the abso!ute sound® (/)

PrimaLuna Evo 100 DAC
Tube Magic

by Vade Forrester (/articles/?authors=58) | Nov 20th, 2019

Categories: Digital-to-analog converters (/articles/?categories=16)

er.com

PrimaLuna loves tubes. The Dutch-based company uses them in its whole range of products, from preamps, to power amps, to integrated amps. Even a tube-equipped CD player has graced its lineup. Kevin Deal of Upscale Audio distributes PrimaLuna in the U.S., and also stocks and sells a wide variety of vacuum tubes (he's my favorite supplier). PrimaLuna recently replaced its Prologue and Dialogue series equipment with a new series, called the EvoLution line. Although EvoLution includes Evo 400, Evo 300, Evo 200, and Evo 100 integrated amps, power amps, and preamps, there is only one DAC, the Evo 100 Tube DAC, which for brevity, I'll just call the Evo 100. Like most PrimaLuna products, the Evo 100 draws heavily and innovatively on vacuum tubes, although all digital products require chips these days.

The Evo 100 looks like other PrimaLuna components, although at 11" x 7.5" x 15.9", it's smaller than most. At $2999, the Evo 100 falls into the midrange of DAC pricing. It's reasonable considering its construction and the parts used. You can buy cheaper DACs and you can buy much more expensive ones—the real issue is value. Is the Evo 100 a good value for the money? Let's find out.

The Evo 100's tube cage looks like those used in other PrimaLuna components, which is a good thing. Most amplifier tube cages I've seen are awkward, even ugly, appendages that degrade the appearance of the amplifier. Yet PrimaLuna designed a tube cage that's quite attractive, and had, fortunately, used it in the design of the Evo 100. It covers the tube complement, which comprises two (each) 12AX7, 12AU7, and 5AR4 rectifiers—one of each type of tube per channel. The use of a separate 5AR4 rectifier tube indicates a very stout power supply. (My fairly expensive tube amplifier uses a single 5AR4 tube for *both* channels of its power supply!) All of these tubes are very popular, in current production, and available for prices that aren't extravagant. In a pinch, you could probably find replacement tubes at your local guitar or professional music store. Since the tubes are easy to find, you can also indulge in tube rolling—the practice of switching tube brands and types to get the sound that pleases you. The stock PrimaLuna-branded tubes will sound fine, but maybe there's a tube from another manufacturer that will satisfy your desire for, oh, more treble sparkle. Naturally, being a vendor of vacuum tubes, both new and new old stock, Upscale Audio doesn't discourage tube rolling. However, I didn't try any alternate tubes; that's beyond the scope of a review.

One additional tube is used in the Evo 100, and it's in the clock. That's right, a tube is used in the clock. And it's not just an ordinary tube, but "a very rugged, long-life Russian military triode specifically designed for oscillation purposes . . . which is its function here. It is running very conservatively, so life expectancy is roughly 5 to 10 years of operating time." You should never have to change it, which is good, since it's hard-wired onto the circuit board. PrimaLuna makes a strong case for using a tube-based clock, which they call the SuperTubeClock, claiming "this boldly conceived design provides vastly superior resolution, detail retrieval, clarity, definition and detail from top to bottom." Normally, a DAC's clock is a solid-state oscillator designed to produce a timing signal at a precise frequency. PrimaLuna justifies the SuperTubeClock by claiming that "by using a tube, we have significantly lowered the amount of jitter and noise, resulting in superior detail retrieval. This in turn yields superior detail and dynamics from top to bottom, and improved overall musicality."

Although PrimaLuna is justly proud of its point-to-point circuit wiring, any DAC is a digital product using chips mounted on circuit boards, and that's how it is with the Evo 100. On one such board, you'll find a venerable and respected Burr-Brown PCM 1792A DAC chip.

