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Pass Labs HPA-1 Headphone Amplifier

by Neil Gader



When I think of Pass Labs electronics, the last word that crosses my mind is little. Nelson Pass and his team think big, literally, as their line of Class A and high-power Class AB amplifiers attests. They don't build amps for the bookshelf, the desktop, or the faint of heart. Even their INT-250 integrated amplifier—a component in a supposedly modest, smaller-footprint category—tipped the scales northward of a hundred pounds. But that's not to say that Pass Labs can't think small or isn't paying attention to trends, such as the surge in popularity of personal audio. The HPA-1 headphone amplifier is not only proof that the company is paying attention but also that it is strongly committed to competing at the highest levels in the headphone arena.

The HPA-1 is an all-analog amp that marks Pass Labs' rookie effort in the headphone market. Outwardly, its brushed aluminum cosmetics are tasteful, and bear a strong resemblance to Pass Labs' stocky, full-sized components. The front panel is dominated by the single quarter-inch headphone jack and a large volume control (a potentiometer sourced from Alps with excellent tracking and good feel to the touch). Tiny blue LEDs indicate which source has been selected or whether the signal is being directed to an outboard amplifier or powered loudspeaker. The HPA-1's aluminum plate casework is classic Pass in that it's built like a vault, albeit one the size of a cigar humidor. There are two unbalanced RCA source inputs and a set of preamp outs, also unbalanced. This leaves open to conjecture whether Pass Labs will one day consider a fully balanced version of the HPA-1.

Did someone just say preamp outputs? Yep. Lest you think that you're stuck with just a fancy desktop-dedicated, headphone amp, the HPA-1 is also a very capable dual-source line preamp that that can be conscripted for general system duty as well. Of course its feature set is minimalist, with two single-ended inputs and no remote control, but for many end users it offers all the flexibility needed.

Internally, the HPA-1 is designed more like a power amp than a headphone amp. The Pass team specified high bias to keep the transistors in Class A operation, and the circuit is capable of handling large voltage swings. (Pass amps always sound as if there are a couple output tubes hidden away deep in the chassis, although there aren't.)

The low-feedback, wide-band discrete design employs a JFET input stage and a direct-coupled MOSFET output stage. The custom toroidal transformer is shielded by mu-metal for lower magnetic noise and safeguarded against electrostatic noise by a separate Faraday shield. It feeds a regulated power supply for the audio circuits. The circuits are fully discrete—no ICs carry the signal at any point. Of course, signal paths are kept as short as possible. There's a significant amount of internal heat sinking to dissipate the heat generated by the heavily biased audio circuit.

Critical to its mission, the HPA-1 covers a wide range of headphone impedances—from 15–600 ohms. Why no internal DAC or at least the option to add one? The answer lies in Pass' philosophy to design amplifiers that stand the test of time—perhaps twenty years or more. DACs, on the other hand, continue to be a fickle segment, formats changing with the wind. Many will likely be obsolete or unsupported in five years or less. Maintaining this separation is a valid argument in my view.

Because the headphone category offers relative affordability and ease of storage (compared with loudspeakers), ownership is usually not limited to a single pair. Mixing and matching headphones according to taste and musical genre is an acknowledged category pastime. So, I had three at the ready for the HPA-1 to dig into. My trusty old AKG K501 (120 ohms), and a pair of planar-magnetic designs in the form of the HiFiMan Edition X (25 ohms), and the Audeze LCD-X (20 ohms). I used each headphone's original equipment cabling plus Audience Au24 SX interconnects and power cables into the HPA-1.

Going out of My Head over You

In recent years I've reviewed two Pass integrated amps—the INT-150 (Issue 184) and its cousin the INT-250 (Issue 263), an eerily powerful earthmover if ever an amp deserved the name. The HPA-1 sets the sonic table in ways remarkably similar to these amps. As a result, the trio of headphones I had on hand performed in much the same way that loudspeakers perform when pushed by Pass' big amps. Backgrounds were the personification of stillness, like staring into a bottomless pool of black water. This trait was on critical display during Holly Cole's cover of "I Can See Clearly," where the opening bass line's sustain and lengthy delay could be heard echoing into the deepest gorge of a reverb chamber. Low-level symphonic dynamics, such as the tinkle of a concert harp, the rattles of a tambourine, or the thud of distant percussion, were conveyed to the ear with an electric sense of surprise, as they emerged from the cushy stillness that the HPA-1 created. The character of this amp was one of distortion-free relaxation—a combination of midrange warmth and romanticism, and the cushion of the soft air around instrumentalists. The HPA-1 reproduced male and female vocalists with body, illuminated tonal colors, and tender micro-dynamics. In specificity, images were outlined as if by the fine point of a fountain pen. It was especially edifying to listen to the contrasting interpretations of Rutter's Requiem through the Audeze and HiFiMan. The former offered greater bass clarity and foundation from the pipe organ and defined the individuals of the Turtle Creek Chorale more completely in both detail and transparency. The HiFiMan distinguished itself with a

cooler, lighter touch on midband details, and an overall sonic atmosphere that was a shade lighter than the more rose-lit Audeze. As I listened to the lively vocal exchange between Ella and Louis during “You Can’t Take That Away from Me,” the HiFiMan suggested a bit more articulation. Yet, during Elton John’s “Rocket Man,” it was the Audeze that brought forth fuller and more extended bass and a superior warmth quotient. They each had overlapping octaves of speed and transparency and resolution, but their differences also underscored the argument for owning both. To that end I preferred the Audeze for its symphonic chops but the HiFiMan with rock and pop. Both brands deserve praise for their ease of use and solid output with portable smart devices like an iPhone or iPad.

Headphones excel at low-level minutiae and reveal details hitherto submerged in a mix, but are less convincing conveying grand scale. Easily, the biggest compliment I can heap on the HPA-1 is that it helped get me out of my head. It broke down some of the psychoacoustic barriers that tend to steer me away from extended headphone listening. With its open soundstaging and airy presence the HPA-1 largely ameliorated the bothersome headphone-borne sense of confinement as music converges between the ears rather than from a soundspace in front of your eyes. Long story short, I’ve never felt as relaxed and comfortable listening to headphones as I was with the HPA-1.

Putting aside its prime directive as a headphone amp for a moment, the HPA-1 got right into the swing of being a dedicated preamp as it smoothly drove the active ATC SCM19A floorstanding loudspeakers (Issue 272). It exhibited the same lack of artifice, dynamic drive, and resolving power. Differences were subtle, subtractions minor (to some degree reflecting the added acoustic of my listening room); however, low-frequency pitch definition did soften slightly and soundstaging wasn’t as dimensionally immersive as that of my reference electronics. Even as a stand-alone preamp the HPA-1 is immensely competitive in its class, and for driving a powered desktop system (the likely goal) pretty hard to beat.

Pass Labs may have been late to the personal listening party, but the HPA-1 was more than worth the wait. Taken as a dedicated headphone amp or as a minimalist preamp-in-a-pinch, it offers performance at or near the head of its class. As Pass Labs’ first and currently only headphone amp, its success will hopefully spur more products to come.

One last thing: Hey rookie, what took you so long?

