

Equipment Report



Bel Canto Black EX DAC/Control Preamplifier and Black EX Amplifier

Excellent Sound and Matching Design Quality

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Reviewers in TAS are supposed to focus on sound quality and not on style and engineering. Fair enough, but if the sound quality is excellent in virtually every respect, then style and engineering should be given their due.

The Bel Canto Black EX DAC/control preamplifier and Black EX amplifier both provide outstanding sound. What makes them particularly striking, however, is that they also provide outstanding features and achieve this in exceptionally compact packages with equally exceptional styling. This makes for a welcome change in an era where having the largest box and shiniest front panel often seems to be a key design goal for power amplifiers, and where putting the elements of a high-end system into as many expensive containers as possible—with as many connecting wires as possible—seems to have equal priority in the design of front-end components.

The Bel Canto Black DAC/Control Preamplifier

The Bel Canto Black EX DAC/control preamplifier provides a particularly nice mix of functions and features, as it should for some € 14,500. It combines an analog preamp, a phono preamp, and a DAC. It also makes it very easy to access and operate streaming services such as Tidal. In addition to being Roon-ready and offering full MQA decoding, the Black provides a full complement of digital inputs, an Ethernet connection, three RCA analog inputs, a headphone jack, XLR and RCA analog

main outputs, as well as special provisions for using a subwoofer. All of this comes in a single slim box, weighing 25 pounds, that is built about as well as any piece of electronics I've seen.

The unit has a well-designed remote control that is simple to operate, and an app called Seek that allows you to control the preamp with an iOS device. Programming the unit for the very first time may force you to actually RTFM, but minimal patience and a quarter-hour of your life should leave you in total mastery of the Black EX DAC.

Programmable features include phono gain and cartridge loading, controls for integrating a subwoofer-based system, bass EQ to help fine-tune the low end, volume and phase controls,

and firmware updates via Ethernet. You can let the DAC perform the MQA unfolding step rather than having Roon do it, which may slightly improve the resulting sound quality. You can also disable all DSP presets except sample-rate conversion. The unit supports DSD64 playback directly.

One additional control option that I was particularly impressed with may become a feature you'll use far more often than you think. The Black EX DAC has a “tilt control” centered around 775Hz that tilts the entire frequency spectrum up or down relative to bass or treble in 0.6dB increments. This tilt control is similar to the one that Quad pioneered more decades ago than I can care to remember, and the version in the Black DAC

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is outstanding. Just a touch or two can open up the sound with extra air or life, or restore warmth and bass energy. It not only can help reduce room and component sound problems; it can also often correct for problems in the timbre of a given recording.

As for providing all of this technology in one moderately sized unit, I asked John Stronczer—Bel Canto’s chief engineer—to put together a layman’s summary of this aspect of the Black EX DAC and to directly link his discussion of the unit’s technology to its impact on its sound quality. His response in the sidebar to this review will give you a much clearer picture of how Bel Canto has been able to provide so much in one box.

Three points about operating the unit: First, you probably won’t be able to guess your way into a proper setup without actually reading the manual. If you accept the fact that RTFM is sometimes useful advice, however, and do carefully read the manual’s programming section before you attempt a setup, you’ll find the Black is truly easy to program and use.

Second, the Bel Canto has no XLR audio inputs. If you hear any hum or noise it will almost certainly be a ground-loop problem—an issue that audiophiles who rely on XLR and optical cables have largely forgotten. For me, this hum and noise only occurred when I hooked up the Black EX DAC to some older AV electronics, and the problem vanished when I fitted a ground lifter to the AC plug of the problem component, or ensured that all electronics drew on the same AC socket for power.

Finally, the built-in phono preamp is quite good sonically, though I did hear some noise with very-low-output/high-load-impedance moving-iron cartridges. I did not hear this noise as audibly with higher-output cartridges or ones with loads well below 47k ohms. In any case, hearing some noise was often worth it because of the Bel Canto’s exceptional sound quality overall.

The Bel Canto Black EX Amplifier

The Bel Canto Black EX amplifier is far simpler in setup and operating features than the EX DAC although you must

check the switches in the rear to make sure they are set for the right input, and be aware that the operating color for the front panel light is red, not green. What makes the Black EX amplifier special is not its feature set, but its ability to deliver so much power in such a reasonably sized unit, to do so with such high sound quality, and to justify a price of € 12,500.

The Bel Canto is rated at a maximum power of 350 watts per channel into 8 ohms, and 700 watts into 4 ohms before it reaches 1% THD, with vanishingly low harmonic distortion, intermodulation distortion, and noise at any rational level. The EX can handle minimum loads as low as 2 ohms, provide peak output current of up to 27 amperes, and has a damping factor higher than 500, which can be critical to properly controlling certain speakers. Bel Canto indicates that this performance is maintained from 0Hz to 50kHz, at all loads.

