



Arcam FMJ D33 digital converter

By Alan Sircom

When the press release first arrived, in my own head I got the Arcam FMJ D33 DAC spectacularly wrong. Arcam has a commanding reputation for making things that cost hundreds sound like things that cost thousands. Arcam is the giant killer in digital. So, why would Arcam make a £2,000 DAC? A couple of minutes after powering the D33 up, I got the answer... Arcam is still the digital giant killer. By building a two grand DAC, it is merely setting its sights on bigger giants.

Rumour has it this was one of the easiest DACs to design. All it took was 35 years of Arcam research and development smarts distilled into one does-it-all DAC, mixed in with a wish list of almost all the things you would want from a state of the art converter, then sprinkled over with the sort of power supplies that most digital engineers dismiss as overkill, and served in one of Arcam's RF-busting FMJ boxes. After giving the test gear a swift kicking – “is this thing working? It seems stuck on ‘excellent’?” – the D33 was given to the golden ears in the company for a spot of evaluation. You know when the listeners start talking about taking hostages and “cold, dead hands”, you are on to a winner.

The FMJ D33 ‘SuperDAC’ is in the changeless Arcam FMJ livery. Under the hood is a pair of Burr Brown PCM1792 converters (one per side) working up to 24bit/192kHz

precision, and controlled by Arcam's own JetPLL phase locked loop jitter-busting circuitry its own user-controllable filter, all sitting on a four-layer PCB. Power is delivered by two large toroidal transformers, with masses of power regulation and – perhaps more importantly – a lot of low-noise sub-regulation in key areas. Add to this the usual set of RFI and EMI-busting technologies that come with any FMJ casework and you have a DAC that delivers a set of specs almost at the limits of what you can measure.

Unless you blur the lines between ‘DAC’ and ‘headphone amp’, the D33 is a full-feature converter, and even comes with its own remote control. It has a pair each of optical and coaxial S/PDIF inputs, an AES/EBU digital input, two USB Type B inputs and a USB Type A input specifically for Apple products. This last is backed up by an Apple authentication chip, so it can get under the digital skin of your iPhone 4/4S, 4th Gen iPod Touch, iPad or iPad 2 (and beyond). Earlier iDevices do not support digital audio output and are not compatible. Forget any kind of direct-access networked audio solution or volume attenuation though, and it will not control the output of a USB thumb drive.

One of the USB Type B inputs is marked ‘Class 1 Isolated’, the other ‘Class 2 High Speed’ with a selector switch between the two. Class 1 is the standard galvanically isolated, up-to-24/96 asynchronous USB connection ▶

▶ between computer and DAC, the second – which is not galvanically isolated – is designed for coping with files up to 192kHz, but this requires device drivers to be loaded on to your computer (this is not an Arcam thing, current Mac and Windows OS don't support Class II USB natively and any devices that wish to do Class II USB currently need to come with a disc o' drivers). Away from the digital domain, the rear panel also sports two single-ended and one set of balanced line outputs, it also has remote and 12V triggers and a RS232 port for custom installers.

Fresh out of the box, the Arcam FMJ D33 is clearly something special, even if it sounds a trifle 'shut in' in the higher frequencies at first flush. Even so, from the moment you give it power, it's never less than captivating, and it makes you want to listen to more digits than ever. A few days in, the 'shut in' sound dissolves, and the performance just gets all the more captivating.

Figuring that a good DAC should never get in the way of any kind of musical genre, I threw half a terabyte of random USB-derived sounds at the D33, and still more through the wealth of old-school digital inputs. The D33 acquitted itself extremely well on all inputs and outputs. I felt AES/EBU (from a Lyngdorf CD-1) had the slight edge, followed by Class I USB and everything else in the pack following extremely close behind. But these are sad-person micro-differences that don't really matter. All the inputs are pretty good and I wasted far too much time listening for input differences to make these comparisons anything apart from academic at best. You'll struggle to hear differences because you'll be listening to the music instead, whatever kind of music you play.

The Arcam sounds like digits with those nasty corners taken off. Don't think this a pejorative, because it makes a lot of digital replay sound hard, angular, and aggressive by comparison. And yet, it's not soft or soggy or saccharine sounding. It's just that the more you listen to the D33, the more you realise that edgy sound commonly associated with a lot of digital audio is not what digital audio should sound like. It should sound more like the D33.

