

BETTER SOUND FOR YOUR SMARTPHONE VIDEOS

Methods to connect mics, USB mics, a mixer, or an audio interface to an Android or iPhone

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Do your band's videos sound distant and muddy? That's because your smartphone's built-in mic is too far from your band. You need a way to get one or more mics close to your group and send their audio to your smartphone. I'll describe several ways to do that. Then you can record or stream videos with a professional sound: clear and close.

CONNECT ONE CLOSEUP MIC TO YOUR SMARTPHONE

This is the simplest method. You might try the PopVoice lavalier mic with a 16-foot cable and a TRRS connector. Tape the mic to a mic stand about 1 foot from a soloist or 2 feet from a band. Plug the mic's TRRS plug into your smartphone. Recent iPhones come with a TRRS-to-Lightning adapter, also called 3.5mm-to-Lightning adapter. Connect the TRRS plug to that Apple Lightning adapter.

Here is a link to the PopVoice mic: https://www.amazon.com/dp/B07DPQJQ2L/ref=emc_b_5_t

You can use your own mic as well. See Figure 1. Place a mic about 2 feet from your band, or 1 foot from a soloist, and connect the mic to your smartphone using a **female XLR to TRRS adapter**. You can buy one from the links posted later in this article. If you want to build your own adapter, see Figure 2.

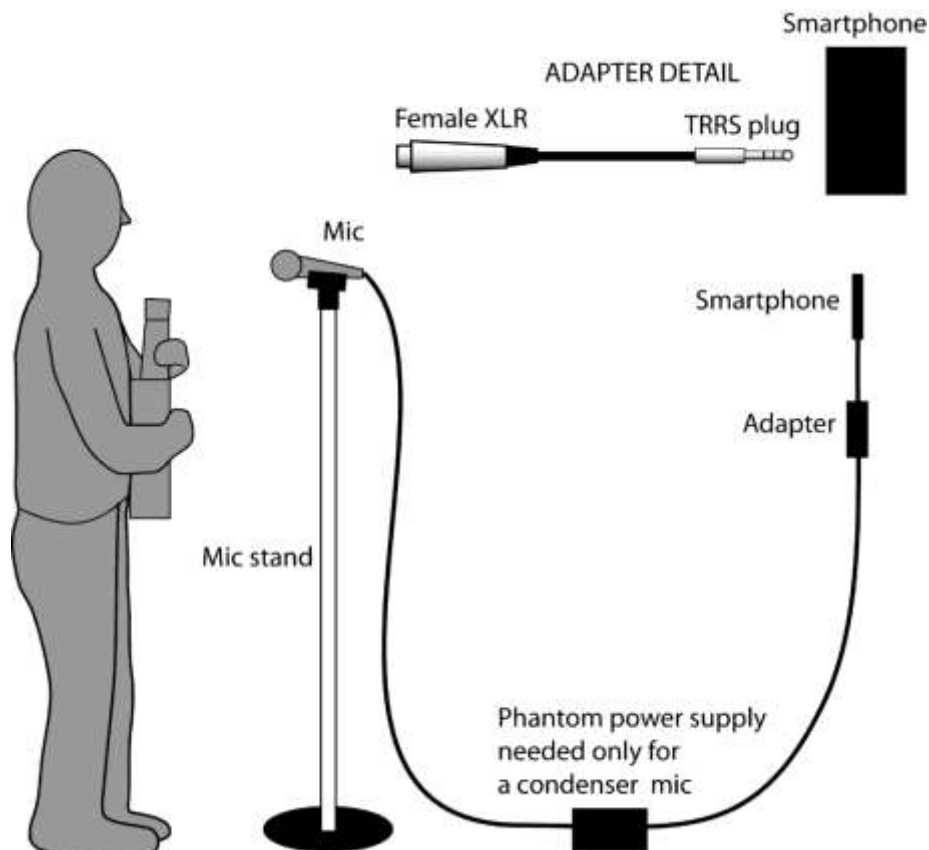


Figure 1. How to connect a professional microphone to a smartphone.