The Evo 100 takes the unusual step of converting USB input to the SPDIF format, with PrimaLuna claiming that this improves the sound. That claim is not new; several other manufacturers will tell you the same thing. SPDIF connections are designed to play music, while USB connections are designed for accurate file transfer. If converting USB to SPDIF sounds better, why doesn't everyone do it? Converting USB to SPDIF imposes certain limits on a DAC's ability to play the highest-sampling-rate digital music files, since the SPDIF circuit is limited to 192kHz. If you want your DAC to play the highest-sample-rate files, you'll use an unconverted USB connection. In addition to playing 192kHz PCM files, the Evo 100 will play (via DoP encoding) DSD files up to DSD128. The Evo 100 is unable to play DXD, DSD256, and higher-rate files. Do you really care? There really aren't many of those files available, and they are premium priced. MQA files? Sorry, Charley—you'll have to look elsewhere. If streaming is your bag just subscribe to Qobuz instead of Tidal. Since Qobuz uses standard FLAC format files to stream hi-res instead of Tidal's MQA-encoded files, the Evo 100 will play all your streamed hi-res files just fine. Of course, the Evo 100 plays encoded MQA files just fine, too, as do all DACs; it just doesn't decode them.

In addition to a USB input, the Evo 100 has AES/EBU, coax, and optical inputs, all with the same limits. Why would you need inputs other than USB? Perhaps you have a CD player with a coax SPDIF output or even an AES/EBU output; you could connect it to the Evo 100 to bypass the player's internal DAC. A few companies (NuPrime and Cambridge Audio come to mind) still make CD transports designed strictly to play through an external DAC. The Evo 100's analog outputs are on RCA jacks—no XLR. Another "feature" omitted from the Evo 100 is selectable digital filters. Some DACs offer up to eight different filter settings from which the poor audiophile is supposed to choose based on sonic preference. Talk about *audiophilia nervosa!* The Evo 100 offers a single, unswitchable filter for PCM and one for DSD. I kind of like that—the designer picks the filter that sounds best and makes it standard.

The Evo 100 uses a circuit feature called AC Offset Killer to lower transformer noise. The Evo 100's circuit is a dual mono design, which means there are no shared components, including power transformers, between channels. The only shared part is the power cord.

There are two windows in the center of the faceplate, each with a vacuum-fluorescent display; the top window shows the input selected, while the bottom, upon turn-on, shows a counter that counts down from one minute as the Evo 100 warms up. After the DAC starts to play, the bottom window shows the sampling rate of the music file being decoded. The text in both windows was a bit small and difficult to see from my listening chair about ten feet from the unit. Faceplates can be either black or silver.

Evo 100's controls are very simple. Each of the four buttons on the half-height faceplate selects one of the four digital inputs. That's all. A slim, black metal remote also selects one of the four inputs, and mutes the DAC. It does not control volume, so you'll need a system volume control (preamp or linestage). The remote's single column of silver buttons includes one labeled Display, which adjusts the brightness of the text in the front panel windows. The only control missing is the one I would use most, a remote on/off switch—hardly a show-stopper. I didn't use the remote at all.

On the rear panel are the four inputs, an IEC power connector, and the RCA output jacks. The output impedance is 2700 ohms, which could be a problem driving very-low-impedance preamp inputs. I suggest using it with a preamp that has a minimum 30k-ohm input impedance.

PrimaLuna Evo 100 DAC
Tube Magic
by [Vade Forrester (/articles/?authors=58)](/articles/?authors=58) | Nov 20th, 2019

Categories: [Digital-to-analog converters (/articles/?categories=16)](/articles/?categories=16)

Setup and Use

Mindful that the Evo 100 is a tube unit, I placed it on a shelf on my equipment rack with ample ventilation. I connected it to my linestage via unbalanced High Fidelity Cables CT-1 Ultimate interconnects, and to my AC wall socket via the stock power cord. The cord appeared sturdy but not particularly distinctive, but my policy is to use the supplied cord unless the manufacturer says otherwise. An Audience Au24 SE USB cable connected my digital source, a Dell Latitude E6330 laptop computer running 64-bit Windows 10 Professional and Roon version 1.6 software, to the DAC.

I was prepared to put on the supplied white gloves and install the tubes when I received the Tube DAC, but they came already installed in the proper sockets. I just plugged in the USB input cable and RCA output cables, along with the power cord, and the Evo 100 was ready to play. The DAC had been broken in already, but I played it a few days to be sure it had settled in after shipment. The DAC, which appeared to be sturdily built, was surprisingly heavy at 28.7 lbs. Fit and finish were fine, but the unit looked a little rustic compared to some highly styled and much more expensive components (in my opinion). Since I favor simplicity in styling, I rather liked the Evo 100's appearance. It seemed right at home on my equipment rack.

