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The Bryston BUC-1 USB

A long-awaited solution

RICHARD SCHNEIDER

If you use a computer to play back your music collection through a digital to analog converter, the DAC must have a USB input. Since not all DACs are so equipped, the solution is to use a USB to S/PDIF converter. With the new BUC-1 USB, Bryston joins the list of manufacturers who offer this important bridge for those whose DAC lacks a USB input. Bryston's solution is affordable, amazingly simple and, best of all, provides the legendary sound quality that Bryston is known for.

A BRIEF HISTORY

Bryston is an entirely Canadian company located in Peterborough in southern Ontario. The company began operations in 1962 as a custom electronics manufacturer in various fields outside of audio. Bryston's origins in the audio market began with John W. Russell, a NASA engineer who was one of several thousand employees laid off by NASA in 1967. John purchased Bryston that year, but it was his second son Christopher's interest in audio electronics that

led him to experiment with making audio products under the company's brand name. This led to the first domestic amplifier developed by the firm, the legendary 4B. As for the **Bryston** name, it was formed from the names of the three founding members: Anthony **B**auer, Stan **R**Ybb and John **S**TONEborough.

In addition to the sound quality of its products, Bryston is also renowned for the quality of its customer service, a fact that I can attest to. When using the BUC-1 in a Windows environment, software drivers must be installed, and a USB key is part of the installation package. The one I had was defective, so I contacted customer service and within 24 hours had a new USB key as well as an FTP link to the manufacturer to download the necessary files. Quite exceptional, it goes without saying.

Bryston's confidence in their products is such that it backs them with generous warranties. The BUC-1 USB is no exception and comes with a five-year warranty.

THE SHORT TOUR

To avoid any confusion, it should be understood that the **BUC-1 USB** is not a digital to analog converter, but a device that converts between two digital transmission protocols. It takes the digital data from your computer or attached storage device and converts it from the USB protocol to the S/PDIF protocol.

The BUC-1, available in silver or black finish, is a compact device measuring 8 x 5 5/8 x 2 1/4 inches (57.1 x 142.8 x 203 mm). The front panel is straightforward, with a power switch and a series of LEDs indicating the sampling frequency of the track being played. The rear panel has a single USB asynchronous input for connection to the computer source, and three outputs: BNC (S/PDIF), coaxial RCA (S/PDIF) or XLR (AES / EBU). The BUC-1 can therefore be connected to any digital to analog converter on the market. Connectors are high quality and gold plated. The BUC-1 uses high quality output transformers to isolate the output signal from any electrical noise generated by the computer source. The connector for the power cord is male, and the cord provided by Bryston works very well.

THE HEART OF THE BEAST

The power supply is crucial to the performance of any high-end audio design. Most USB to S/PDIF adapters are powered by the source computer through the USB connection. Bryston's approach is to completely replace the electrically noisy computer power supply with an ultra-low noise linear-regulated power supply that provides clean power to the internal circuitry of the BUC-1 while electrically isolating it from the host computer. In the BUC-1, Bryston uses a combination of power supply filtering and a newly designed power-down regulator to eliminate all high-frequency noise and provide clean stable power to the digital electronics and to the clocks.

What happens when the USB cable transfers the signal from the computer to the BUC-1? An XMOS chip handles incoming signals natively up to 24 bit / 192 kHz as well as DoP (DSD over PCM) to 2.8 MHz. Incidentally, the term PCM is used very frequently, but rarely defined. Stated in simple terms, PCM is the abbreviation for Pulse Code Modulation, a technique used to digitize an analog audio signal. In the case of the CD, digital data is encoded at the 44.1 kHz sampling rate. In the BUC-1, Bryston employs two low-phase clocks to precisely reclock the incoming data to 44.1 kHz. A second clock ensure a precise 48 kHz sample rate.

WHY USE AN EXTERNAL USB 2.0 CONVERTER?

It is illusory to think that listening to a music file from a computer alone can provide performance at the audiophile level. One has only to consider all the electrically noisy components that make up a computer, the hard disk for example, to realize that there are a multitude of elements that can degrade the sound quality. In addition, under the USB 1.0 standard, the computer's master clock controls the transfer rate of digital data to the playback device. As these master clocks are generally not the most stable, the timing of data flow to the playback device can be affected, causing what is commonly called jitter. Another major disadvantage of the

USB 1.0 standard is the maximum sampling rate of 96 kHz. It goes without saying that the BUC-1 uses the USB 2.0 standard, so that it becomes the master clock controlling data transfer, and not the host computer. This essentially eliminates jitter and ensures optimal reproduction of music stored on or managed by the computer. As one of our magazine colleagues noted, the BUC-1 doesn't reinvent the wheel, but it is very well designed, equipped with the highest quality parts and is designed to meet a growing market need.