Tech note: The XLR-to-TRRS adapter (Figure 2) should have an internal resistor of about 1000 ohms in series with pin 2. Or it should have a 10 uF capacitor soldered to pin 2, and 1000 ohms between the non-pin side of that capacitor and pin 1. Your phone sends a voltage through that resistor to recognize that an external mic or mixer has been detected.

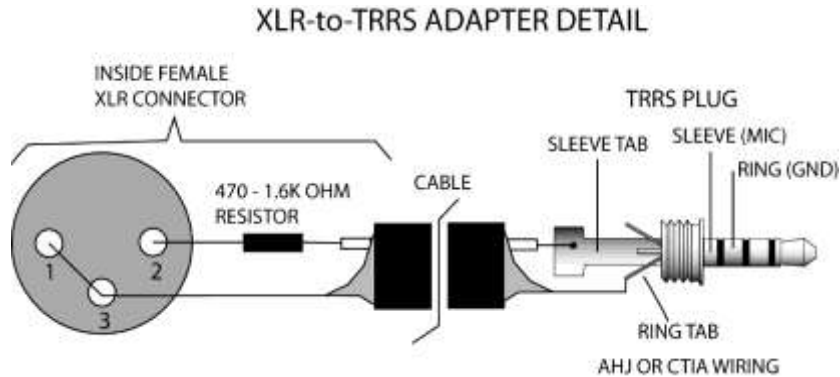


Figure 2. Female XLR to TRRS adapter schematic.

Note that dynamic mics tend to be much lower level than condenser mics and may not be usable. If you have a condenser mic, connect the mic to a phantom power supply as shown in Figure 1. Then connect a mic cable from the supply output to the XLR-to-TRRS adapter. With recent iPhones, you'd connect the XLR-to-TRRS adapter to the Apple Lightning adapter.

Compared to using the smartphone's built in mic, this method will make your sound more present: closer and clearer. Balance the musicians by placing them closer or farther from the mic. Make some trial recordings to check the mix. If the vocals are too quiet relative to the instruments, raise the mic. During playback, be sure to unplug the adapter from the smartphone; otherwise you won't hear the audio.

Check out the Lyxpro female XLR to TRRS adapter at <https://www.lyxpro.com/products/lyxpro-xlr-female-to-trrs-connects-professional-xlr-microphones-to-ios-iphone-ipad-and-ipod-includes-output-for-headphones-small-10-inches?variant=32314326253701>

Movo female XLR to TRRS adapter: https://www.bhphotovideo.com/c/product/1500946-REG/movo_photo_tcb2_xlr_female_microphone_to.html/?ap=y&ap=y&smp=y&smp=y&lsft=BI%3A514&gclid=CjwKCAjw8J32BRBCEiwApQEKgYOd0BHKHhDd0T8f74c2P1dcLbz2iRMr2To7pOh3eywUX4bZgRbzCRoCINQQAvD_BwE



Figure 3. Movo female XLR to TRRS adapter. It also has a headphone jack.

Saramonic female XLR to TRRS adapter: https://www.amazon.com/SR-XLR35-Microphone-Interconnect-Smartphone-Devices/dp/B07T5QWTF/ref=sr_1_7?dchild=1&keywords=female+xlr+to+TRRS&qid=1590141228&sr=8-7

If you have a **USB mic**, plug it into your laptop to record a performance with webcam recording software. The picture quality of most laptops is not great, so you might prefer to use a smartphone or a good webcam. Connections from a USB mic to a smartphone are described later.

CONNECT A MIXER TO YOUR SMARTPHONE

With this method, you close-mike all your instruments and vocals as you do on stage. The result is a pro-quality mono recording.

Run the mics through your mixer, set up a mix, and send the mix to your smartphone using the devices shown in Figure 4.

