

# OPTOMA NUFORCE DAC80 DAC AND STA120 POWER AMPLIFIER

Equipment+

by

[Alan Sircom](#)

| Feb 05, 2016

Categories:

[Solid-state power amplifiers,](#)

[Digital-to-analog converters](#)



A few short years ago, NuForce was the audio industry's *enfant terrible*: a new brand, growing at an exponential rate, with some of the best products in every category it touched. It couldn't last, and the company burned out almost as fast as it appeared on the scene. But the name never quite went away.

Today, NuForce is back. Many of the original people behind the brand are still there, but it's now the audiophile arm of Optoma, a company better known for making high-performance projectors. Optoma NuForce is still pursuing the goals of the original NuForce brand, with a range of earphones, headphone amps/DACs, and Class D power amps, but home theatre multichannel preamps and power amps replace the previous high-end stereo audio range. Optoma NuForce's new core strength in the home is high value desktop-meets-audio-enthusiast models, like the DAC80 and STA120.



The £500 DAC80 is a DAC with a volume control. It has an optical, two coaxial, and an asynchronous USB input, and a single set of stereo RCA analogue outputs. It can support digital files up to 24bit, 192kHz with the appropriate drivers for Windows or Mac (these are easy to download from the Optoma website). The volume knob doubles up as the DAC's power button and the red  $\square$   $\square$   $\square$  and  $\square$  indicators on the ultraminimalist front panel indicate the four sources. There is also a sextet of lights to denote sampling rate, which light sequentially if the input signal is not a multiple of 44.1kHz or 48kHz. DSD is not supported. Curiously, given Optoma NuForce's continued link with the in-ear world, there is also no sign of a headphone socket on board the DAC80. The product comes supplied with a tiny remote control that operates every function on the DAC80 (that sounds impressive, but really that means power, volume, source selection, and mute), and Optoma NuForce also supplied the DAC80 with the £70 BTR100 aptX and A2DP friendly Bluetooth hub receiver, which slots into the Toslink input of the DAC80.

Setting aside the bluff exterior and the basic controls, there's a lot of good under the skin of the DAC80. It features an AKM AK4390 32-bit DAC coupled to an AK4118 digital receiver chip, while filtration and

jitter reduction is all coded onto a FPGA chip. The output stage is op-amp based, and the whole DAC is fed from a small toroidal transformer. Those armed with keen eyes and a screwdriver might notice the circuit is very similar to that of its more expensive DAC100 predecessor, except that the DAC80 no longer has a headphone amplifier stage. In fairness, that task is now handed over to the HA200 dedicated headphone amplifier.



The DAC80's matching power amplifier is the £500 STA120, a stereo Class D chassis delivering 80W per channel into an eight-ohm loudspeaker load. NuForce of old (NuAuldForce?) was built around getting a very good sound out of a Class D circuit and its V3 amplifier was something of a game-changer for the switching amplifier circuit, and it certainly sounds as if that technology was passed on to new NuForce (NuNuForce?). Like the DAC80, that technology is the use of a linear power supply and a large toroidal transformer to drive the Class D switching circuitry. As the foil to the minimalist DAC80, the STA120 is similarly light on features. There are just two RCA inputs and a pair of basic multi-way loudspeaker terminals. There isn't even a power switch, save for the rear-mounted one next to the IEC socket. There are two red-orange LEDs on the front panel, just above the laser-cut NuForce name, but

that about it.

There are some operational quirks with the DAC80 in use, that might prove hard to overcome. First, it has a power-up routine that on first use sends you into a broke-it+panic stations: all the lights come on, then it goes dark for six seconds before springing back into life. Once you are used to this, it's no big deal, but being used to DACs that are up and running by the time you have finished pressing the on button, this can be a little disconcerting. Then there's the second or two of weirdly distorted sound when USB is selected: it's as if the whole locking to a signal process takes place at a leisurely pace and not behind closed doors and muted outputs. It's not a big deal . the distortion is not high gain and won't damage anything . but describing it to a digital world might take some effort: it sounds exactly like an LP playing on a stylus that has a big ball of fluff on its end.

