



## BEL CANTO E.ONE DAC2.7

DAC/PREAMPLIFIER

I've said it before of Bel Canto's products, I'll no doubt say it again, and it certainly applies in the case of Bel Canto's 2.7 DAC/Preamplifier. It's superbly engineered, inside and out, but looking at it from the outside, it's easy to see it was designed by an engineer, rather than a product stylist. But that's what Bel Canto and its owner and designer, John Stronczer, are all about: solid, no-nonsense electronic and mechanical engineering.

### THE EQUIPMENT

A dead giveaway that the DAC2.7 was designed by an engineer is the headphone socket on the front panel. Instead of the fixing method being invisible, as with most headphone sockets, the one on the DAC2.7 is fixed exactly the way an engineer would do it. Just screw it to the front panel, and leave the nut that's holding it in place in plain sight. And there's no need to make the nut pretty, just make sure it's easy to tighten-up with a standard wrench.

Internally, the dead giveaway the DAC2.7 was designed by an engineer is that the Bel Canto DAC2.7 does not decode DSD in any of its many flavours. That's because Stronczer believes that better results are achieved using external software (such as from companies such as JRiver or Pure Music) to convert DSD to PCM. *'PCM is much quieter, with a larger dynamic range, so it captures all of the performance of the original DSD signal,'* explains Stronczer. *'By following our conversion recommendations the result will be superior playback of DSD material without compromising any digital format.'* Should you wish to read it—and it's certainly a good read!—Stronczer's full explanation is here: <http://tinyurl.com/AHF-DSD>. The USB port can be used for up to 24/192 data and is plug 'n play with Mac, but requires a USB2.0 driver for Windows, available as a free download from [www.belcantodesign.com](http://www.belcantodesign.com).

Stronczer is also all about reducing inventory, as this is a product development strategy that keeps costs down for his company as well as for his customers. It's the reason why almost all models in Bel Canto's Evolution

One Series (or e.One Series) use the same chassis and front panel—power amplifiers, pre-amplifiers, network products, DACs, CD players... the lot. (The single exception appears to be Bel Canto's uLink asynchronous USB to SPDIF converter.)

Another way to reduce inventory and keep costs down is to minimise the number of controls on the front panel, and you can see that Bel Canto has certainly done that with the DAC2.7... there's only a single control. However, that control has multiple functions. First and foremost it's a volume control, in which application it works superbly, turning smoothly and adjusting volume in sensibly small increments (from 0 to 100 in increments of 0.5) but at the same time it's very quick. The same control also functions as an input selector. Push the control inwards (but be forewarned that for reliable operation you need to do this by pressing the exact centre of the control) and the input source at the extreme left of the display will get brighter, after which when you turn the control you'll be switching through the available source

# EXPERIENCE SOUND

inputs—AES, SP1 (SPDIF1), SP2 (SPDIF2), OPT, USB and ANLG. There is no 'last source' memory, so if you switch the DAC2.7 off, it will always default back to the AES input, which is a pain if you're using another input, so my advice would be to either connect via the AES input (using an adaptor cable if necessary) or just don't switch the DAC2.7 off at all (the tactic recommended in Bel Canto's manual.)

But there's only so much you can sensibly do with just a single front-panel control so Bel Canto's remote must be used to perform all the trickier functions... and the remote

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control certainly has a few tricks up its sleeve! In addition to offering remote control over those functions that can be accessed via the front panel, it offers many other useful functions. For example, it can be used to rename each of the inputs to better-reflect the component you have connected to that input, so the display could show 'TT' if you had a turntable connected to the analogue input (though you'd need to connect an RIAA preamplifier between the turntable and the Bel Canto's analogue input) or 'OR' if you had an open-reel recorder connected (though you could alternatively use 'REEL' instead, since you can program up to four letters into the display.)

You can also use the remote to adjust channel balance by up to 6dB (again in suitably small increments of 0.5 dB). This is a great feature if you're using a power amplifier, because almost no modern amplifiers have balance controls, but it's great even if you're using an integrated amplifier, because these days, few of these have balance controls either. Why use the balance control? You'd be horrified by how many recordings are 'hot' in one channel or the other, and it doesn't matter if they're sourced from a computer file, a disc or any other source. A balance control can bring the image back to 'centred'

in an instant. The remote can also be used to invert absolute phase (i.e. not channel phase) should you be susceptible to this type of signal error, or if your digital source inverts phase and you want to correct for it. The remote also has a mute button, so you can totally mute the output if you wish.