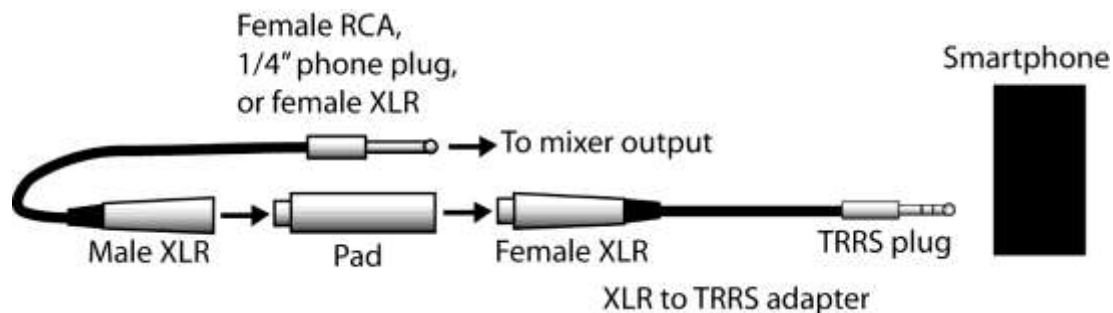


Figure 4. Connections from a mixer to a smartphone.

Your mixer has one or more of these output connectors: RCA (phono), 1/4" phone jack, or male XLR. A smartphone has a TRRS jack. To send a signal between those different connectors, you need three items which you can find in a Google search (see the illustration).

* An adapter cable: RCA-to-male XLR, or 1/4" phone plug-to-male XLR, or a standard XLR mic cable.

* An inline pad that reduces the strong line-level signal from your mixer down to a weaker mic-level signal which a smartphone requires. Example: Shure A15LA (50 dB pad). Note: you can omit the pad if you turn down your mixer's master faders to -40 dB to -50 dB.

* A female XLR-to-TRRS adapter. Examples were given earlier. They mate a professional mic or a mixer to the mic input of a smartphone, which is a TRRS jack. Recent iPhones come with a TRRS-to-Lightning adapter, also called 3.5mm-to-Lightning adapter. Connect the XLR/TRRS adapter to the Lightning adapter.

A simple cable to connect your mixer to your phone is the Headset Buddy Line-level audio input adapter for iPhone and smartphones. <https://www.headsetbuddy.com/line-level-audio-input-adapter-for-iphone-smartphones/>

Your recording will be mono. If you want stereo, you need an audio interface and adapter cables, explained later.

Once everything is plugged in, you're ready to go. Set up your mix, then do a trial recording and listen to the playback to check the mix. Again, unplug devices from the smartphone so you can hear the audio. If you hear distortion, turn down the master fader on your mixer until the sound is clean.

Close-miked vocals will need some bass rolloff to prevent boominess, so turn down 100 Hz in your mixer's EQ until the vocals sound natural. Some instruments might need that bass rolloff too. You could use Bartlett mics on your guitar, fiddle, mandolin, bass, banjo, and cello to get a natural sound without EQ. Those mics have good isolation and low leakage or bleed from other instruments.

By using these adapters and some good mics, you can record or stream professional-sounding videos in mono.

CONNECT AN AUDIO INTERFACE TO YOUR SMARTPHONE

This is the most sophisticated method. It lets you record or stream videos with pro quality in stereo.

Mike your band with several closeup microphones as you do on stage. Connect those mics to a mixer, then connect the mixer outputs to your audio interface. Set up a stereo mix. The audio from your interface will go into your smartphone, where you can record or stream a video with stereo sound.

Figures 5 and 6 show two ways to do it. They show the adapters and devices you need and how to connect them.

