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# NOTHING BUT THE TRUTH! BRYSTON BDA-1 DAC

The Bryston BDA-1 D to A Converter processes every kind of digital fare - sometimes with astounding results.



With the BDA-1 D to A Converter the Canadian Firm Bryston, which has its roots in the professional sector, has created a "reception center" for all on-going digital media, and on top of that, for high end circumstances, at a very sensible price. Bryston's manufacturing was always aimed straight forward for continuous operation, as reflected by the 20 year electronics warranty. The BDA-1 DAC weighs a full eight kilograms, and contains some very innovative technology. Eight inputs are sufficient for modern in-home use, i.e. two coaxial/RCA, two optical/Toslink, two BNC, and one each AES-EBU and USB. By use of the coaxial output, the respective original signal can be passed on, perhaps for recording, to other digital components. An RS-232 jack allows updates via PC.

Generally a CD player, a DVD player, a tape deck, a DAB radio, a network player, and a laptop can be simultaneously connected to the DAC, admittedly only in stereo, but in all sensible frequencies, i.e. 32, 44.1, 48, 88.2, 96, 176.4, and 192 kilohertz. 24 bit-rates are possible for all PCM inputs besides USB, where "only" 16 bit-rates are available up to 48 kilohertz, which is easily reconcilable with MP3. Whoever wants to hear high bit-rates from her/his PC or network player, should choose the coaxial or BNC input. Bryston's engineers found clear solutions for known weaknesses with digital transmission, which begins with the fact that many of the digital outputs and cables are outside of normal impedances. Therefore the BDA-1 DAC inputs received impedance matching transformers. Additionally the digital signal is re-clocked and "Synchronized" upsampled before the actual D to A conversion. 16 bit words are expanded to 24 bit words, and the clock rates multiplied from 32, 48, and 96 to 192 kilohertz, and from 44.1, 88.2 to 176.4 kilohertz. Although this does not add additional information, the converter chips perform better with the upsampled signals. A noise shaper helps with the removal of digital noise, and moves it out of the audible spectrum. Now the data is quasi swept clean, and fed into the converter with a totally new clock signal.

Per channel Bryston employs one CS 4398 chip, a converter which combines multi-bit and delta-sigma-1 bit. The already processed digital signals are now once more oversampled, but in different modes. Signals with input sample rates up to 50 kHz are 128 times oversampled, signals up to 100 kHz 64 times, and signals up to 200 kHz 32 times. Bryston provides audiophiles the ability to disengage the upsampling feature. The non-upsampled signal can be chosen by means of a switch on the front panel. The "analogized" signal stream is now fed into discretely built-up Class A output stages, where op amps are responsible for maximum transparency, resolution, and dynamics.

A massive remote control, which controls each digital input as well as other Bryston components is available as an option. In any case DAC owners without peripherals require it in order to test what impact the upsampling has. The Bryston BDA-1 DAC lies pricewise above the similar studio technology derived DACs from Benchmark, whose smaller model also incorporates USB. The larger unit also includes a preamp, analog input, and headphone input. The extraction of fine acoustical differences between similarly equipped DACs may simply lead to an apple/pear comparison, even if one uses identical power, digital, and low frequency cables, or especially then because every DAC can reach its top performance with a different cable mix. Incidentally Bryston Distributor Sun Audio supplies its own power cable, and equips all DACs with a gold fuse. Furthermore I experimented with additional power cables in my setup with amplifiers from Marantz and Musical Fidelity, and Vienna Acoustics Beethoven Grand loudspeakers. A Marantz SA-1551 CD/SACD player and a Barclay transport provided the BDA-1 DAC with digital signals, two DVD-Audio capable players were responsible for the 24/96 emission, and MP3 was provided from my laptop.

Despite an elaborate power supply the BDA-1 DAC, like other digital components, sounds more "plastic" when it is connected to a power conditioner from Accuphase or PS Audio. Good power is really not a luxury but the beginning of a good audio system, and if one shirks here, one squanders potential. The transport is likewise audible, despite all of the "jitter killers." "Artkustik" (treated cryogenically) and "ZU" (USA) low frequency cables, and "Ensemble" and "Ecosse" digital cables offer the most harmoniously rich choices. In my audio system this mix produced perfectly executed sound pictures and the most tingly goose bumps feeling. Via the RCA outputs the Bryston DAC supplies about one and one half decibels above a normal 2 Volt player. Therefore one must pay attention with comparisons in order not to succumb to the illusion of better listening transparency which is only based on elevated loudness.

After careful balancing of all sources the listening enjoyment began, and, indeed, it was an enjoyment. The Bryston DAC is no soft charmer, who sings like Orpheus and can even soften stones, no, it goes to work with almost Swiss precision. What is there, it provides. It contributes atmosphere to the sound stage, which now extends itself farther to the front and rear, and with instruments it assures "visibility." Even high-bit sounds profit from this, for example Mahler's Third Symphony, under Maurice Abravanel, (Silverline 24/96 DVD-A) where some of the soloists received an almost startling presence. This is due to the dynamic expansion of the Bryston DAC which presents instruments even more realistically in comparison to every other player. Some effects

such as the clear vibrato sobbing cellos in the finale, the pastoral minuet oboe in the ambient sound of the Mormon Tabernacle in Salt Lake City, or even the subtle harp accents in the fourth movement, all of these really got under my skin.