The 'Display' button on the Bel Canto's remote switches the display on or off, as you'd expect, but has additional settings including being able to show the product name and software version of your particular DAC2.7. But the feature I most liked was that it can be switched to show the sample rate

of the incoming digital data. Even nicer, even if you don't have the display switched to show sample rate, the display will automatically show it whenever the sample rate of the source changes, which is particularly useful if all your music is stored on a computer or NAS. Sweet!

The rear panel of the DAC2.7 has five digital

input connectors: an XLR connector for the AES/EBU digital input, a Toslink connector for the optical input, a USB Type B connector for the USB input, and RCA connectors for the two SPDIF inputs. It also has a line-level analogue input, via RCA terminals, which is how the DAC2.7 provides its 'preamplifier' function.

There are two pairs of analogue outputs. One pair is fully balanced, using XLR connectors, while the other is unbalanced (or, if you prefer, 'single-ended'), and uses RCA outputs.

A switch on the rear panel switches the output mode of the DAC2.7 between 'Fixed' and 'Variable'. The 'Variable' is self-explanatory, but the 'Fixed' position is more interesting, because the level is not actually 'Fixed' at a specific level (i.e., preset at the factory) but is instead 'Fixed' by the user at the level the user wants it to be fixed.

The idea is that you set up the DAC2.7 so that its maximum analogue output voltage is ideal for whatever component it's connected to after which, when you press 'Fixed', the DAC2.7 will set this as its maximum output level.


This is a very clever and useful operational feature but, as Bel Canto's Owners' Manual quite rightly warns: *'If using the DAC2.7 directly into a power amplifier, ensure that the Fixed/*

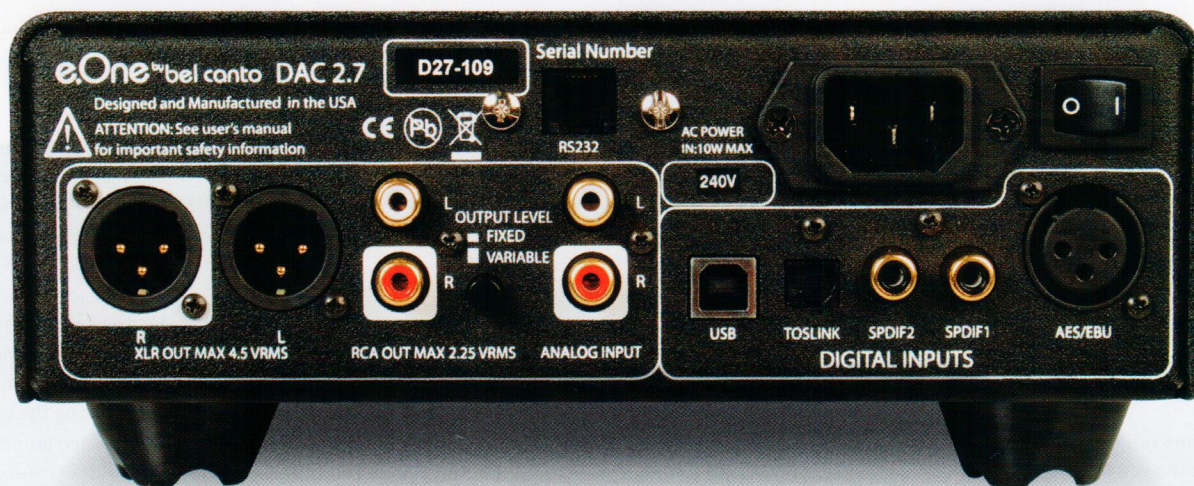
*Variable Output button is in the OUT (variable) position. Operation in Fixed Mode directly into the amplifier could cause extreme output levels, clipping and damage to the loudspeakers, amplifiers or your ears!'*

So, as you've no doubt already guessed, the 'fixed' mode is intended to be used when the DAC2.7 is driving an analogue preamp or integrated amplifier input, so that control over volume is accomplished by using the control on the preamplifier or integrated amplifier rather than by using the volume control on the front panel of the Bel Canto DAC2.7.

However, if you are connecting the DAC2.7 directly to a power amplifier, you should make sure that it's either a.c. coupled or has a d.c. servo control circuit because the DAC2.7 has a d.c. voltage continually present at its output, though Bel Canto says this is 'typically less than 0.01 volts'. Because almost all amplifiers are either a.c. coupled or have d.c. servo control, this warning is of the 'your coffee may be hot' variety, but some high-end amps are d.c. coupled, which is presumably the reason for the warning.