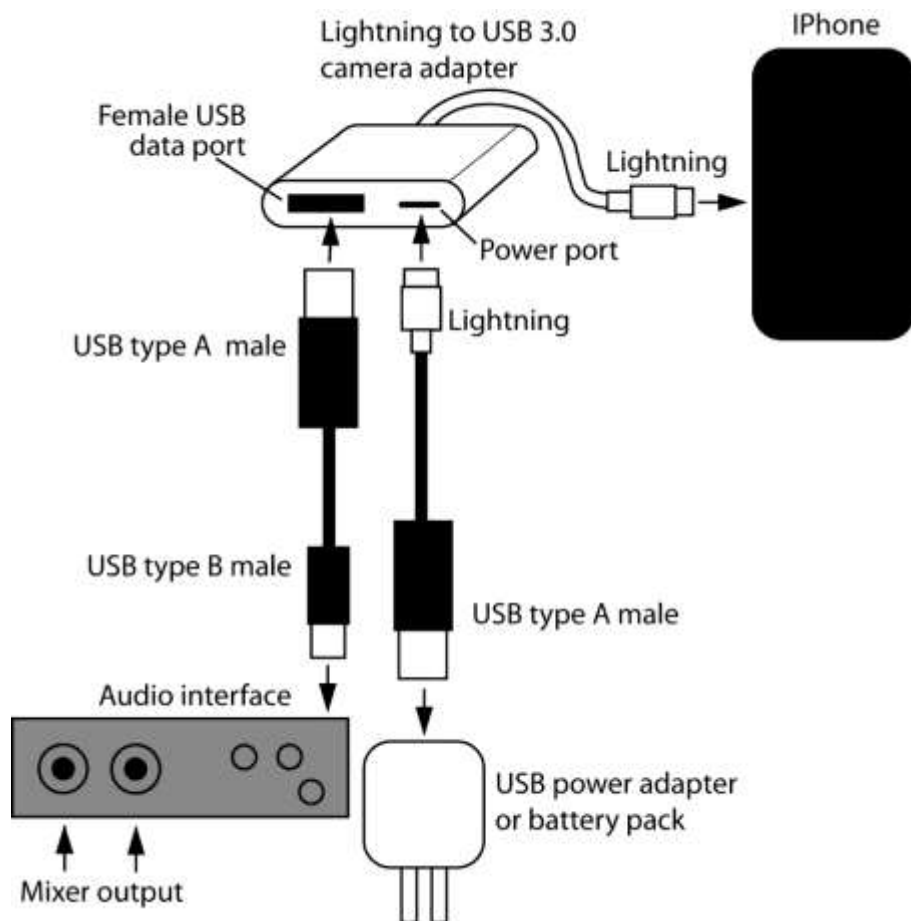


Figure 5. Connecting an audio interface to an iPhone using an Apple camera adapter.

