



TECH SHEET 03

The PonoPlayer in balanced output mode with headphones

Correct for PonoPlayer firmware version 1.0.3

Overview

The PonoPlayer provides four output modes:


1. **Variable output**, for headphones or as input to a power amplifier or powered speakers
2. **Fixed output** for use with a hi-fi system, in car system with an auxiliary input socket or powered speakers with their own volume control
3. **Two pairs of headphones** driven simultaneously
4. **Balanced output mode** for use with headphones, pre amplifiers or power amplifiers that support balanced mode

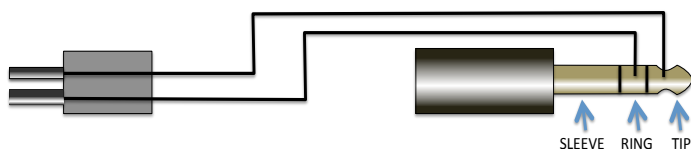
This Tech Sheet applies specifically to option 4 - using Pono in balanced output mode, with headphones. A separate sheet (02) covers balanced mode operation with HiFi equipment and balanced mode itself (01).

In this Tech Sheet Sennheiser is used as an example of the kind of headphones that can be used in balanced mode with the use of a specific cable. Headphones with detachable cables from other manufacturers may also be suitable for balanced mode operation, when used with Pono specific balanced mode cables.



Using Balanced Mode

1. Balanced mode operation on your PonoPlayer **must only be used** with headphones that are either designed specifically for balanced mode operation or which have an appropriate cable to enable their use in this mode. **If you are in any way unsure of this mode of operation, please seek professional advice. Pono cannot be held responsible for any modifications to headphones or for cables not supplied by Pono itself.**
2. You will need a headphone cable with two 3.5mm tip/ring/sleeve plugs on the Pono end (one for each channel), and a suitable plug or plugs at the headphone end.
3. Cables must use the wiring configuration shown in the diagram below. **Do not assume that cables with the appropriate plugs are wired correctly for balanced mode operation with your PonoPlayer – you must ensure that they are wired in accordance with the diagram.** Please check this before purchase or use.
4. **Under no circumstances should a mono 3.5mm plug be inserted into either socket, or cables fitted with such plugs be used. These are plugs that look like this, just a tip and a sleeve, no ring:** 
5. Balanced mode can only be selected after both balanced mode cables have been plugged into the 3.5mm sockets, one in the “Headphones” socket (for left channel) and one in the “Line out” socket (for right channel).
6. In the PonoPlayer menu “Settings”, select “Playback”, then “Balanced Mode”. A warning (shown in the picture at the top of this sheet) will appear stating that Balanced Mode must only be used with specialist equipment that supports this form of working.
7. Ensure that the volume control is turned down before playing music, then adjust as needed. Use the player in the normal way, all control and volume functions are available.
8. When either or both Balanced Mode cables are unplugged from the PonoPlayer, Balanced Mode is automatically cancelled.



Wiring diagram for a 3.5mm tip/ring/sleeve plug to a typical headphone plug. The illustration shows the Sennheiser plug with one pin thicker than the other. In unbalanced mode, the thicker pin is used for ground, the thinner one for signal. In balanced mode the thin pin is connected to the tip (hot/positive) of the 3.5mm plug.



Typical Balanced Mode cable to connect to headphones. This is for some of the Sennheiser HD series including HD25, HD580, HD600 and HD650 and is wired in accordance with the diagram to the left