



REVIEWS



Audioengine N22 Amplifier

Posted 11/23/10 at 10:18:16 AM by **Michael Brown**

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Yep, it'll blow your hair back

Many audio purists believe a speaker and its amplifier should never reside in the same enclosure. If you count yourself in that camp, you need to audition Audioengine's new N22 Class AB amplifier. That goes double for anyone looking for a no-nonsense, reasonably priced headphone amp.



The amp features a very simple design aesthetic.

Most amplifiers in this price range are Class D switching amps that convert an input signal into a sequence of higher-voltage output pulses. Since this pulse frequency and its harmonics (integer multiples of the fundamental frequency) contaminate the source signal, a passive filter must be deployed to remove them. This type of amp is typically controlled by digital circuitry that adds more distortion in the form of quantization error as the input signal is converted from analog to digital. That's not to say that all Class D amps are crap. TBI's **Millennia MG3** (\$200), for instance, is a very fine product. Class D amps are also typically very efficient: They consume much less power than other types of amplifiers and require smaller heat sinks to dissipate heat. In fact, some small Class D amplifiers—such as the MG3—can run on batteries.

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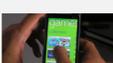
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The output devices in a Class A amp receive power the entire time in which the amp is on, and the amp's output signal is an exact scaled-up replica of the input signal. Audiophiles praise Class A amps for their fidelity, but these types of amps are very expensive to design and build, and they're very inefficient, wasting roughly half the power they consume. The output devices in a Class B amp receive power only when they're actively amplifying the input signal, and they amplify only half the input signal; so a Class B amp is extremely efficient because its output devices are shut off half the time. Unfortunately, this same characteristic produces considerable distortion, so Class B amps are not very useful for critical-listening applications.



The N22 is passively cooled with internal heatsinks and large vents in the top and bottom of its enclosure.

A Class AB amp uses two complementary devices to amplify the opposite halves of an input signal (the two halves are combined at the output stage). So a Class AB amp behaves both like a Class B amp (because it amplifies the input signal in halves, and this is the only time its output devices receive power) and a Class A amp (because it amplifies the entire signal). In order to alleviate crossover distortion—caused by a mismatch in amplification as one device stops supplying power and the other device starts—each device continues to supply a small amount of power as the other ramps up. Class AB amps are much more efficient than Class A amps, but they're not as efficient as Class B or Class D amps.

The N22 has two inputs, which is handy for connecting both a PC and a digital media player (there's one set of stereo RCA inputs and one 1/8-inch stereo input). It's also equipped with a variable pre-amp output (stereo RCA) in case you want to add a powered subwoofer to the mix. Speaker connections are in the form of five-way binding posts (the amp supports 4-, 6-, and 8-ohm speakers). Audioengine rates the N22 as capable of producing 22 watts per channel RMS.



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Audioengine thoughtfully provides a powered USB port on the back of the amp.

You'll find a powered USB port in the back. This is handy for charging your digital media player's batteries, or you can set up a wireless audio-streaming system using the company's Audioengine W1. The 1/8-inch headphone jack in the front of the cabinet is driven by a dedicated Texas Instruments Burr-Brown OPA2134 opamp.

We tested the amp with both TBI Audio Systems' **Majestic Diamond I** speakers and Audioengine's own **P4** speakers and were particularly pleased with the latter combination. Peter Gabriel's cover of the Lou Reed ballad "The Power of the Heart," from Gabriel's *Scratch My Back* album was one of the first tracks we played. We purchased the album, which is encoded in FLAC with 24-bit resolution at a 48kHz sampling rate, from B&W's **Society of Sound** subscription music service. As we listened to the orchestral swell of one passage, we thought someone walked behind us, swirling the air as they passed. But when we turned around, there was no one there. We quickly lassoed a volunteer with longer hair, sat her down in front of the speakers, and replayed the passage. Sure enough, her hair rippled just a bit as the air displaced by the speaker passed it. We'd always thought the concept of "an amp that'll blow your hair back" was a figure of speech, but the P4/N22 combo rendered it reality.

Audioengine N22 Amplifier



 AUDIO ENGINES

Crisp, clean sound; terrific price/performance ratio.

 SIEGE ENGINES

1/8-inch headphone jack; power LED entirely too dim.

VERDICT

9

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 **Awesome**

Submitted by [israel09](#) on Tue, 11/23/2010 - 8:30pm

I love these audio reviews, ive been looking for a affordable and decent headphone or shelf speaker amp. i just may get this

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