

BRYSTON

A Lifetime of Music

MEMO: To All Bryston Customers

SUBJECT: QOBUISSIME AWARD – BHA-1 Headphone Amplifier



Bryston BHA-1: Qobuzissime Award for this elegant amplifier for powerful headphones offering a beautiful sound reproduction!

This is the largest headphone amplifier we've tested and its electronics is really out of the ordinary and offers great sound benefits. The Bryston BHA-1 headphone amplifier and our ears had a great time together.

BY PHILIPPE DAUSSIN, APRIL, 2019



With our amplifier test for Bryston BHA-1 headphone we met the famous saying "never two without three" since we also tested recently the network drive BDP-3 and the analog digital converter BDA-3 of same manufacturer and that these elements are all three of the same spirit and the same aesthetic and that their operation in concert seems natural.

This Bryston BHA-1 headphone amplifier has advanced schematics (available on the Internet) to recreate operational amplifiers in discrete components, which requires the use of a fairly large number of transistors and other elements. On the other hand, Bryston has opted for a dual mode of operation, standard and balanced, which amounts to doubling some structures, with, ultimately, a circuit dedicated to the amplification part of a rather large size and quite impressive.

The user can thus have a headphone amplifier with a connector which, without being exhaustive, makes it possible to cope with the use of standard and balanced headphones that can have, in the first case, a power of 500mW under 32Ω, and in the second case, 2W under 32Ω. Now, we placed it on the test bench.

A propos du DAC Bryston BHA-1	
Type :	amplificateur pour casque avec fonctionnement normal et symétrique
Puissance :	500mW/32 Ω, 2W/32 Ω (mode symétrique)
Entrées :	Cinch et Jack 3,5mm stéréo, XRL symétriques
Sorties :	casque sur Jack 6,35mm, mode symétrique sur 2 x XLR 3 broches et sur XLR 4 broches
Autres :	sorties symétriques stéréo pré amplifiées sur 2 x XLR 3 broches
Dimensions (LxHxP) :	432 x 69 x 282
Poids :	5,3 kg
Conception/Fabrication :	Canada/Canada
Prix public généralement pratiqué :	1995 euros
Contact :	DEA International

PRESENTATION

The Bryston BHA-1 headphone amplifier adopts a cosmetic in the purest form similar to the network player BDP-3 or the DAC BDA-3 previously mentioned, with a thin line whose front in thick anodized aluminum is available in natural satin or brushed black finish.

The power toggle rocker switch takes place at the right end of the facade with its green LED indicator. Then there is a balanced stereo output jack on XLR four-pin, followed by two XLR three-pin outlets providing, as previously, balanced signals for the right and left channels, but separately, these outlets can only be used with a balanced headphone. A 1/4" plug will allow you to connect a standard headset.

Rarely on a headphone amplifier, and even in general, a channel left/right balance adjustment takes place next to the large volume knob, while a toggle switch offers the choice between a low gain or a high gain, and another toggle is used to select one of the three inputs available on the back.



At the rear, the connection allows you to connect three sources, two in standard balanced connection, one on a pair of Cinch sockets and the other on a 3.5mm female stereo jack connector, and another of symmetrical type on two XLR female connectors.

The amplified signals are also available in balanced mode on two XLR sockets for connection to a power amplifier or amplified speakers with compatible connectors. There is also a trigger input.



PRODUCTION

This amplifier for balanced headphones uses at least one electronic copying which occupies completely the inside of the case, the amplification strictly speaking using alone 2/3 of the surface, the rest returning to the circuit of feeding and its powerful toroidal transformer.

As we have already noted in previous test benches that we devoted to Bryston devices, they are made with great care and the circuit boards are superbly arranged, like the amplification part of this BHA -1 which we can see below the right channel.



From the power board come on this board a voltage of + 12V for relays and symmetrical voltages of $\pm 27V$ for amplifiers. The latter are switched during power-up by transistors MJD44 and MJD45, in a sophisticated manner, via an optocoupler to isolate the control of these power supplies.

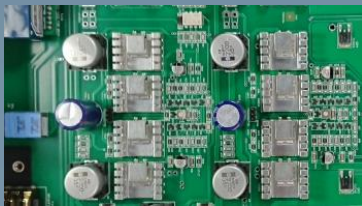
These voltages are then regulated to $\pm 22V$ on each channel by two independent transistorized power supplies (transistor follower assembly) and making use of zener diodes (voltage regulation diodes) and MJE15030 and MJE15031 transistors, each of these voltages

being filtered by a Electrochemical capacitor of 2200 μ F / 35V. The operation is therefore double mono, avoiding any interaction of any kind between the two channels.

On each channel, the various inputs of the signals, cinch, mini jack and balanced XLR are switched by relays before attacking a buffer stage which also acts as a differentiator for the symmetrical signals. On the top right, you can see the XLR balanced output that can be connected to a compatible amplifier.



Then come two floors both working in phase inverters. The signal supported by the one on the left in the photo will serve as a negative signal for the balanced outputs, headphones and line, and it is at its level that we amplify the signal (by inverting its phase as we say) with possibility to change its gain through a relay that will change the value of the resistance of reaction. The output of this signal is performed at an electrochemical capacitor of 4700 μ F / 6.3V (big dark blue model on the visual).



This signal will also be applied to the other inverter stage, which will not amplify it (gain = -1) but will reverse its phase, thus allowing to recover a signal in phase and which has been amplified by the previous stage. This signal is used as a positive signal for the balanced headphone and line outputs, and on the headphone jack output, and, as for the other stage, through a 4700 μ F / 6.3V electrochemical capacitor. In these two stages, the power transistors used are MJD243 and MJD253 equipped with radiators.

LISTENING

Headphones Hifiman Sundara , DAC USB Leaf Audio equipped with a Burr-Brown PCM5102 chip followed by a simple passive filter (no counter-reaction), it is with our well-loved album of Vespri for the Assunzione di Maria Vivaldi's Vergine by Rinaldo Alessandrini directing the Concerto Italiano as we begin our listening.

The restitution is beautiful, very beautiful, fluid, shows a beautiful vivacity and at no time does not show the slightest sign of hardness in the treble even pushing the volume, because the power is there and there without showing any excess, like a big motor that grows with ease and carries the chorus and the orchestra for our greatest musical happiness. With the finale of Sibelius Symphony No. 2 in the beautiful performance of the Royal Stockholm Philharmonic Orchestra conducted by Vladimir Ashkenazy, the Bryston BHA-1 headphone amplifier offers precision, a color festival and a dynamic follow-up that is truly delightful and made us savor to the extreme this piece of extraordinary expressiveness and power that we particularly like and whose version is demanding for the material but so good for the ears! Listening to George Harrison's famous All Things Must Pass , the guitar chords offer a refined piqué and the voices are particularly sweet and it is a restitution full of sweetness. As for the devastating titles North Star and Silent Space Tale Of Us album , it would take more to weaken the BHA-1 and it remains royal face the wave of bass and sends the power without blinking and also without the ears feel aggrieved even at very high levels, but do not overdo it!



In conclusion, we decided to award our Qobuzissime award to the Bryston BHA-1 high-end headphone amplifier, whose specific and sophisticated performance and the beautiful sound results it has given us.