For instance the string sound, in comparison to the other compared original players, did not become milder and the tone colors seemed even fresher, causing me to think at times about the exposed bare frescos in the Sistine Chapel. Moreover the beauty with all of this, the DAC appears to sweep distortion away. The old violins of the Accademia Bizantina with Vivaldi's Concertos op. 3 (Arts; 96/24-DVD-A, CD), or the Vienna Philharmonic players criticized because of their stridency in Kleiber's legendary 1989 New Year's Concert (Sony, CD) were brilliant without causing frayed nerves.

With the fascinating Platti-Concertos (Harmonia Mundi, CD) where I thought that I still heard some minor distorted sounds from the CD player, these gave way to clearer sounds with the Bryston DAC. Even high-bit pianos added intonation with use of the BDA-1 DAC. Whereas in the past I have always held sound or mastering engineers responsible, now large piano sound poured into the room with astounding authority, and also with loud impact, whether from Markus Schirmer (Beethoven; Tacet, CD) Murray Perahia (Bach; Sony, CD) or Jeffrey Siegel (Gershwin; Classic, 24/96 DAD).

Jan Nishimura, at one time Denon's One-Point-Recording guru in Germany, remains true to his conviction and still produces One Points on DVD-A. Among these is the live recording of an "Italian Night" from the Wuerzburger Residenz (Nishimura, DVD-A, 24/48), which sounded truly convincing through the Bryston DAC.

With its uncovering of details the Bryston DAC made us aware, quite incidentally, of the second music plane, the background. An example of this is on Kenny Drew's incredibly dense "Undercurrent" from 1960 (Classic Records, 24/96 DAD) where percussion pounds its beat during the title song right behind the saxophone, which if anything degenerates into wavering background noise with many DACs, whereas the Bryston BDA-1 DAC uncovers the rhythmic nuances here. Even music which I have not encountered for quite some time awakened my curiosity, for example Mozarts "Coronation Mass" (Harnoncourt, Warner, CD) live 1986, with which I felt myself transported into the Ballroom of Vienna's Zögernitz Casino. Choral voices were more easily understood, and soloists moved one step closer to the microphone. The Marantz SACD player is an outstanding solo contender, providing every kind of sensitivity and

emotion, however above and beyond that the Bryston DAC is able to make the inner life of a recording audible, and that with likewise restraint and efficiency.

Connected to a laptop via the USB Jack, the BDA-1 was immediately recognized as a USB flash drive. But the sound card lies in the USB path, therefore care is required before proceeding. All the equalizer bands should be set at 0, and the digital output of the PC or network player, if one is provided, should be used. USB is a compromise, except for the 16 bit/48 kHz setting on the BDA-1 DAC. 64 bit recordings from Soul-Man Sam McClain (Telarc; CD) sounded enjoyable, but compared to the CD or even the SACD, even the Bryston DAC could not bring a miracle about. One enjoys a bit more power, but I rather see the BDA-1 DAC in the audiophile realm in which the Internet Radio doesn't tootle, but where worthwhile digital material is enhanced. Incidentally MP3, AAC, and WAV function flawlessly.

The audiophile necessity of the technically clear advantage of upsampling I cannot view unconditionally. Sometimes I had the impression that the harmonic carpet spread itself somewhat wider over violin tones, somewhat more so with USB or CD than with 24/96. Was this now closer to the original than the non-upsampled version? Often, for me, the switched-off version offered more of a "natural" atmosphere and more beautiful overtones. Here probably every listener will have to take into consideration her or his entire audio system chain before making this decision. Moreover since there are hardly any differences in the dimensions of the musicians or the musical venue, it is a feature that one can utilize or not entirely according to one's own taste. The "cleanliness" of the sound appears to also prove that the converter chips always keep in step even without upsampling.

## Conclusion

The Bryston BDA-1 D to A converter is worth its money. From up to eight digital sources this unobtrusive converter provides spacious, clean, transparent, and harmoniously appealing tone pictures, which attains gripping, even astounding, realism with high-resolution material.

*Ludwig Flich*

## Laboratory Report

<b>Bryston BDA-1</b>	<b>(Unbalanced)</b>
Distortion (THD+N)	0.0014%
Intermodulation Distortion (SMPTE)	0.0018%
Intermodulation Distortion (CCIF)	0.0011%
Extraneous Voltage (250kHz-Filter)	-52.5 dB

Noise Voltage (A rated)	-99.8 dB
D to A Converter Linearity: -50/-60/-70/-80/-90 dB	0.0/0.001/0.0/0.002 dB
Channel Difference	0.07 dB
Output Voltage	2.37 V
Output Resistance (1 kHz)	75 ohm
DC-Output-Offset	<0.2 mV
Standby current usage	6.3 W

After the superb Bryston CD player it was to be expected that the Bryston DAC would also provide outstanding results in the laboratory. **The distortion values are absolutely outstanding, they could hardly be better, and likewise the converter linearity.** In balanced mode the Bryston DAC delivers 4.7 Volt (150 ohm output impedance).

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### **Bryston BDA-1 D to A Converter**

Dimensions: W x H x D	43.5 x 7 x 28 cm.
Warranty	5 Years
Price	2,200 Euro
Distributor	Sun Audio Schneckenburger Straße 30 81675 Munich, GERMANY
Telephone	089 – 47 94 43

*Translated from the German by Peter Ullman*