Many audiophiles—and I include myself—tend to discount such speci-

cations. I was particularly cautious because John Stronczer’s sidebar made it clear that the EX amplifier uses Class D technology—which I’ve not always found provides particularly good sound. The specified power and performance seemed too good for an amp no bigger than the Black EX DAC, and that weighs just 25 pounds. As the following section on sound quality makes clear, however, this is a case where the unit fully lives up to its hype.

The Sound

Packing so many features into the Bel Canto Black EX DAC, and so much power into the limited size and weight of the Black EX amplifier, only made me wonder whether their performance would live up to Bel Canto’s claims. Once I did actually push these units to their limits in my reference system, it did not take much listening to confirm that that both these Bel Canto components have excellent sound quality, doing



an outstanding job of revealing the details of even the most complex musical passages and the most demanding dynamic contrasts.

The Bel Canto Black EX DAC has two key sound characteristics that represent the best in current digital design. First, its extensive use of digital processing does not add any hint of digital hardness or edge to the music (beyond what's in the original recording). Second, the unit reveals the exceptional quality of the best new high-resolution recordings, but also shows that older digital recordings and standard CDs have much better sound quality than could be heard through earlier generations of DACs.

The performance of Black EX amplifier is equally good. It proved yet again that the way in which a given technology is executed—along with its quality of design, parts, and construction—is more important than differences such as class of operation, output devices such as solid-state or tube, or the type of tube or semiconductor being used.

In practice, the sound quality of the Bel Canto units simultaneously made them at once easy and difficult to review. Be-

yond a given point, transparency and neutrality make it hard to criticize today's best electronics, and I have never been a fan of gear that alters the sound in some special or euphonic way.

One of the things I demand from any modern preamp and amplifier—and increasingly from the best streamers and DACs—is that they be neutral enough that I can clearly hear the familiar colorations of my front-end devices, my reference speakers and their room interactions, and the character of my speaker cables and interconnects.

Don't get me wrong. Blending in the right mix of coloration and voicing of given components is something that none of us can avoid dealing with. But there is little reason to have to focus on excessive nuances and colorations in components that should have less "personality" than other kinds of gear.

Both the Black EX DAC and the Black EX amplifier passed this excess-coloration test with, uh, flying colors. Moreover, pushing the Black EX amplifier to levels higher than I was prepared to listen at for more than a few minutes showed it stayed neutral

Designer John Stronczer on the Black EX DAC/Controller and Black EX Amplifier

 The EX DAC/controller shares its architectural approach with our unique Black system designs. We use a powerful digital architecture, combining asynchronous interface retiming, ultra-low-noise master clocks, 32/64-bit DSP, and proprietary digital link technologies to achieve superior analog performance. This analog performance is defined in the EX DAC/controller by our two-stage High Dynamic Resolution (HDRII) DAC core. Our top DACs are based on the PCM1792A, 130dB-dynamic-range, current-output DAC. This is an inherently high-quality and musical device, whose performance we have refined over the past 15 years. While newer DAC technologies have come along, none has provided the ultimate performance and unique analog characteristics of the PCM1792A. Continually refining the circuitry and design choices surrounding this DAC core has resulted in a highly dynamic and musically revealing unit.

Deliberate selection of power supply devices, analog amplifiers, and passive RC components in the DAC output stage contribute to the sonic voicing, which is neutral and dynamic, revealing musical content without aggression. The I/V and voltage gain stages both operate in full Class A mode. This includes the passive RC components that are biased with constant DC current and voltage. There are four high-current discrete buffer stages isolating the DAC core from any external load, so that cables and power amplifiers are driven from a

low and constant impedance.

Our architectural choices are focused on avoiding unnecessary analog stages to preserve signal integrity. This informs our choice of a 32-bit digital volume control for volume and balance, taking full advantage of the >126dB dynamic range of the DAC core. The analog noise floor and sonic characteristics of the unit stay constant over the full usable dynamic range. Our unique architecture also allows for the embedding of a powerful 32/64-bit DSP core for fully transparent controls such as tilt, bass EQ, subwoofer crossover functionality, and any future DSP functions.

The EX amplifier builds on our nearly 20 years of Class D design experience. It starts with our choice of the NC500 NCore power buffer. This device uses an analog Class D output stage to provide 12dB of gain, with the ability to drive 350 watts into an 8-ohm load and 700 watts into a 4-ohm load, remaining stable to 2 ohms. The NC500 also maintains low distortion operation across the audio band because of its fifth-order control loop. It also has extremely low noise and distortion with 130dB dynamic range capability. Simply put, the NC500 is nearly the perfect audio power stage, using all discrete devices in single-stage gain architecture. You could think of it as an 845 triode for the 21st century.

