

Quad Artera Solus

The company ups the ante by adding a 'just-add-speakers' solution to its Artera series, managing to squeeze streaming alongside CD replay into casework of pert proportions
 Review: **David Vivian Lab: Paul Miller**

So far, Quad's Artera family has comprised the Play (a combined CD transport, DAC and preamp) and the Stereo [HFN Nov '15], which is a power amp using the company's Current Dumping topology. Both solid-state components, not only are they compact and dapper but high functioning and lifestyle literate too – a feat that's trickier than it might seem. But not as tricky as folding all of the above (plus streaming) into a chassis with the same proportions as the other components in the Artera range.

Actually, there are two parts to this. Part one is what we have here, the £1500 Solus equipped with aptX Bluetooth providing basic streaming to sit alongside its CD transport, DAC and amplification (not Current Dumping in this case). This will be joined in the autumn by a premium version expected to cost £2000 that will add app-controlled Wi-Fi network streaming.

To some extent, this seems the wrong way round but it's something of an industry-given that implementing Wi-Fi streaming in a one-box product isn't the work of an afternoon.

SEPARATES SOUND

Quad freely admits that designing the Artera Solus proved to be a great test of ingenuity for its engineers.

'It was a real challenge to make the individual parts – the CD transport, the DAC, the digital streaming, the analogue preamp and power amp – perform to the level of a full separates system in keeping with Quad's high standards,' said Jan Ertner, who led the development team.

'Placement of components has been especially critical, together with the careful routing of the four-layer printed circuit board, use of balanced circuitry to minimise interference and extensive power supply isolation.'

RIGHT: The heart of the Artera Solus is clearly based on the earlier Artera Play CD player/DAC [HFN Nov '15] with a larger PSU to support the integrated power amp. The sidecheek heatsinks are now functional rather than decorative

Encouragingly for Quad, this initial edition of the Artera Solus looks so ownable you might not want to wait, especially as it will be possible to retro-fit full-fat network capability once the second one-box Artera model goes on sale.

Components promoted as fine examples of industrial design can often seem astringently stark and cold and the Solus certainly flirts with the idea (especially if you forgo the contrasting silver fascia in favour of chassis-matching black). But it also imbues a clean, sharp and chunky form factor with just enough character to charm rather than chill. It was no accident. Quad enlisted the help of Rodney Mead, the man responsible for the styling of many classic Quad products in the '70s, '80s and '90s, to brainstorm design concepts.

The structure is weighty and feels reassuringly rugged – exactly as intended for resisting resonance and vibration. Face-on, the main features are the loading slot for CDs and, to its left, a circular OLED display that doubles as a touch-sensitive pad for activating play/pause and scrolling through the input options. That's about it save for a 6.35mm headphone jack (fed from a dedicated headphone amp circuit), standby button and a large remote with annoyingly small buttons and labels.

HEART OF THE MATTER

The digital heart of the Artera Solus beats to the tune of a tried-and-tested ESS ES9018 DAC (the ES9038 is the latest variant). It provides support for PCM data up to 384kHz/32-bit and DSD64/128/256.



Connectivity is comprehensive, with doubled-up optical and coaxial digital inputs plus another two line-level analogue ins and a single USB-B for linking to a PC or Mac. The USB-A port is on hand for firmware updates.

Outputs comprise balanced (XLR) and single-ended (RCA) pre-outs for harnessing a more muscular power amplifier (most obviously Quad's own Artera Stereo), and there's a choice of coaxial or optical digital outs should you want to use the Artera Solus with an external DAC.

If so, it would need to be pretty special, for the chosen ESS chip has already proven itself in a number of fine-sounding products. Furthermore Quad has accessed four of the chip's inbuilt filter settings: 'Fast', 'Smooth', 'Narrow' and 'Wide' [see PM's boxout, below].

The slot-loading CD transport mechanism and attendant electronics play their part in allowing the DAC to do its best work, buffering the data being read from the disc before feeding it asynchronously

– in an effort to minimise jitter – to the DAC board. Given a higher price ceiling, greater casework space and an ideal world, Quad would probably have liked to use its Current Dumping technology for the power amp section of the Artera Solus. That wasn't to be, but the company's engineers certainly don't appear to have stinted on an alternative solution.

