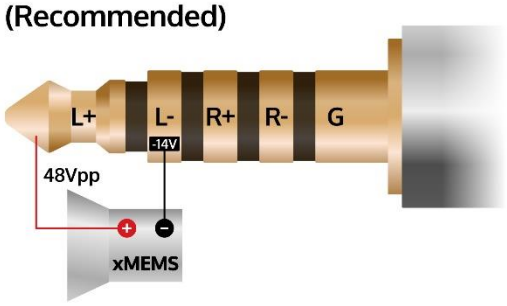
Application Notes for IEM Manufacturers:

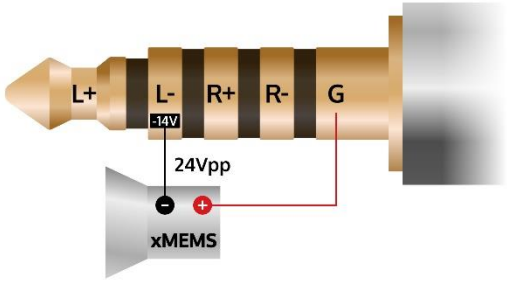
xMEMS - iFi DAC/Amplifiers

Connections

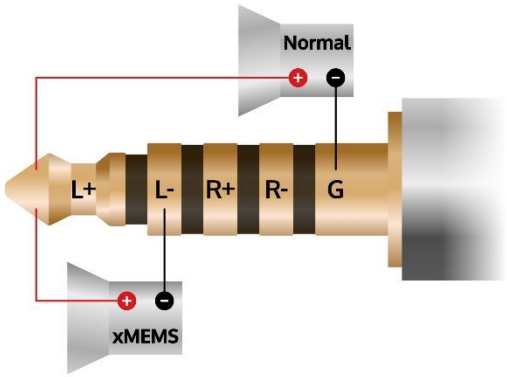
BAL Connections
(Recommended)



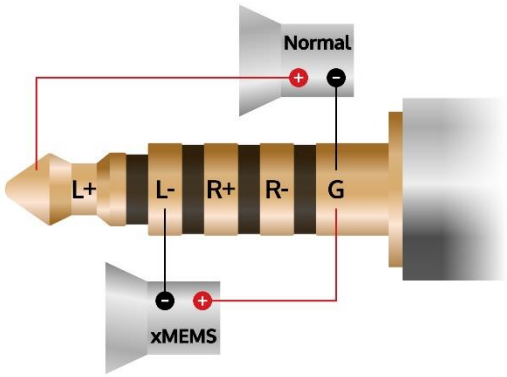
SE Connections



BAL Connections for Multiple Drivers
(Recommended)



SE Connections for Multiple Drivers



4.4mm socket (xMEMS supported)

Tip	L+
Ring 1	L- with -14V bias.
Ring 2	R+
Ring 3	R- with -14V bias.
Sleeve	GND

3.5mmTRS/6.3mm socket (xMEMS not supported)

Tip	L+
Ring	R+
Sleeve	GND

3.5mm TRRS socket (xMEMS not supported)

Tip	L+
Ring 1	R+
Ring 2	GND
Sleeve	GND

Multiple drivers (normal + xMEMS)

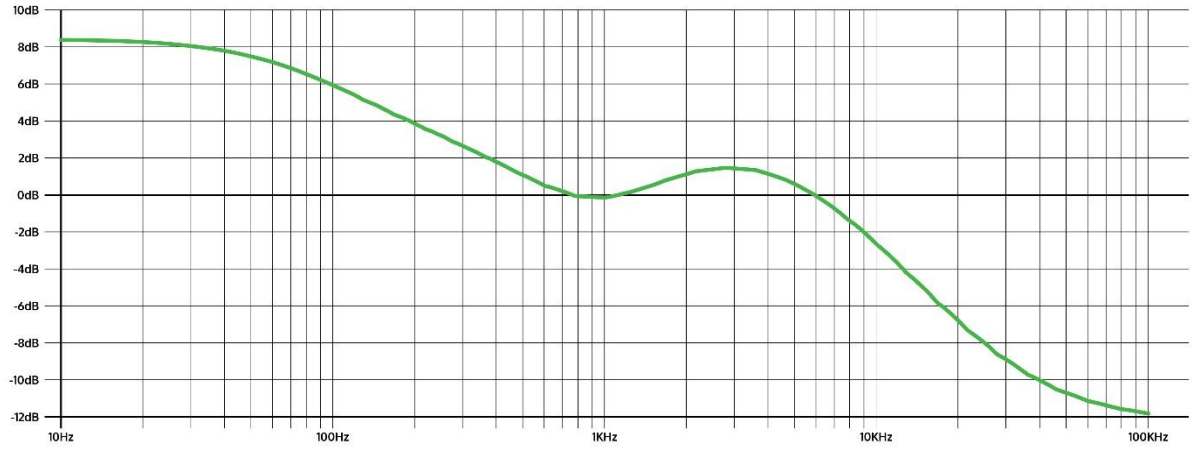
If a normal driver and an xMEMS driver are to be run together in a dual driver design, use the following configuration:

- +ve and GND to connect the normal driver,
- both +ve and -ve to connect the xMEMS driver for a balanced configuration,
- -ve to GND for a single-ended configuration.

EQ (built-in, developed in collaboration with xMEMS):

The EQ enhances the bass by just over 8dB relative to 1kHz and provides a slight lift of 1.5dB at 2kHz to add presence.

For optimal sound quality, the EQ is entirely passive and activates along with the -14V bias when a 4.4mm plug is inserted.



Technical Notes:

- In xMEMS mode, the 4.4mm output operates with the above EQ settings, supporting up to 8.5Vrms SE (@100Hz), equivalent to 24Vpp, and 17Vrms Bal (@100Hz), equivalent to 48Vpp.
- The -ve signal has a -14V DC bias superimposed on it and an audio output impedance of 22 ohms in series with 15uF. With GND as a reference, it carries a 24Vpp audio signal.
- When no 4.4mm plug is inserted, the bias is off, making it safe to plug in normal IEMs without causing damage (though the sound quality will be affected).
- To operate an xMEMS unit, a bias of 10-14V should be applied across it. The current draw is minimal, almost electrostatic. The bias is derived from a supply with 220k impedance. If a 10V bias is required instead of 14V, add a 620k resistor between the negative phase and GND of the 4.4mm output.