearLink 9050, or Starkey Edge AI hearing aids, please follow these steps:

1. Open the FlooCast app and use the "Clear All" button to remove any existing classic Bluetooth connections.
2. Enable the "Prefer using LE audio for dual-mode devices" option.
3. Ensure the device to be paired is in pairing mode. Refer to the vendor's guidelines for instructions.
4. Certain hearing aids, such as the Philips HearLink 9050, require the device to be within 20 cm of the FMA120 for pairing due to manufacturer-imposed limitations. For most Bluetooth headsets, earbuds, and speakers, the FMA120 supports a typical range of 1–2 meters in pairing.
5. Initiate a new pairing process by use the "Add device" button.

\* Some docking stations may interfere with pairing due to the limited signal strength of hearing aids. Please try plugging the FMA120 directly into a USB port on the PC for pairing. Once paired, you can use the FMA120 with the docking station for streaming.

For most LE audio devices, including hearing aids, start pairing in "High Quality" mode. Once pairing is complete, Auracast™ will automatically enable when switching to 'Broadcast' mode, if supported.

For Sony Linkbuds S, please refer to Sony's online guide to switch them from classic Bluetooth to LE Audio mode before pairing.

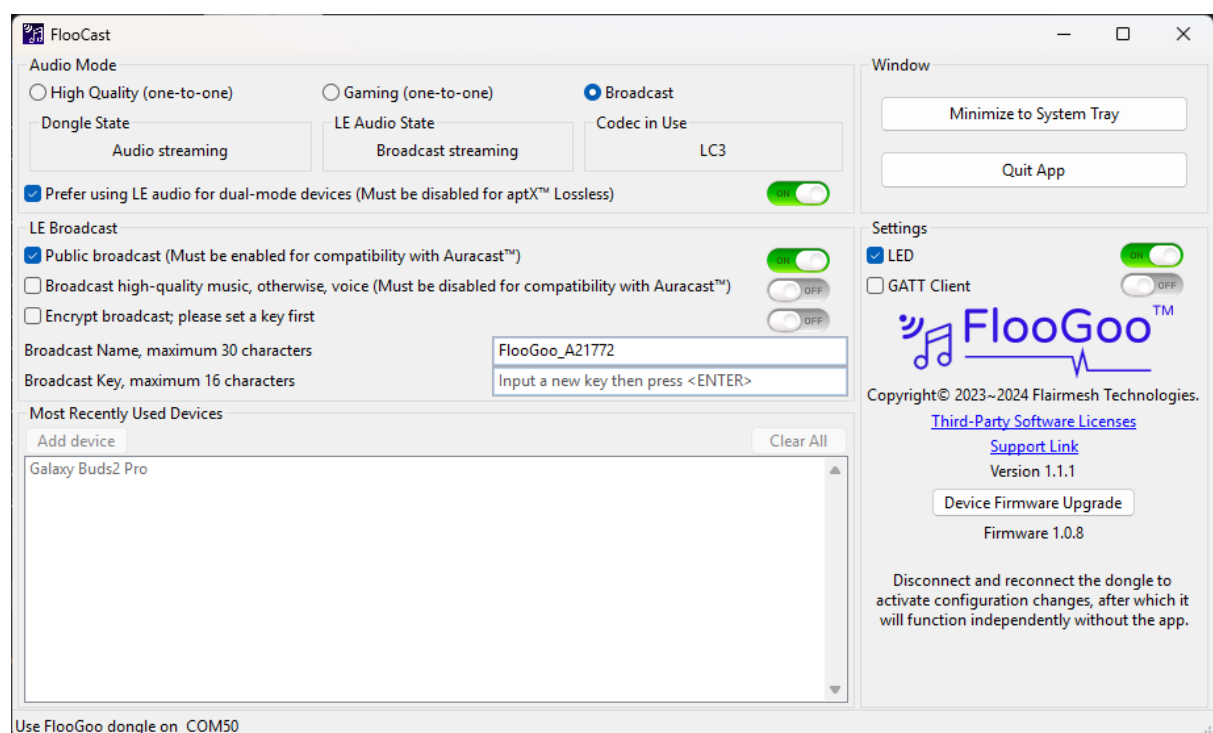
Due to firmware limitations, the FMA120 supports only one pair of LE audio TWS earbuds or hearing aids at a time for devices without a Qualcomm chip, including the Samsung Galaxy Buds 2/3 Pro, Sony LinkBuds S, Creative Zen Air Pro, and most hearing aids.