I used Roon as the playback software on my computer, and it worked just fine with the Evo 100. I didn't need to install a driver for my Windows 10 operating system; Roon recognized the DAC as soon as it was turned on. I just had to name it and enable it in Roon's setup for it to be available to play. I also specified a maximum PCM sampling rate of 192kHz and DSD maximum of DSD128. So when I tried to play a DXD file or a DSD256 file, Roon resampled the file to 176.4kHz or DSD128, respectively, both formats within the capability of the Evo 100. In other words, it played both files, although at a slightly reduced sampling rate. Audibly, I heard the music play without a glitch, even though it did so at the reduced sampling rate. Can you hear the difference? I couldn't.

Sound

What makes a component sound exciting? Is it the ability to reveal new levels of detail in familiar recordings, or the ability to extend the frequency range so that bass goes lower and treble higher, or maybe the ability to paint the soundscape with an increasingly accurate harmonic brush? For me, it's the ability of a component to portray dynamics correctly. I don't mean a component should be able to play really loud and really soft—most can do that easily. No, I mean that the component has to be able to play at all levels between super-loud and super-soft, and to reach those levels, if not instantaneously, then at least *really* fast. Some have called that capability pace, rhythm, and timing, or PRaT for short, but it's really the ability to swing the dynamic output rapidly. It only takes one component in a system to screw up accurate dynamics. It can be your DAC, your turntable, your speakers—or anything else.

All this trivia flitted through my mind when I fired up the tube DAC, because the first thing I noted was that it sounded exciting. I've found that, unless a designer does some strange things in the digital section, a DAC's sound is largely affected by its analog section. The Evo 100's designers have lots of experience designing tube analog circuits, and it shows. The robust power supply enables powerful (or tiny) level changes without strain, and fast enough to sound realistic. While some components make volume levels sound like a series of stepped loudnesses, the Evo 100's dynamic levels are continuous—like real music. On the album *La Folia 1490-1701* (an AIFF rip from Alia Vox AFA 9805), the piece "Folia Rodrigo Martinez," played by Jordi Savall and his band of Renaissance specialists, romped through this reconstructed ancient piece like it was new, changing both volume levels and tempos (speed) continuously. The Evo 100 tracked volume and speed effortlessly, enhancing my appreciation of this intensely energetic piece from 1490. The individual whacks on the *cascabels* (sleigh bells) which open the piece were slightly less distinct than with some DACs, although they were hardly identical. Bass was not only deep but detailed. Instruments were portrayed with tremendous resolution and tonal truthfulness. The wood block and castanets were audible throughout the piece (some DACs mush them together into a background blur). The urgency and flow of the performance suggested the performers were having a great time. I credit the DAC's robust power supply for making this easy to hear.

Energetic is not usually my first reaction to Shelby Lynne's cover of "Just a Little Lovin,'" the title track from her album (DSD 64/DSF, Acoustic Sounds) of Dusty Springfield covers. But the Evo 100 added an extra dollop of energy, prompting me to think of that description. Percussion instruments in the opening bars had extra transient snap and detail that enhanced their realism, while the kick drum had plenty of impact. Lynne's voice seemed to have gained a bit of dynamic expansiveness, thus making it more alive-sounding.

I've become very fond of "Snilla Patea" by Bjørn Kåre Odde, who expertly plays a solo fiddle in the recording. The Schola Cantorum chorus under the

moves into the forefront, then sinks back into its original solo as the fiddle overtakes it. The Evo 100 handled all these changes effortlessly. It also made Odde's fiddle sound timbrally and texturally convincing, with no hint of stridency.

An old audiophile fave is Rebecca Pigeon's *The Raven*, with the track "Spanish Harlem" perhaps being the most familiar. The Evo 100 played it with its accustomed purity, but also revealed that Pigeon's tone was a bit uneven as she progresses through the song. There's just a smidgen of excess breathiness, but no treble emphasis or peakiness to the reproduction.