Even as the treble was sorting itself out, what was immediately apparent was a wonderfully lucid midband, which separates instruments out in a vast soundstage. Couple that with the precision of focus and the wonderful articulation of that mid-band which makes voices about as studio as it gets.

This puts the onus on the studio engineer. When they get it right, you hear it, but when they get it wrong (say, a little too much 11k 'zing' to a female voice or a shade too much compression) and you can really hear that too. I have played down my Eminem test recently, but it's a fine indicator

of performance – play any Eminem track and the more of his machine-gun rap you can follow, generally the better the product. The D33 gets right to the heart of the Vicodin. Back in the late 1990s, we'd say the D33 had Mad Skillz. Word.

Back to sanity – sort of. What I found particularly refreshing about the FMJ D33 is its bass performance. It has an organic shape and depth to the bass, the kind of thing that is almost impossible to find on most digital replay systems. It's not analogue-sounding, not trying to replicate the sound of vinyl, but it has a sense of richness and tonal character to the bass that sets the D33 apart from the pack. In a way, this even takes on the excellent Bricasti, and wins. The Bricasti has superb bass, but gives a sense of upper-bass attack whether it's there or not. It's a bit like everything's a Rickenbacker bass. The D33 in contrast just makes bass sound like bass, lots of it and all right too. This is calling up relatively distant memories of product character, and was something that didn't immediately manifest on the Bricasti because its bass was so good in and of itself. Nevertheless, I feel in some ways, the Arcam has a more balanced bass – the Bricasti was unassailable in dealing with rock bass and organ pedal notes, but the Arcam is arguably more balanced when dealing with bass across the board, including from orchestral or jazz sources. Once again, the differences are comparatively minor, but given the price differential, that's astounding.

The filter options are interesting, and I like that they are switched from the front panel. I did some experimentation with chopping and changing systems here. Truth is, I came up with no simplistic answer. Setting 1 is smooth on some discs and systems, smothering on others, while filter 2 rocks out on some cuts and through a few systems, and sounds a

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bit bass lumpy in others. Between the two, you'll likely find a happy place for most recordings and most systems.

There has to be a downside, but I'm scratching my head to find one here. OK, so the Apple inlet is really demanding; it connected with my iPhone 4S but was 'twitchy' with my first-gen iPad and refused to speak to Nanos and iPod Classics, but this last was clearly described in the manual. However, in terms of wanting a high-technology £5,000 digital converter for £2,000, Arcam has the field virtually to itself. I suspect, for most people, the next step up from this has a dCS logo etched into it. It really is that good.

This is the best DAC Arcam knows how to make; that's saying something, given that Arcam was there at the point when the DAC was first minted and has been at the leading edge of digital design for more than a quarter of a century. Not only is this the best DAC Arcam can make right now, it is among the tiny handful of best DACs ever made. And Arcam's roots are showing, because it undercuts all of the other 'best ever' by a substantial amount. You might be reading this and thinking it hyperbole; from where I sit, I feel like I'm holding back, but this one comes absurdly highly recommended. +

TECHNICAL SPECIFICATIONS

Digital to analog conversion: 2x Burr-Brown 24-bit,

192kHz Advanced Segment Delta Sigma DAC ICs

Signal-to-noise ratio: 110dB CCIR

Harmonic Distortion (1kHz): 0.0008% (20Hz-20kHz, unweighted)

Frequency response (+0.1dB, -0.5dB): 10Hz-20kHz

Output level (0dB): 2.2Vrms

Output impedance: 47Ω

Minimum recommended load: 5kΩ

Digital interfaces: USB Class 1 (Type B socket USB 1.1 electrically isolated); USB Class 2 (Type B socket USB 2.0 High Speed – 480Mbits/s); AES/EBU x1; Coaxial S/PDIF x2, Optical S/PDIF x2; Apple USB Type A connector

Outputs: Single-ended RCAx2 pair, Balanced XLRx1 pair

CI connections: RS232 port, 12V trigger, remote control minijack

Dimensions (WxHxD): 43.3x11x37cm

Weight: 6.2kg

Finish: Dark Grey, Silver

Price: £2,000

Manufacturer: Arcam Ltd

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