When paired with Samsung Buds 2 Pro in LE audio mode, the FMA120 operates at a 48k sample rate for playback when the microphone is disabled. In High Quality mode, it works at 32k(play)/32k(mic), and in Gaming mode, it operates at 48k(play)/16k(mic).

For Samsung Buds 3 Pro and Sony Linkbuds S in LE audio mode, the FMA120 operates at a 48k sample rate for playback when the microphone is disabled. It works at 32k(play)/32k(mic) in High Quality mode, but neither supports Gaming mode.

Since hearing aids usually avoid using high rate like 48kHz to preserve battery usage, they usually operate at 24k for playback and

## Broadcast mode



**Tip: Please select FMA120 as your PC's playback device and start playing some music to enable broadcasting.**

The FMA120 is [officially listed](#) by the Bluetooth SIG as an Auracast Transmitter.

There are five settings for LE audio broadcast.

Public broadcast (Auracast™).

When enabled, the public audio broadcast feature is activated. The dongle then acts as a PBS. PBS (Public Broadcast Source) is designed for broadcasting to devices without pairing. When disabled, the dongle is tailored for paired devices, intended for sharing audio with one or two friends or family members. It operates then as a BMS (Broadcast Media Sender).

Broadcast high-quality music.

When enabled, the dongle will use a 48 kHz sample rate for music content during broadcasting. When disabled, the dongle will utilize a 24 kHz sample rate for voice content.

Encrypt broadcast.

If enabled, an encryption code is used to restrict access to the broadcast content, like a Wi-Fi access code, and only those receivers that know the code can access it.

Broadcast name.

This is a human-readable string for the receiver to distinguish between multiple nearby broadcasters.

Broadcast code.

This is an encryption code to be used in the broadcast. When the input code length is less than 16 bytes, it will be padded to 16 bytes with zeros.

**Starting with firmware 1.0.8.6, broadcast receiving can be automatically enabled when an Auracast-enabled headset, earbuds, speaker, or hearing aid is paired with the FMA120 in either “High Quality” or “Gaming” mode, and the mode switches to “Broadcast”. This eliminates the need for a phone to set up the receiving device when only one (or one pair) of devices is required.**



