

B & K Components, Ltd.

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Question: “What is a ‘high-current’ amplifier and why is it better?”

A “high-current” amplifier is capable of delivering power into low impedance loads (speakers) without going into protection and/or shutting down. Ideally, an amplifier’s output power would double every time the load presented at its output is halved. For example, an “ideal” amplifier rated 250 Watts @ 8 Ohms would deliver 500 Watts @ 4 Ohms, noting that the load has halved and the power has doubled. In actuality, a “real-world” high-current amplifier capable of 250 Watts @ 8 Ohms might be delivering about 425 Watts @ 4 Ohms.

An easy way to identify a “high-current” amplifier for use with home consumer electronics is to look at what happens to the power rating as the impedance of its load (speakers) drops. The closer the amplifier comes to approaching the “ideal” amplifier scenario, the more current the amplifier is capable of delivering and the better the sound reproduced by the speaker.

In a typical amplifier-speaker circuit, voltage and current are delivered to a very complex load consisting of speaker drivers, resistors, inductors, and capacitors. Voltage may be thought of as the potential to do work, and current as what actually flows to do the work. Although basic power may be calculated by the simple multiplication of voltage and current, it is the delivery of the power from the amplifier to the complex speaker load that accounts for why two amplifiers may have the same power rating into identical impedances (speaker loads), but still be significantly different from one another in sound quality. Some of these sound quality differences may include perceived loudness, depth, and clarity. Amplifiers that are designed to operate with high voltage as opposed to high current are typically much better suited to high impedance loads, typically 8 Ohms and higher. Lower current rated amplifiers have been said to sound dynamically limited and “harsh” at high listening levels.

High quality “audiophile” speakers can have nominal impedances from 8 – 2 Ohms, and during very dynamic passages in source material can easily dip below 2 Ohms. These super low impedance drops can easily choke a high voltage amplifier with limited power storage capacity. For a high-voltage amplifier, this will likely cause problems and trigger its protection, not to mention the less than nice sound it may produce. A high-current amplifier operates with much less effort and typically does not have any problem with these types of speakers.

B & K amplifiers employ a high-current design with large amounts of capacitive power storage. Modern B & K amplifiers can handle nominal impedance of 4 Ohms, as well as dips below 1 Ohm while remaining stable, loud and clear with deep bass and good three-dimensionality. A good example of a “real-world” situation being very close to an “ideal” situation would be our Reference 200.1 mono amplifier. Rated 250 Watts @ 8 Ohms with 150 peak-peak Amps of current, it is quite the powerhouse. When used with a 4 Ohm load the Reference 200.1 kicks out a cool 425 Watts! That’s about as close to perfect as one could expect.

So, what’s the bottom line? For use with lower impedance speakers, high-current amplifiers sound louder, cleaner, and provide more depth than their high-voltage counterparts. High-current amplifiers will not shut down when the speaker presents a difficult load due to varying dynamics in source material. Visit www.bkcomp.com or your local dealer and check out our complete line of high-current amplifiers.