Once these start-up hiccups get out of the way, what follows is great. The DAC is one of those rare digital devices that is not bright sounding, but more importantly, doesn't overcompensate by sounding too dark, bland, or dreary. This makes it a very natural-sounding digital device, at a price where such things are all too rare. It's the perfect DAC for playing Frank Sinatra, for example; "You're Nobody Till Somebody Loves You" from his 1961 Sinatra Swings/Swing Along With Me album [Reprise] demands a digital device that can cope with The Chairman of the Board's legendary passing tones, but at the same time doesn't overstate Billy May's brass harmonies behind that voice. Too many DACs at this price will push the brass forward in the mix, while the alternative is a sound that accents the lower registers of Sinatra's voice. The DAC80 is rare in that it gets the balance right. It's not just crooners; the same applies (although in a very different mix) to Isolation from Joy Division's Closer album [Factory] because either those late 1970s synth-dance sounds at the top end or Peter Hook's dirty bass lines at the bottom can overpower Ian Curtis' vocal on some DACs. Here, this track is portrayed in all its bleak, depressing glory. The company nailed the volume control too. This is a 32bit digital attenuator, but there's no sacrificing bits on the altar of volume here!



The DAC80's partner in crime has a slightly different balance, but one that paradoxically matches well. The STA120 is best used with fast, tight sounding loudspeakers that are not too threatening a load. I ended up using them with several loudspeakers pooled from our recent systems issue, but found them most at ease with Monitor Audio's Gold 100 standmounts. This made for an extremely enjoyable combination; the pace of the Gold 100's ribbon tweeter met its perfect match in the speed of the STA120. And yet, the natural tones of the DAC80 meant this combination was always in check, never wayward and never bright. OK, so the STA120 is no roof-raiser . it's more comfortably loud rather than just loud. but what it lacks in sheer grunt it more than makes up for in quicksilver delivery. Once again, the STA120 stays on the right side of bright and the upper mid detail on offer with the Gold 100 would highlight any brightness with consummate ease. Even with Brahms's Hungarian Dances [Abbado/Vienna Philharmonic, DG], which are not the kind of music that one might naturally associate with the Gold 100, the DAC80/STA120 combination made those speakers sound truly inspiring.

Used without the DAC80 in tow, the STA120 does have a slight forwardness to its presentation; not quite glare but a touch of coolness to the upper midrange that . partnered with a bold forward sounding DAC . could tip the NuForce sound over the edge. Moreover, used in the cheapest component in the system mode, being fed by a dCS Rossini/Clock combination, driving Wilson Duet II's with lots of

Nordost Odin II cables throughout, the STA120 showed its limitations in dynamic headroom and ultimate drive, but this is an amplifier that was worth 1/27<sup>th</sup> the cost of the power cord it was hooked to, and under the circumstances acquitted itself well.



I suspect this is more a NuForce restored than a NuForce anew. The sound, ethos, even circuit design of these Optoma NuForce products has a lot in common with products designed under the previous administration. Given that many of the original NuForce staff transferred over to Optoma, it's likely Optoma bought the intellectual property of NuForce designs along with the name. This isn't a bad thing at all, because these NuForce designs were years ahead of the game. However, not so many years ahead of the game, and the DAC80 especially looks outclassed on paper by similarly priced DACs with DSD replay, headphone amps, Ethernet connections and more. All this is merely on-paper concerns, because in real life the DAC sounds great. And the power amplifier is easy to love, too. Despite those caveats, all in all, this is a great digital combination at a keen price!

### Technical Specifications

#### Optoma NuForce DAC80

**Type:** PCM DAC with USB and S/PDIF inputs

**Inputs:** 2x Coaxial S/PDIF, Toslink S/PDIF, Asynchronous USB

**Outputs:** 2x RCA, 4V, 100

**Maximum bit depth:** 24-bit

**Maximum sample rate:** 192kHz

**Volume Control:** 32-bit digital attenuator

**Frequency Response:** 20Hz. 25kHz  $\pm$ 0.25dB

**THD+N:** 0.005%, 0dB, 1kHz

**S/N ratio:** 96dB, 1kHz, A-weighted

**Available in:** Black or Silver

**Dimensions (W×H×D):** 21.5×5.1×22.9cm

**Weight:** 1.2kg

**Price:** £500

### **Optoma NuForce STA120**

**Type:** single-ended Class D stereo power amplifier

**Inputs:** 2× RCA, 22k

**Output:** 2× pair, five way binding posts

**Power output:** 2× 80W per channel (8 )

**Peak power output:** 300W

**Gain:** 22.5dB

**Frequency Response:** 10Hz. 40kHz

**THD+N:** 0.008%

**S/N ratio:** 115dB

Available in Black or Silver

**Dimensions (W×H×D):** 21.5×5.1×22.9cm

**Weight:** 1.2kg

**Price:** £500

**Manufactured by:** Optoma

**URL:** [www.optoma.co.uk](http://www.optoma.co.uk)

**Tel:** +44(0)1923 691 800