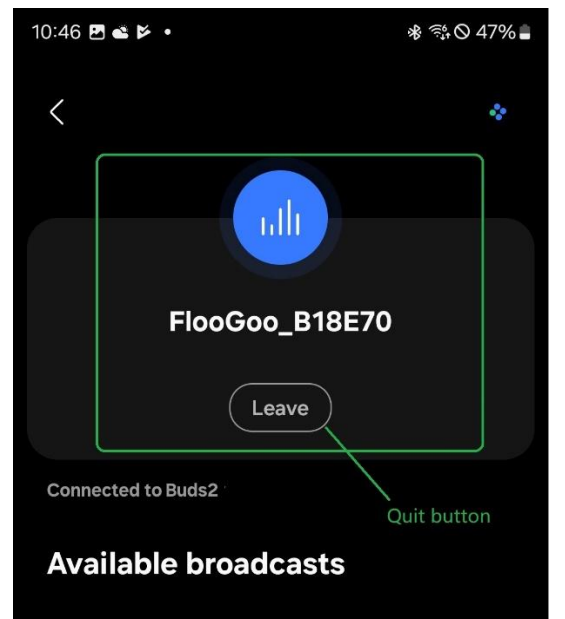
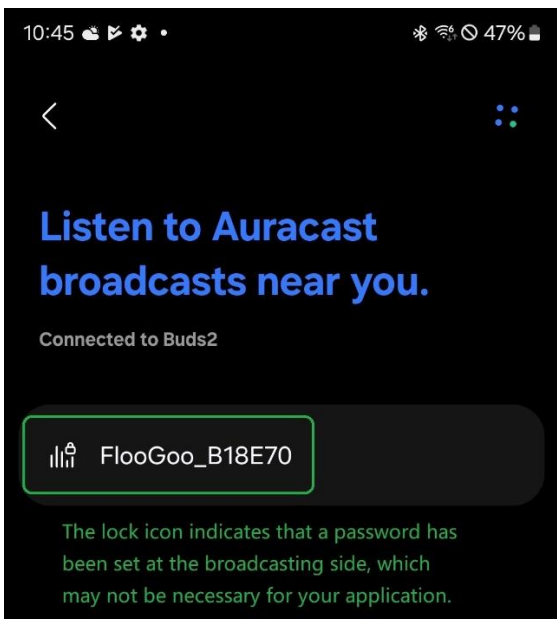
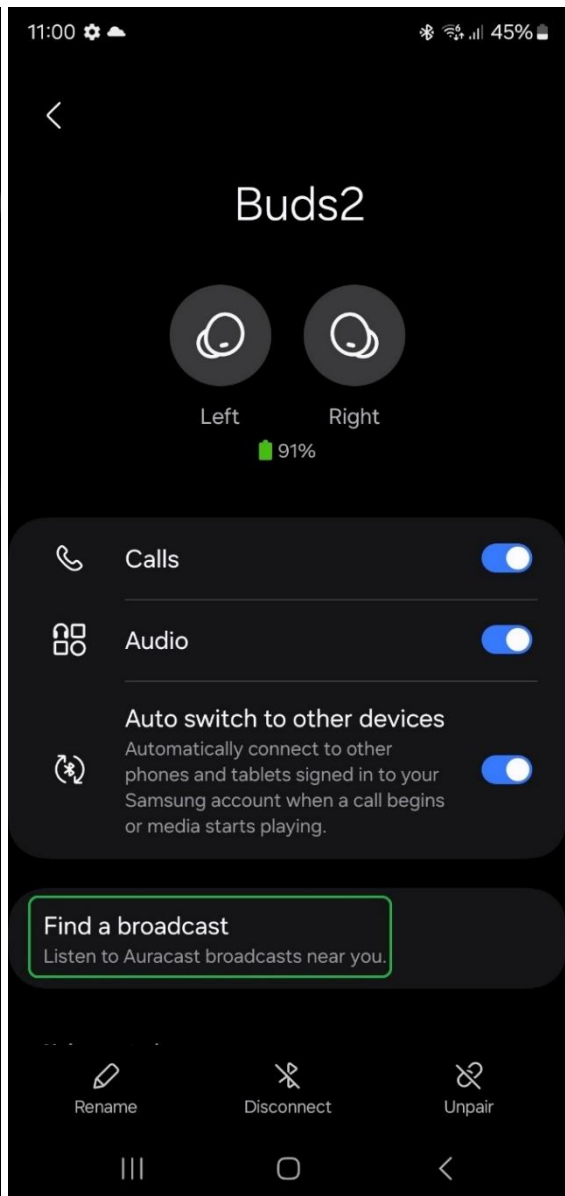
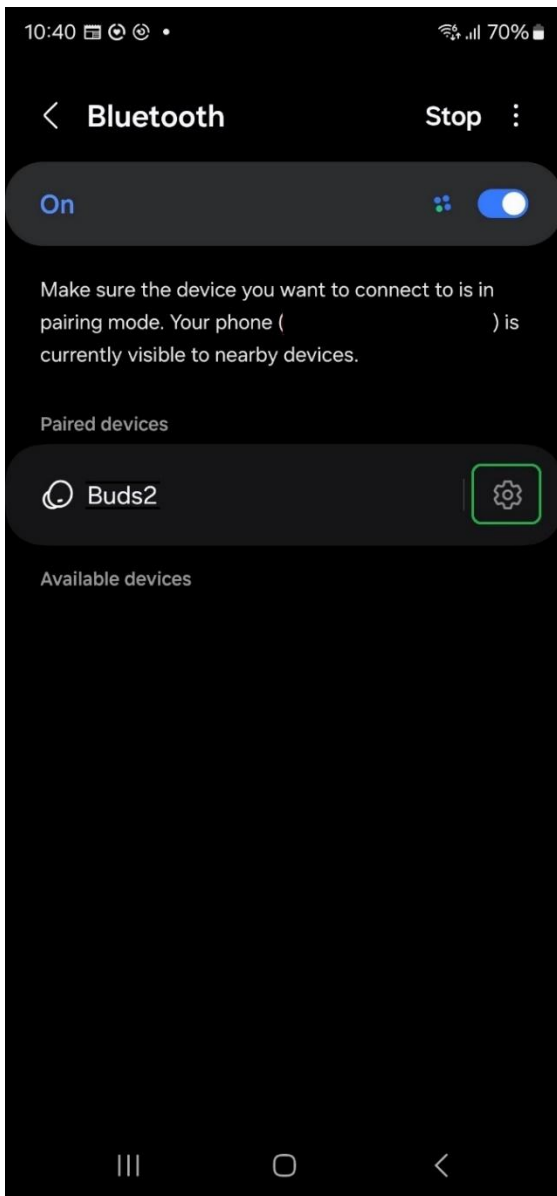
**To add more devices for Auracast listening, use an Auracast-compatible phone to pair with your device. Then, open the device's settings and select "Find a broadcast" to configure it.**