I enjoy the album *Nordic Noir*, with Mari Samuelsen on solo violin, her brother Håkon on cello, and the Trondheim Soloists because it consists of mostly tranquil, peaceful music from Nordic composers, at least until it reaches Arvo Pärt's "Darf ich'" where Samuelsen's violin shrieks as if in pain. The Evo 100 powerfully portrayed the distressed violin part with no strain, no distortion. On calmer parts (most of the rest of the release), dynamic variation was still preserved. Music doesn't have to be loud to be communicative, but you need a DAC capable of dynamic distinction to fully appreciate it. Most any DAC can distinguish between loud and soft music; not all distinguish between soft and slightly softer as well as the Tube DAC.

PrimaLuna Evo 100 DAC
Tube Magic

by Vade Forrester (/articles/?authors=58) | Nov 20th, 2019

Categories: Digital-to-analog converters (/articles/?categories=16)

Comparison

My PS Audio DirectStream DAC cost twice as much as the Tube DAC, and thanks to a built-in volume control, could directly drive a power amplifier (but not two). Unlike most DACs, it uses neither tubes nor solid-state devices in its output section; in fact, it has no output section, directly driving the output cables with the output of the digital output filter. Balanced as well as unbalanced outputs are available. PS Audio has updated the operating system several times, each time making non-subtle improvements to the DAC's sound. The cost of the upgrades? *Nada*. As in free. Just download them, copy them onto an SD card, insert the card into a slot on the back of the DAC, and turn the DAC on. It upgrades the operating system, and *voilà*, you've got a new, improved DAC. Snowmass, the latest version of the operating system (the systems are named after 14,000-foot Colorado mountains), was installed on my DAC.

On "Folia Rodrigo Martinez," the initial *cascabel* whacks were similar to the tube DAC, while the percussion came through with even more detail. Bass extended quite low, with excellent pitch definition. The overall sound was a bit brighter, but not even slightly etched. The music glowed with powerful energy.

"Just a Little Lovin'" sounded more open, with even better continuity of Lynne's voice and better harmonics on the instrumental forces. If it gave up anything in energy, it made up for it in detail.

"Snilla Patea" was also slightly brighter, with a wider soundstage. There was plenty of dynamic distinction; when the choral forces' level exceeded the volume of the fiddle, there was no strain or distortion, nor was there any compression.

The opening bass line in "Spanish Harlem" was more upfront and a smidgen better defined. Pigeon's voice was remarkably pure, although there were still a couple of occasions when her tonal quality sounded a bit threadbare.

Nordic Noir is a very quiet album, and the DirectStream DAC captured the low-level recording quite well; plenty of detail and vibrant timbre. And when the violin "scream" came in "Darf ich," the DirectStream DAC's extended treble performance added a bit of extra shock without sounding etched or edgy. In other words, it still sounded like a violin.

Both DACs were very easy to listen to. The PS Audio DirectStream DAC, at twice the price, had slightly greater bass and treble extension, and was more open. The Evo 100 was extremely dynamic and had great harmonic resolution. At half the price of the PS Audio, it was much more than half the value. While I could find areas where the PS Audio was superior to the Evo 100, in general they were quite close, and I never tired of listening to the PrimaLuna. I suspect that substituting an aftermarket power cord on the Evo 100, as I did on the PS Audio DAC, would have brought the two units even closer together in performance.

Bottom Line

The PrimaLuna Evo 100 is an attractive, well-made DAC with powerful dynamics, oodles of detail, and a warm, enjoyable tone. When I listened to it, I focused on the music instead of hi-fi artifacts. At its price, it's a remarkably good value, and is very highly recommended. If I had $3000 to spend on a DAC, the PrimaLuna Evo 100 would be at the top of my short list.

Specs & Pricing

Inputs: USB, AES/EBU, coaxial, optical
Outputs: Stereo RCA
Inputs: PCM (all inputs): 16bit–24bit 44.1kHz–192kHz
DSD (USB): DSD64–DSD128 (DoP)
DAC: TI (Burr-Brown) PCM1792A
Tube complement: Two (each) 12AX7, 12AU7, 5AR4
Dimensions: 11" x 7.5" x 15.9"