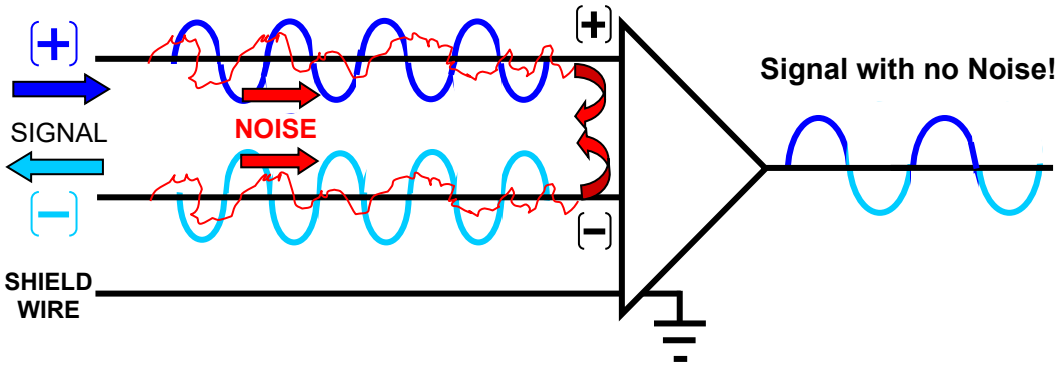
Balanced / Un-Balanced Connections

Audio Technicians, Sound Board Operators, and Musicians should understand the difference between “Balanced” and “Un-Balanced” connections. The examples below will explain the differences.

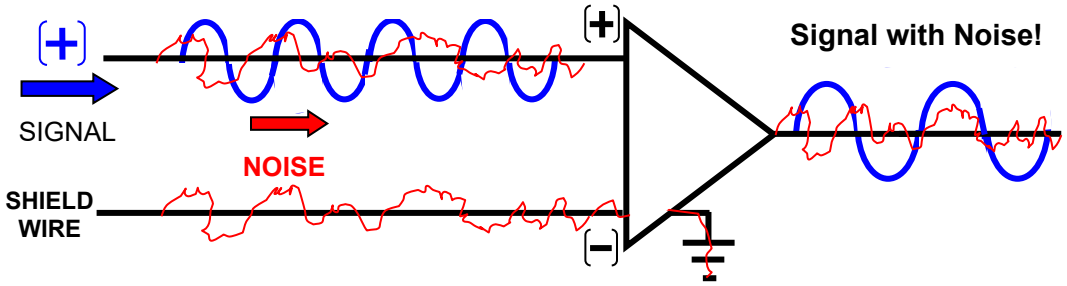
BALANCED CIRCUIT EXAMPLE

Balanced connections use two conductors (two signal carriers), with each wire carrying the same signal potential, but at different polarity (one signal is positive, and one signal is negative). Noise energy (electrical noise) tends to be identical on each of the conductors and is “summed” together, and is then rejected (basically the two noise signals cancel each other out). A Balanced input amplifies only the “difference” between the two signals, and will reject any part of a signal (usually noise) that is the “same” on each conductor.



UNBALANCED CIRCUIT EXAMPLE

Unbalanced connections use two conductors also, but one conductor is carrying the signal, and the other conductor will be at ground potential. Any noise energy on the shield wire will be grounded, but noise energy on the signal conductor will flow through and be amplified with the audio signal.



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