As to be expected, the Artera Solus's pre and power amp sections are minimalist in

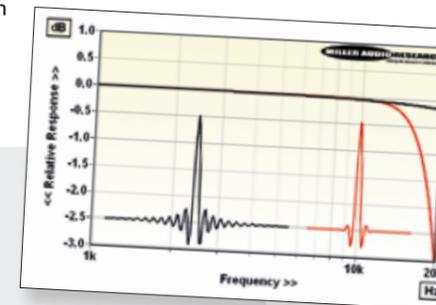
design and use high-quality components linked by short, direct signal paths. Volume is digitally controlled in the analogue domain, outputting directly to the dual-mono Class AB power amp section. But as the claimed 75W/8ohm power output looks a little modest on paper, Quad avows that its generous reserves of current mean awkward speaker loads simply aren't a

problem. It even says that the Solus will drive the company's

'It's one of the most desirable one-box systems we've heard yet'

RINGING THE CHANGES

In practice, the Artera Solus has the same four digital filters we saw in Quad's earlier Artera Play model – Narrow, Smooth, Wide and Fast. 'Narrow' is a traditional linear phase filter offering an excellent 120dB stopband rejection and very flat response (–0.15dB/20kHz), albeit with significant ringing [see black traces, inset Graph]. The 'Smooth' filter is also a linear phase type but with a very abrupt cut-off just prior to the Nyquist frequency (–0.15dB/19kHz to –3.5dB/20kHz with CD and –1dB/42kHz to –13.2dB/45kHz with 96kHz media). The 'Wide' filter is a slow roll-off type, not dissimilar to Pioneer's interpolative Legato Link filter of the 1980s with its minimal ringing (much reduced time domain distortion) but curtailed treble (–3.1dB/20kHz) with CD/48kHz sources [red traces, inset Graph]. The 'Fast' filter takes this a stage further, incurring almost no ringing but offering almost no stopband/alias rejection by way of compromise. This filter is best suited to higher sample rate inputs where the treble loss is inaudible and alias images are pushed out well beyond the audioband. PM



ABOVE: To the left of the central loading slot for CDs is a circular OLED display that doubles as a touch-screen to enable play/pause and the selection of the different input options available

demanding electrostatic speakers without breaking sweat [see PM's Lab Report, p67].

SHINE ON

As one of Quad's aims with the Artera Solus is to appeal to as broad an audience as possible – from hardcore audiophiles to those who shop at Habitat – I spent time with it hooked up to a pair of Audiovector QR 1 standmount speakers, which were previously being driven by my reference electronics. These comprise a Cambridge Audio CXC CD transport, Chord Hugo 2 DAC and ATC CA-2/P1 pre/power amp [HFN Mar '10]. A FiiO X3 Mk 2 DAP was also on hand to inject a little hi-res file goodness to the respective DACs in both set-ups.

Even by Quad's high standards, the Artera Solus proved to be remarkably

talented, in many ways producing the best sound I've heard from the Audiovector QR 1 loudspeakers. In fact, soundstage width and out-and-out loudness aside, the overall presentation even outshone that of KEF's EISA Award-winning LS50 Wireless speakers [HFN Oct, '17] which I

had used with my reference electronics in the past. To put this into perspective, the £1500 Artera Solus costs £350 less than the Chord DAC. And even when teamed with the class Audiovector QR 1s, the £2250 total outlay is only £250 more than the price of the active KEF LS50 Wireless speakers, for which you'd have to buy a transport if you wanted to play CDs.

For the acid test, Dynaudio's cracking £2500 Special Forty standmount speakers

ALL-IN-ONE SOLUTION



ABOVE: Streaming (Bluetooth) is offered alongside pairs of coaxial and optical S/PDIF ins, a USB-B port and two analogue line ins. Single sets of 4mm speaker cable binding posts are joined by RCA and balanced (XLR) preamp outs plus coax/opt digital outs

were pressed into service with both the Artera Solus and reference electronics. On the face of it, the Special Forty seems to be an easy loudspeaker to drive and one that is capable of great bass that really comes alive when it's used together with a quality front end.

The opening scribbles on my notepad for the Artera Solus read thus: 'immediacy and presence, weight and body, scale and authority'. And this after long-term familiarity with a system totting a state-of-the-art DAC and a famously fast and grippy power amp with twice the Artera Solus's power.

HARDEST TRICK

Moreover, and spookily apt given the lyric of the first CD into the slot, the player's portrayal of Bruno Mars' terrifically bouncy 'Finesse' [Atlantic] really was dripping in finesse, the Artera Solus pulling off the hardest trick of successfully separating the high-energy impetus of the track with its ballooning bass and staccato drum pattern from the fine inner detail and complex, layered textures.

Hooking up the Dynaudio Special Forty speakers to the reference electronics proved to be revealing. The sense of discrimination between instruments was now subtly stronger, the drum strikes fractionally crisper and there was a little more air and dimensionality to the soundstage. Yet power and bass quality seemed no different to when the speakers were being driven by the Artera Solus while tonally it made for a slightly sweeter and warmer presentation.

With the slow-burning beauty of the adagio movement from the Vladimir Ashkenazy/Concertgebouw recording of Rachmaninov's Symphony No 2 in E minor [Decca 455 7982], the Artera Solus's richer

balance really paid off. It gave the opening section's gently sighing violins and melody-weaving clarinet a delicacy and depth that left the reference electronics sounding slightly analytical. They were certainly less swoony and romantic-sounding, despite the greater acuity and resolution on offer.

