

Bryston BHA-1 Headphone Amplifier



Phil Gold

Here's a very ambitious new product from Peterborough's Bryston Limited. It's a fair assumption that Bryston knows a thing or two about amplifiers. For most of its existence Bryston has majored in amps of all kinds - preamps, power amps, integrated amps, amps for active speakers and so on. But in recent years the company branched out into innovative digital products including DACs, digital players and surround processors. The newest categories from Bryston are the BIT series of power conditioners, the Model T speakers and this new headphone amp, the BHA-1 (for Bryston Headphone Amp One). As is typical of Bryston electronics, the BHA-1 (\$1,395) is built like a tank, guaranteed for 20 years and available in black or silver finish, with an option for rack mounting. It shares its analog output modules with the brilliant new SP3 surround processor, now making big waves internationally.

Is this a me too product, or does Bryston have something special to offer? The most obvious sign that something special is going on is the row of three DIN sockets next to the 1/4-inch headphone jack on the front panel. One of these is a four pin socket for balanced headphones, while the other two are a left/right pair of three

pin DIN sockets, also for balanced headphones. The BHA-1 can drive three pairs of headphones at once if you like, one in unbalanced (standard) configuration, and two in balanced. And it works. I've tried it.

Fully balanced operation is not that common and usually comes at a significantly higher price because it means doubling up on all the circuitry. Bryston introduced the BHA-1 with no rear panel outputs in mid 2012 but quickly realized some users would like balanced outputs dedicated to driving a power amp. So the company recently added two more sockets parallel to the left/right DIN pair up front. Now the BHA-1 can operate as a full balanced preamp and you can expect a small price increase soon to cover the cost of this running change. There are three inputs available - a miniplug for MP3 type sources, a regular pair of RCAs and a pair of balanced DIN inputs. It's a full width component, finished to Bryston's usual high standards, and quite low slung. It measures just 11.25 inches front to back. The BHA-1 looks good and feels good as you operate the controls. You'll need to do that often, since there is no remote control. You get a choice of low or high output, a substantial volume control, an input selector, balance control and an on/off switch.

Internally the BHA-1 uses the same dis-

creet operational amps (six of them here) as used in Bryston's new SP3 processor. An earlier iteration of these amp modules is found in Bryston's stereo preamps. This new version provides a simpler signal path through careful redesign and high quality parts. The amp operates in dual mono, dual differential Class A mode for the ultimate in signal-to-noise ratio. The volume pot is a laser trimmed Noble design and the all important power supply is based on a large toroidal transformer (a hallmark of Bryston designs) and four high capacity capacitors among the many components mounted on a single large PCB with a minimal amount of hard wiring and an immaculate layout. Input and output connectors are gold coated. There is even a remote trigger on the rear panel to power up other compatible components. The amp is rated at 0.5 wpc (maximum 5wpc) and offers 14dB or 20dB of gain according to the position of the gain switch.

So far, so good. There's obviously a lot of flexibility here. Some might question the need for a balance control but as long as it's well implemented I'm happy to see it. So two questions remain. How did it sound, and how well did it match up with the various headphones and power amps at hand?

To evaluate its potential I used it first

with a number of excellent headphones fitted with standard plugs. First my canal earphones, the Ultimate Ears UE10Pro. You'll have to take my word for it, because these phones are molded to the exact shape of my ears so only I can use them. But they sounded great with the Bryston. The bass was deep and flat, the treble clear; no chestiness or distortion was evident. But truth to tell, the UE10Pro is very easy to drive, so these efficient phones do not stretch the Bryston like some of the other phones in my collection. Moving to the AKG K701, and comparing the sound against other fine headphone amps such as the Graham Slee Ultralinear Diamond Edition (an earlier version of which I reviewed for CANADA HiFi in Aug/Sept 2011), I could barely tell the difference. Both amps drew excellent sound from the K701, the Solo perhaps a little warmer and the Bryston with a clear edge in maximum output level. The K701 is a less efficient load than the UE10Pro but its ultimate sound quality is limited more by the quality of its cable than by any deficiencies in the Bryston. So for my most extended tests, I switched to the formidable and much more expensive Sennheiser HD800. This is a reference level component, but sadly it too is limited in its abilities by the cable that comes with it. Unlike the AKG K701, the HD800's cable is socketed so you can upgrade its performance by substituting an after-market cable of your choice. My choice is the superb Cardas Clear Headphone Cable, which alone costs more than many a good set of headphones. I love this cable because it allows the

Sennheiser to soar, extending the frequency response in both directions, improving definition and imaging while maintaining an iron grip in the bass. The Bryston did very well with this hard to drive headphone, matching the superb Solo quality and surpassing it again in maximum sound levels. On some tracks I preferred the Solo, on others the Bryston, and my houseguests had similar experiences.

