Sidetone (AKA Mic Monitoring) Rig Guide

When my wife and I started having to share an office during the pandemic, we both took to using a pair of gaming headphones for our work zoom meetings — which sometimes had to happen at the same time. I disliked the awkward muffling of my own voice in my ears, and how it made it harder for me to keep my voice down (something already not easy for me!). I knew what I needed, but not what it was called. After a little googling, I went down the sidetone rabbit hole.

I purchased and experimented with a number of methods, and after MUCH trial and error, I landed on a rig based around a $20 Behringer MA400 unit. I love how this approach has such simple controls to turn off the sidetone quickly if desired (if I'm trying to focus and WANT the muffle or am doing audio mixing), and finetune the adjustment to dial in that sweet spot where the headphones just… disappear (aurally at least!).

I had a LOT of issues finding the right combination of adapters required, and I very nearly gave up. Turns out there are lots and lots of ways you can physically adapt these connections to each other which will not actually function. So, I wanted to share the conclusion of my quest here, for anyone it might benefit.

All my headphones have a single 1/8” TRRS plugs—the “mini” size also commonly referred to as 3.5mm—with audio and microphone connections all in one. I wanted to be able to go directly into my MacBook Pro port with a TRRS plug as well. I still can’t believe a simple little dedicated TRRS-in to TRRS-out sidetone generator box doesn’t exist!

Terminology:

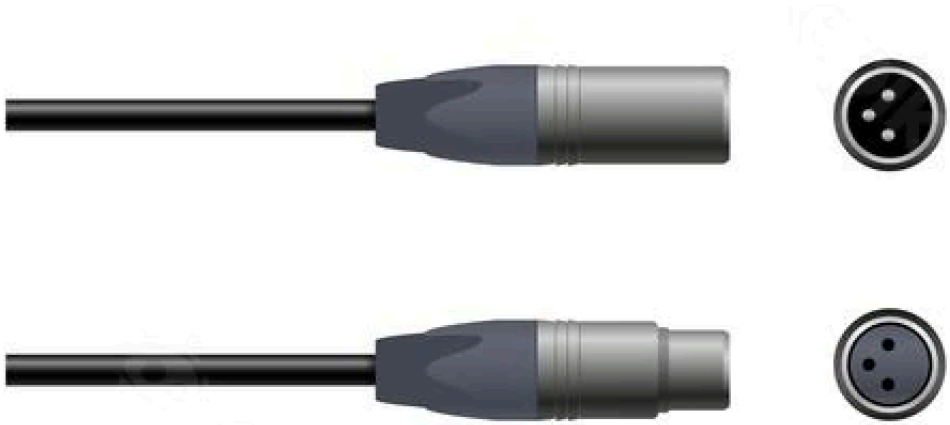
Here is some helpful terminology before we get into the instructions.

- The 1/8" (3.5mm) jack is the standard ‘mini’ plug size used for most consumer audio devices.
- TRS (Tip, Ring, Sleeve) is the standard, stereo, audio-only plug for a pair of headphones. The three wire connections are used for Left, Right, and Ground.

- TRRS (Tip, Ring, Ring, Sleeve) is a plug with the extra connection for a microphone that is used by a lot of gaming headsets. (Though some split out into a pair of TRS plugs, one for audio and one for the mic, in which case you’d want a Y-splitter that joins the back into one TRRS plug for this rig)

- The 1/4" (6.35mm) jack is the larger version of the above plugs, often associated with guitar amps. (Here pictured as TRS/stereo)

- XLR is the large, robust 3-prong plug that’s used for professional audio and stage gear.



Component Guide

What follows is a detailed breakdown of each adapter's type/specification. Believe it or not I tried to use as few separate adapters and cables as was possible, but this is the best I could accomplish!

Here's a link to an Amazon wishlist with all the components I used: https://www.amazon.com/hz/wishlist/ls/27JCD24XXCON1?ref_=wl_share.

If you're looking to avoid Amazon, let me shout out Sweetwater. I bought the MA400 itself from them and they really tried to assist me in getting this to work. Ultimately, the adapters required were too esoteric to all come from them, however. I also purchased some parts I tried out from B&H along the journey.

A) 1/8" Male TRRS Y-Splitter to XLR Female and 1/8" TRS Female (x2)
   - Two of these are used. The XLR to 1/8" was the most finicky connection to get working by a wide margin. I tried a number of different ways that *partially*

worked—the computer could hear the audio from the microphone, but the MA400 couldn't hear it to mix it back into the monitor channel—before finding an all-in-one splitter that worked.

B) XLR male to male adapter
C) 1/8" TRRS Female to Female adapter
    - This is a part where you might be tempted to use one you have laying around, but be careful that this *needs* to be TRRS specifically and not TRS; which is pretty much impossible to distinguish by eye!
D) 1/8" TRS male to male stereo audio cable
    - Here I went with the right-angle connections for a cleaner layout, but any 1/8" stereo audio cable will do. I did try to use a direct male-to-male coupler, but it stretched the Y-splitter too much.
E) Your headset!
F) Behringer MICROMON MA400 Ultra-Compact Monitor Headphone Amplifier
    - The beautiful little unit at the heart of it all — never meant for this use. Ironic that it's only $20, surrounded by adapters that end up being twice as expensive!
G) 1/8" TRS Female to 1/4" TRS Male adapter
    - A very common part you may have already.
H) 1/8" TRS Male to Male adapter
    - You could use any short 1/8" stereo audio cable you have here, but I wanted to keep it as compact as possible.
I) 1/8" TRRS Female to Male extension cable
    - Depending on how your desk is set up you may not need this; or may want a long one so your sidetone controls can sit far away from the computer input.

<u>On the Behringer XENYX 302USB</u>

If you're looking for the simplest solution, I did purchase and try out a Behringer XENYX 302USB mini-mixer. It's definitely the easiest turnkey option available for a sidetone generator, connecting to the computer via USB. It requires no adapters to work properly (beyond a Y-splitter to convert the headset's single plug into separate audio and microphone plugs); and therefore despite the more expensive core unit at $70, it ends up being cheaper than the other approach at ~$90!

On the downside, it was much more fiddly to adjust, with many of the controls you'd want to be independent tied together in confusing ways. I'd often have to turn one dial up, then turn down another, to get the desired result—such as raising the sidetone level in the mix, while not increasing the volume of the computer audio.

It also has the mixed-blessing feature of routing your computer audio back into the mic channel — meaning if I was on a zoom call, the participants could hear the sound from my computer as well as my microphone. At times, that could be handy, but you probably don't want that on all the time! (Note that the MA400 rig does this a little bit as well, but I think it's just the result of a small amount of signal bleeding due to all the adapters, and isn't very prominent.)

On the PreSonus Revelator io44

Another great unit that someone brought to my attention but I have yet to try hands-on is the PreSonus Revelator io44.

It's quite pricey at $180 just to get sidetone; but with that TRRS 1/8" port right on the front, it's far and away the cleanest all-in-one unit I've come across. Adjusting the main level and sidetone levels is as simple as pressing in the main adjustment dial to cycle through three options and dial to adjust. I still prefer the two dials approach in my MicroMon, but that’s not bad. Putting this on my wishlist!