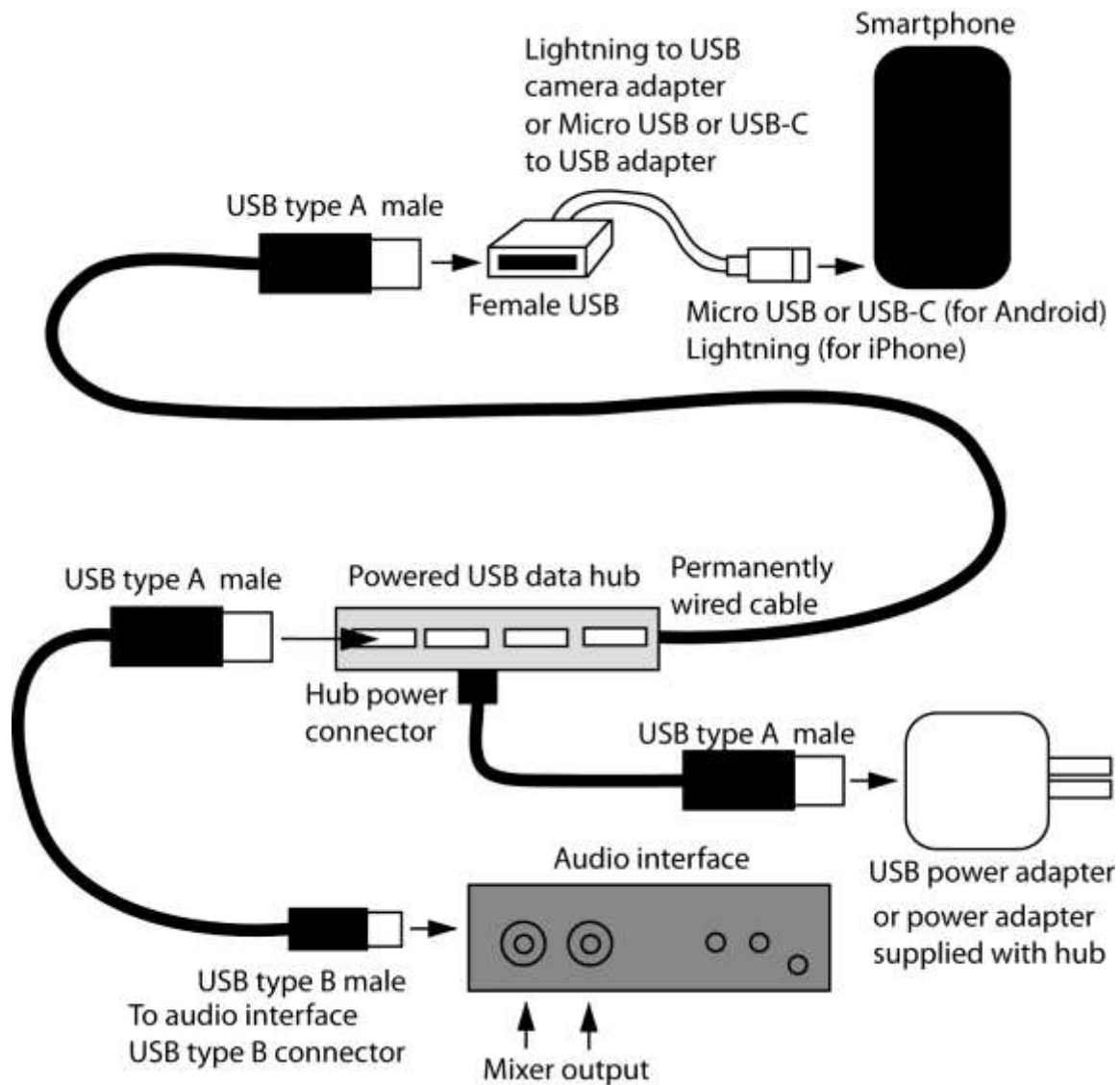


Figure 6. Connecting an audio interface to a smartphone using a USB hub.

For Android, you need a USB OTG breakout cable (adapter). This converts your phone's Micro-USB or USB-C port into a female USB-A port.

How this works: In Figure 5, audio from your mixer line outputs goes into an audio interface, which converts the analog audio into digital. That digital signal goes into the USB data port of an Apple Lightning to USB 3.0 camera adapter, which converts USB to Lightning to plug into your iPhone. That adapter is powered by a USB power adapter or battery pack.

In Figure 6, audio from your mixer goes into an audio interface, which converts the analog audio into digital. That digital signal goes into a powered USB data hub, which receives power from a USB power adapter, or from a power source supplied with the USB hub. From that hub, the USB data and power go to an Apple Lightning to USB adapter, or a Micro USB to USB adapter or a USB-C to USB-A adapter. That adapter plugs into your Android smartphone or iPhone.

After all the connections are made, plug the Lightning or micro USB connector into your smartphone. It should recognize the external audio source instead of its built-in mic.

If you have a **USB mic** or **USB mixer**, connect it to the powered USB hub. Place mics close to your band and enjoy a more present sound than you get with a distant smartphone's mic.

*Bruce Bartlett is a recording engineer, audio journalist, and microphone engineer (www.bartlettaudio.com). His latest books are *Practical Recording Techniques* 7th edition and *Recording Music On Location* 2nd edition.*