But this is not the end of the story. My good friends at Cardas supplied me with a balanced version of their Clear Headphone Cable, terminated in a pair of three pin DIN plugs, so that I could test the Bryston as it was meant to be driven - fully balanced end to end. Feeding the Bryston I used a pair of Nordost Valhalla balanced interconnects cables from an EMM Labs XDS1 CD/SACD Player, and I fed both components using Valhalla power cords.

The high/low switch on the front of the Bryston provides an extra 6dB of gain, which is exactly the amount needed to match the volume difference between the unbalanced and balanced outputs on the Bryston. So keeping both lengths of Clear cable connected I could perform A/B testing on the HD800 between the balanced and unbalanced outputs just by changing the connectors at the headphone end (a 10 second job) and flipping a switch. I did this repeatedly over a vast range of music, and the balanced output was always preferable. The sound was at once larger, more dimensional and more relaxing to listen to, more natural and more vibrant. The differences were not large but they



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were clear. This was the best headphone sound I've heard to date short of some very expensive and exotic electrostatic headphones. It is possible that what I was hearing was not any addition to the signal provided by the balanced output and cable but rather I was losing some tiny amount of noise that had a slight masking effect on the sound, or some slight cross-channel interference which is impossible to completely suppress when both channels share a common return. An unbalanced jack has just three leads going to the 4 pins on the headphones, while the balanced connection keeps left and right completely apart. Whatever the reason, the effect was clear. If you are really serious about headphone listening and your phones are capable of balanced operation, go for it.

My clear preference for balanced over unbalanced operation (everything else being equal) should mean the balanced mode with the Bryston outperforms the unbalanced Solo, and that was my experience too. An additional bonus with fully balanced operation is that the amp has increased headroom at high output levels, allowing higher volume levels to be reached without strain. This isn't normally an issue with most headphones, but there are some phones even less efficient than the HD800s, such as the HiFiMAN HE6 and the extraordinary AKG K1000, alas no longer made. The Bryston managed to drive the K1000 to reasonably high levels through its balanced four pin DIN socket, but it was not able to do it full justice. I would have liked a little more range in the volume control. AKG recommends direct connection to the speaker terminals

of a power amp or integrated amp so this should not come as a surprise.

Now let's consider the Bryston as a fully balanced preamp, feeding a ModWright KWA150 SE power amp. Sonically the Bryston sounded very good - clean, articulate, wide bandwidth and dynamic. I ran with it for a week and never felt shortchanged. Naturally it doesn't have the refinement, definition and soundstage of the best dedicated stereo preamps, nor the multiple inputs and remote control that go with them, but it also doesn't have their price tag. Expect to pay upwards of \$4,000 for a Parasound Halo JC2 if you want something to eclipse the Bryston sonically. But even at the comparatively modest price of \$1,395, I do have some reservations. In my system at least, the balanced output level is higher than the power amp is expecting, leaving me with a just the first 20 degrees of the volume control to cover a wide range of listening levels even on its low output setting. In unbalanced mode you can use a wider range on the volume control but that rather defeats the benefit of having a balanced preamplifier in the first place. Other power amps, such as the Bryston 4BSST², may not have this issue, either because they have sensitivity switches of their own, or because they have less gain than the ModWright. The front and rear dual DIN outputs are connected in parallel and offer the same output level. In being so generous in output as to drive really inefficient headphones, perhaps it is inevitable the maximum output offered is too high for some power amps. To offer different output levels front and rear would require

more complex circuitry but a simpler solution might be to offer a bigger difference between the high and low output settings on the front panel switch (12dB or 18dB perhaps), or even a three position gain switch.

This same volume control range and gain switch seem to be well suited to headphones of different sensitivity and impedance, and under no circumstances could I detect any background noise or hum, even on maximum gain. I suspect that if the maximum gain were higher, the output circuitry and the power supply would have all the juice they need to drive even the AKG K1000 to high levels. In other words, this headphone amp is just coasting under all normal loads, and this is something we have come to expect from Bryston and a factor in the company being able to offer a 20 year warranty.

Now forget my small reservations and let's recognize an outstanding bargain in balanced headphone amps. If the Bryston sold for \$2500 I would not have been surprised and it would still offer strong value. At its current price it is a steal. Buy one today.

quickinfo

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Bryston BHA-1 Headphone Amplifier
 Price: \$1,395 CAD