## BORN IN THE USA

Despite its Italian name, Bel Canto is an all-American outfit with all engineering and production taking place in Minneapolis, where a small team (just 12 people at last count) is responsible for assembly. The company was founded by John Stronczer, who not only still owns it, but is also its chief designer. After graduating with a BSc (Electrical Engineering) from the University of Minnesota, Stronczer began his career as a Research Scientist for Honeywell Physical Sciences Centre in Bloomington, Minnesota, where he developed GaAs integrated circuits for communications systems used in defence and aerospace products. Projects he worked on included a next-generation high-data-rate secure communications chip set for the United States government, ultra-low-noise analog sensor electronics, and he was involved in developing the world's first complementary GaAs operational amplifier for use in radiation-hardened environments. At last count he'd been awarded eight patents. *g.b.* 



The DAC2.7 measures 216×318×88mm (WDH) and weighs 6.5 kg. I wasn't particularly happy to find that it comes with only a single year's warranty. Given that there's almost nothing that could go wrong with it, there's only one moving part and that this is an US-engineered, US-built product, using the finest internal components, 365 days seems a bit miserly.

## IN USE AND LISTENING SESSIONS

Since the Bel Canto DAC2.7 is small enough to use as a desktop headphone amplifier, this is how I started listening to it, using a variety of full-sized headphones and computer files at a variety of resolutions, from CD standard to hi-res PCM. The Bel Canto performed flawlessly, delivering state-of-the-art sound through all the headphones I used, and at all times I was able to achieve ear-piercing listening levels with the front panel volume control still having a lot of clockwise travel up its sleeve.

I then switched to using the DAC2.7 as a preamplifier, in its variable output mode, still connected to a computer, but this time also connecting a CD player, using both the analogue and SPDIF inputs. This 'dual connection' to the player made it easy to make A-B comparisons between the CD player's internal DAC and that inside the Bel Canto and I was a bit miffed to find that despite the fact that the CD player I was using cost more than the Bel Canto is asking for the DAC2.7, the sound decoded by the DAC2.7 was clearly superior to that decoded by the CD player itself. So I have no hesitation in saying that if you have a CD player with a digital output, investing in the DAC2.7 will immediately improve your sound quality. Another approach would be to buy an inexpensive CD or DVD player with an SPDIF output and simply use it to feed digital data to the DAC2.7. I tried


this with a Samsung D530 (RRP \$55!) and was amazed by the results. This unlikely combination delivered crystal-clear sound quality with prodigious dynamic range, outstanding imaging and a perfectly balanced sound from the lowest of the lows to the highest of the highs. I'd go on, but it's an experiment you should try for yourself, particularly since it costs so little to do.

By this time I'd been slightly irritated by two aspects of the Bel Canto DAC2.7's operation. The first was only minor: the way the display shows '0's and '5's makes them hard to read, at least in my opinion. The second was that unless I was very careful with the front-panel control, I found I was accidentally switching inputs when I was actually trying to adjust volume, so rather than developing the 'soft touch' required to turn the front panel control more carefully, I instead used the remote to adjust volume. One excellent feature of the Bel Canto is that its muting circuit works correctly, as the DAC2.7 automatically turns off the muting when volume is adjusted, irrespective of whether you do this using the remote or the front panel control.

With computer audio as the source again, this time using high-res digital files, the Bel Canto excelled itself. One album I found delivered truly astounding sound was 'The Gypsy Life' as performed by the John Gorka and recorded in 'you are there' fidelity by Mark Waldrep at AIX Records. I listened to the 2.0 version (it's available in multi-channel and with different recording perspectives) and it's as if Gorka and his guitar are with you in the room. Then, when the piano chimes in, it's as if there's now a piano in the room as well. And when the back-up singers chime in from the left and the right, you'll be looking to see where they are... and at the same time wondering why Waldrep separated them in the way he did. If you haven't heard an AIX

recording, you owe it to yourself to download an album—or even just a few tracks—to hear how great real hi-res music can sound.

## CONCLUSION

If you insist that your DAC must have a DSD capability on board, then Bel Canto's DAC2.7 is obviously not for you, but if you're happy with hi-res PCM (and I certainly am) or are prepared to decode your DSD externally, the DAC2.7 is as high-res as they come, has more features on board than most DACs, and is better built than nearly all of them. Highly recommended.  *greg borrowman*

Readers interested in a full technical appraisal of the performance of the Bel Canto DAC2.7 DAC/Preamplifier should continue on and read the LABORATORY REPORT published on the following pages.

## CONTACT DETAILS

**Brand:** Bel Canto  
**Model:** DAC2.7  
**Category:** DAC/Preamplifier  
**RRP:** \$3,950  
**Warranty:** One Year  
**Distributor:** Absolute HiEnd  
**Address:** PO Box 370 Ormond VIC 3204  
**T:** (04) 8877 7999  
**E:** info@absolutehiend.com  
**W:** www.absolutehiend.com



- Balance trim
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- State-of-the-art build



- DSD
- Defaults to AES
- d.c. offset
- Standby mode