SETUP

This step is the easiest I've encountered so far. On Windows, you'll need the small USB key provided by Bryston to install the necessary files for your PC to recognize the BUC-1. With Apple – as my friends are constantly reminding me – it seems that the process is even easier, since the operating system automatically recognizes the USB connection. From this point, you simply start up your playback software. I use JRiver, which recognized the Bryston, and I was able to start listening to music from my computer immediately.

THE CONNECTION DILEMMA

The USB cable I use is the Wireworld Ultraviolet 7. This is a middle of the range of those available on the market, but I find it very satisfying. Beyond adequate shielding to protect against external interference and vice versa, I don't see the need to go any further at this level. Regarding output to my DAC, I used two types of connections, out of curiosity, to conduct a small comparison. I used the BUC-1's coaxial output and its AES / EBU output, thanks to the balanced (XLR) AES / EBU Bis Maestro digital cable. Both cables are very well built and, to my ears, there was no winner or loser; performance was in fact very similar. My DAC allows me to switch from one source to another very quickly and I was able to make credible comparisons.

I'M LISTENING...

At this stage, I often find myself playing an eclectic mix of music to get a general feel for a new device and familiarize myself with its features. Sometimes there are pleasant surprises, and this was the case here. I realized pretty quickly that something interesting was going on, in fact very interesting. It is not so much in terms of tone or sound stage, because it is, after all, my DAC that is performing the digital to analog conversion. As such, I was on familiar ground.

THERE WAS SPACE BETWEEN THE INSTRUMENTS, WITH THE SPACING ENSURING THAT THE PRESENTATION WAS COMPLETELY FLUID WITH A CLEAR INCREASE IN LISTENING PLEASURE.

What was interesting was the marked differentiation of instruments. In other words, there was space between the instruments, with the spacing ensuring that the presenta-

tion was completely fluid with a clear increase in listening pleasure. This little device made my DAC sound even better, serving to bring out its maximum resolution.

Listening became more serious, so I dove into my standard library of test tracks. Among my faithful musical companions, Jacques Loussier is never far away. Just to validate my initial impressions, I took a two-day break from the listening sessions. Detaching myself from the project allows me to check if my impressions are consistent from one listening session to another, and especially in different circumstances, for example evening listening versus morning listening, and so on.

THE SOUND IS VERY TRANSPARENT AND EXHIBITS AN EXEMPLARY NEUTRALITY, NEITHER ADDING TO OR HIDING ANYTHING FROM THE MUSICAL PERFORMANCE.

My impressions became increasingly clear as the listening sessions progressed... it is amazing how much of a difference such a small device can make. This is perhaps its greatest strength. The designers built the **BUC-1 USB** to serve a single highly focused purpose, there are no superfluous elements. If my DAC did not have a USB input, I would purchase a BUC-1 in a heartbeat. The sound is very transparent and exhibits an exemplary neutrality, neither adding to or hiding anything from the musical performance.

I did not detect any major changes in the sound stage, which is always good with my DAC, except that the stereo image is more precise or more finely delimited. The clearer delineation of different instruments minimizes any form of confusion or, if you prefer, congestion in the presentation. It is easy to picture the musicians' locations. Classical, jazz, blues and folk music benefit greatly from this.

As for metal, or high-flying super compressed rock, the BUC-1 is excellent, but cannot perform miracles.

VERDICT

I think it is safe to conclude that a large majority of digital to analog converters on the market that are not equipped with a USB input will benefit from being connected to the new Bryston adaptor. The **BUC-1 USB** provides an elegant and musically satisfying bridge to the music stored on your computer or accessed from it. I loved the sound of the Bryston BUC-1, its faultless construction, ease of installation, discreet appearance and reasonable price. Downsides ? None.

CARACTÉRISTIQUES

- Native 24 bit resolution at sampling rates of up to 192 kHa
- Asynchronous USB receiver
- AES-EBU 110 ohms (XLR) balances output
- Ccoaxial SPDIF (RCA) output
- BNC 75 ohms SPDIF output
- Input sample rate indicators
- Outputs transformer coupled
- Ultra low noise linear power regulation
- Available with silver or black faceplate
- Physical: 8 x 5.63 x 2.25 inches (57.1 x 142.8 x 203 mm)
- Warranty: 5 years

Bryston BUC-1 USB

Price: \$799

Manufacturer - distributor: Bryston Limited

1-800-632-8217 / 1-705-742-5325 • www.bryston.com