**For ReSound Nexia hearing aids, please reach out to your audiologist to upgrade its firmware to V9.68 or higher. This update can be installed using Fitting software 2.0 or later.**

**For hearing aids, please disable the "Broadcast high-quality music" option, as these devices support a maximum sample rate of 24k.**

**Currently, setting up Auracast receiving with a mobile phone requires a newer model of Android. Please refer to your device's user manual to check if the manufacturer provides an app to assist with this setup. For hearing aids, you may need to toggle Bluetooth and flight mode on and off a few times, then enable the LE Audio switch. This is a known issue with certain phones and is expected to be resolved by the manufacturers.**

**Please refer to the following screenshots for a typical setup on a Samsung Galaxy S23.**



## Specification & Features

- Bluetooth V5.4, Class 1 Bluetooth v5.4, +15dBm BR/LE TX power, -97dBm BR and -100.5dBm BLE 1M sensitivity
- Dual-mode, compatible with Bluetooth Classic HFP/A2DP headsets/speakers and future LE audio hearables
- Qualified design, supporting A2DP, AVRCP, TMAP, PBP (Auracast)
- Optimized with Qualcomm® Snapdragon® Sound for robust connectivity and ultra-low latency
- Supports aptX™, aptX HD, aptX Adaptive, and aptX Adaptive Lossless audio codecs
- USB-A connector with composite device capabilities, including HID and virtual COM port, allowing audio playback and voice call control from Bluetooth headsets and earbuds
- Firmware upgrade via USB for easy updates
- LE Audio Gaming mode with Voice back Channel for ultra-low latency (25.5ms)
- LE Audio Unicast Music with media control (MCP)
- LE Audio Unicast Voice with call control (CCP)
- LE Broadcast source supports Telephony and Media Audio Profile (TMAP) and Public Broadcast Profile (PBP)
- Volume control using VCP (Virtual COM Port)
- Microsoft Teams compatibility
- CE/FCC/RCM
- Contains FCC ID 2A22WFMB120
- USB-A plug, 5V 100mA
- Operational Temperature: -40°C to +70°C
- Dimensions: 38.6mm x 19.5mm x 6.8mm
- Item weight: 3.8g
- Package weight: 6.8g
- Package size: 10cm x 6.2cm x 0.8 cm

## Troubleshooting Q&A and Support

**Q:** The LED doesn't flash or light up when I insert it into a USB port.

**A:** FlooGoo FMA120 can be inserted into a USB-A socket from both sides, but it only works when the correct side is used. Check if the golden connectors on FMA120's USB connector are contacting the receptors of the USB port when inserted.

**Q:** How can I improve the working range with my headset/earbuds?

**A:** You may try using a USB extension cable to relocate FMA120 to a higher and better position.

**Q:** Can I use the dongle with Raspberry Pi, smart TV and projector?

**A:** FMA120 functions as a standard USB audio device. With the latest version of Raspbian, it is detected automatically. You can use command "aplay -l" to verify if it has been recognized successfully. For Android-based smart TV or projectors, please activate the developer mode and ensure that "Disable USB audio routing" is not enabled.

**Q:** Do I need to keep the FlooCast app running to use the dongle?

**A:** No, you don't need to keep the FlooCast app running to use the dongle. The dongle retains its settings, allowing you to set it up on one host and use it on another.

**Q:** How do I enable the aptX codec, including aptX HD and Adaptive, when using a compatible headset?

**A:** The dongle will automatically select the best codec when connecting to a compatible headset, you can confirm the chosen codec in the "Codec in Use" panel in the desktop app.

**Q:** How do I enable the aptX Adaptive Lossless codec when using a compatible headset?

**A:** It will be enabled automatically when connected with a compatible headset. Please also confirm if the sample rate is 44100Hz or 48000Hz in the "Default Format" in the Windows sound device properties. You can find this setting by

navigating to “Settings->Sound->Device properties->Additional device properties->Advanced”. If the sample rate is set to 96000Hz, aptX Adaptive will be used instead.

**Q:** aptX Lossless is still not enabled after checking all the settings on the Windows/host PC.

**A:** Please disable "Spatio Audio" and "Multipoint" in the headset's app if lossless mode cannot be enabled.

**Q:** Why isn't the FMA120 listed on [www.aptx.com](http://www.aptx.com)?

**A:** When we release the product, we expect it to primarily appeal to users interested in the new LE audio features, such as Auracast. The FMA120 is [officially listed](#) by the Bluetooth SIG as an Auracast Transmitter. We are committed to using the latest codec from the chip vendor and regularly updating the FMA120's firmware to ensure it supports the most up-to-date features.