A further advantage of this Class D stage is that it is inherently insensitive to thermal and other bias modulation issues that still exist in traditional Class AB linear amplifiers. Because the output stage efficiency is on the order of 90%, thermal modulation of the output stage is not an issue, and the dynamic performance of the amplifier from small-signal to large-signal swings remains constant and stable. There is no delayed thermal modulation residue following the dynamic signal envelope.

at very high volumes, even when I repeated the same demanding track for several hours and only listened briefly to hear if there were differences in the presentation.

As I'll point out in a moment, the Bel Canto pair still had some minor nuances and colorations, but they were clearly dominated by those of the other components in my system. I couldn't fault the Bel Canto pair's performance in every meaningful measure of sound quality. They were neutral in timbre and handled every level of dynamics from low to high equally well, regardless of whether the music was a sonata, an opera, or a symphony. The soundstage was as good as the music, my speakers, and my room permitted. There was no area of sonic

The sound quality of the Bel Canto pair is just as outstanding as its compact style, design, and overall engineering.

emphasis that exaggerated some aspect of the music, and there was no apparent loss of musical information either. Voices, upper strings, organ spectaculars, and low-level musical details were all handled with equal ease.

If there was any residual coloration or voicing in both units it lay in three areas.

First, both Bel Cantos had a touch of what I'd call "Class A sound," in that they were very neutral but had less upper-midrange and

lower-treble energy, air, and detail than many tube and most Class AB solid-state designs. This sonic profile was perhaps as characteristic of the largely digital circuitry of the Bel Canto Black EX DAC as it was of the analog circuitry of the Black EX amplifier.

I've noted before that some of the best digital units are slightly more open in upper-octave energy and appear to have more air and life, while others are slightly warmer and do more to emphasize the midrange. I have no idea how much of this characteristic sound comes from the digital or analog parts of the circuitry, but the Bel Canto and Legacy Wavelet processor are examples of "Class A" voicing, while Boulder and PS Audio are closer to "Class AB." I'm not sure which of these presentations is more "correct" or "accurate." Both involve a minimum of coloration—if it can be called that—and both produce sound that is musically realistic and similar to what you hear in different concert halls. Both are also similar to the sonic differences heard between the work of given recording engineers, who prefer one set of nuances over another. Presumably, however, both can't be "right."

Second, bass was very defined, quick, and tight, rather than warm and more lingering in duration. This was not a result of any lack of deep bass in the Bel Cantos. Even at very high musical and test-tone levels, the low-end energy was clearly there in both audible and measured terms. Again, these differences are similar to differences in concert halls and live venues, and I can't choose between the two sets of nuances. Be aware, however, that if your speaker/room is a little limited in the bass, you may have to make use of the DAC's tilt control or bass tone control.

Third, there were moments when I would have liked just a bit more life and air, and a touch less upper midrange/treble. The problem with this comment, however, is that the issue almost inevitably occurred with recordings that already had some problem in these areas, or when I was playing music at louder than desirable levels.

I may well be pushing subjective reviewing to unfair limits in all three of these areas—just to find something to describe in the way of sound character. In the case of life and air, for example, electronics which seem to do better in these regards may only seem to have better performance; in other words, they may be emphasizing the upper octaves slightly more, and actually be more colored.

One thing I can promise you. You can get different mixes of trace colorations in competing equipment at equal or higher prices, but you cannot get meaningfully lower levels of coloration. Nothing is perfect, and within real-world limits, the sound quality of the Bel Canto pair is just as outstanding as its compact style and design and overall engineering quality.

Summing Up

This Bel Canto combo is highly recommended. It is not only some of the best-sounding gear around; it is also some of the most attractive—a major departure from the retro-techno "Captain Nemo" look of far too much of today's audio gear—which may be a real selling point if you have a wife or partner who really cares about décor. **tas**

Specs & Pricing

Bel Canto Black DAC/Control Preamplifier

Analog inputs: Three unbalanced on RCA jacks, phono on RCA jacks (2.5mV to 5mV mm, 0.25mV to 0.5mV mc; 47k ohms mm loading, 50 ohms, 100 ohms, 500 ohms 1k ohms mc)
Digital inputs: AES/EBU, SPDIF, TosLink, USB
Outputs: Balanced on XLR jacks, unbalanced on RCA jacks, headphone output on ¼" TRS jack
Digital formats supported: PCM up to 192kHz/24-bit (AES/EBU or SPDIF), 384kHz/32-bit (USB), MQA (full decoding), DSD64 and DSD128 (DoP)
Dimensions: 17.75" x 3.5" x 15.5"
Weight: 25 lbs.
Price: €14,500

Black EX Amplifier

Output power: 350Wpc into 8 ohms, 700Wpc into 4 ohms (1% THD)
Inputs: Balanced on XLR jacks, unbalanced on RCA jacks
Outputs: Two pairs WBT Next-Gen binding posts
Damping factor: >500
Dimensions: 17.75" x 3.5" x 15.5"
Weight: 25 lbs.
Price: € 12,500

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