It was much the same story with hi-res files. Barb Jung's recording of Bruce Springsteen's 'Long Walk Home' [AKD 530D; 96kHz/24-bit] sounded fluent and full bodied with a warm, natural balance, although not quite able to match the reference system's forensic levels of resolution, alacrity, and finely graded dynamic shading.

As for Bluetooth streaming, this was about as good as it gets. The sound was certainly listenable and stable, even if it was softer and less dynamic than when playing a CD or listening to a hi-res file.

The Artera Solus is one of the most desirable one-box systems we've encountered. Compact, sturdy and boasting a rich and powerful sound, it makes a compelling case for itself at the price. ☺

HI-FI NEWS VERDICT

While the market is not exactly short of 'just-add-speakers' solutions, the Artera Solus is a tremendous one-box system and an absolute steal for the money. It may lack Wi-Fi streaming at present, but this is being developed. In all other respects it not only looks and feels far more expensive than it is, it sounds it too. Just make sure you partner it with a fine pair of speakers to show what it's really capable of.

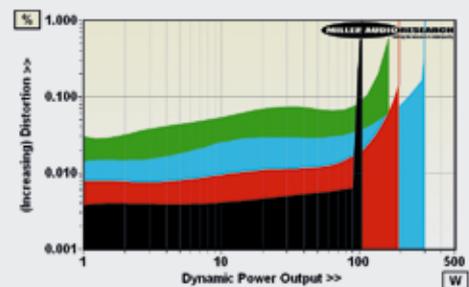
Sound Quality: 83%



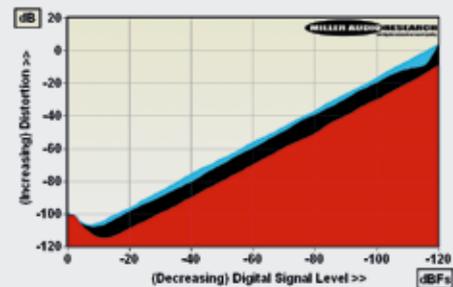
QUAD ARTERA SOLUS

Although Quad's Solus is rated at 2x75W/8ohm with a 15A (microprocessor-controlled) current reserve, the casework quickly heats up under load – the heatsinks reaching 55°C after 30 minutes at just 10W/8ohm with distortion rising from 0.016% to 0.026%. So adequate ventilation is a must for the Artera Solus which, in practice, can deliver 2x84W/8ohm and 2x140W/4ohm with sufficient reserve for 105W, 197W, 303W and 170W into 8, 4, 2 and 1ohm loads [Graph 1, below]. This brings the maximum current closer to 13A for 1% THD over 10msec. Quad has designed the Solus for +30dB of overall gain which is far more sensible than the +40dB (or greater) still encountered in modern amps and ensures the baby Quad will offer good use of its volume control. Distortion, meanwhile, increases with level from 0.0045%/1W to 0.016%/10W and 0.1% at the rated 75W/8ohm (all 1kHz/8ohm) and with frequency up to 0.045%/20kHz. Noise is low and the A-wtd S/N generous at 90dB (re. 0dBW) while the response reaches deep and wide from 1Hz-60kHz ±1dB.

I discuss the choice of digital filters in our boxout [see p65] although the 'Narrow' option seems to work optimally with CD rather than external LPCM inputs where there's a significant loss in treble. Via the coax/optical inputs the 'Smooth' filter delivers the flattest response and a significant 92dB stopband rejection. Otherwise, the A-wtd S/N is generous at 110dB (re. 2V balanced pre out) and distortion very low indeed, falling to 0.0002% over the top 30dB of its dynamic range [see Graph 2 below]. Jitter is impressively low at <15psec (24-bit data, all sample rates) and low-level linearity good to ±0.1dB over a 100dB dynamic range with both 24-bit digital inputs and via CD. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 13.0A



ABOVE: THD vs. digital level over a 120dB range at 1kHz (red, 24-bit; black, CD) and 20kHz (blue, CD)

HI-FI NEWS SPECIFICATIONS

Continuous power (<1% THD, 8/4ohm)	84W / 140W
Dynamic power (<1% THD, 8/4/2/1ohm)	105W / 197W / 303W / 170W
Output impedance (20Hz-20kHz)	0.04-0.095ohm (116ohm, pre)
Freq. resp. (20Hz-20kHz/100kHz)	+0.0 to -0.1dB/-2.55dB (Analogue)
Distortion (20Hz-20kHz, 0dBFS/0dBW)	0.0012-0.0015%/0.016-0.045%
A-wtd S/N ratio (re. 0dBFS/0dBW)	109.5dB (Dig) / 89.6dB (Analogue)
Digital Jitter (CD / 48kHz/96kHz)	130psec / 15psec / 10psec
Power consumption (idle/rated o/p)	20W / 250W (1W, standby)
Dimensions (WHD / Weight)	320x105x320mm / 11.8kg