**Q:** I already have a standard Bluetooth adapter, will FMA120 conflict with it?

**A:** No, the FMA120 runs all its functions, including the Bluetooth stack, within the embedded high-performance processors inside. It doesn't require additional drivers on the host, so it won't conflict with other Bluetooth adapters.

**Q:** Do I need to reset the dongle to apply a new setting?

**A:** Depending on the firmware, switching between high-quality and gaming modes usually takes effect immediately. However, for other settings changes, such as parameters for broadcast, a reset is recommended.

**Q:** Where can I find the latest firmware for the dongle?

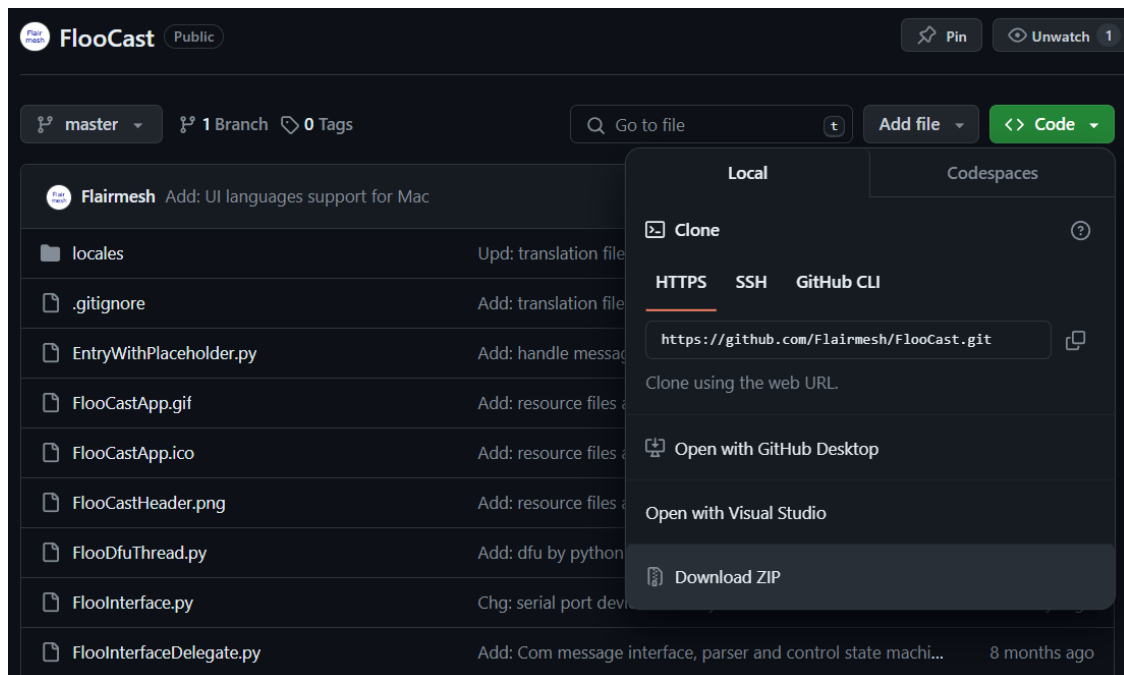
**A:** You can find the latest firmware through the [Support Link](#), which is also accessible from the desktop app.

**Q:** What if I encounter other issues?

**A:** You can contact us via email at [support@flairmesh.com](mailto:support@flairmesh.com).

## Installation Instructions for FlooCast (Linux Users)

1. If you are familiar with Git and Github, you can use the following command to download the source codes of the app:  
# git clone <https://github.com/Flairmesh/FlooCast.git>
2. Alternatively, you can click “Download ZIP” to get a copy of the source codes. The button can be accessed in the drop-down menu under “<> Code”, shown as the green button in the following picture.



3. Install Python if you haven't already. The latest version can be downloaded from [here](#).
4. Open a Terminal (on Mac, you can use Spotlight to search for “Terminal”) window, and enter the following commands to install required modules:  
# python3 -m pip install wxPython  
# python3 -m pip install pyserial  
# python3 -m pip install serial-tool  
# python3 -m pip install certify  
# python3 -m pip install PIL  
# python3 -m pip install urllib
5. In the Terminal window, change the current directory to where the FlooCast app is downloaded (on Mac, it might be downloaded to the User's Download folder), then run the application:  
# cd Downloads/FlooCast-master  
# python3 main.py

[FMA120 FCC sDoc](#)