USB DAC/headphone amplifier
Made by: SPL electronics GmbH, Niederkruechten, Germany
Supplied by: SCV Electronics Ltd, Herts
Telephone: 03301 222500
Web: www.spl.audio/en; www.scvdistribution.co.uk
Price: £1899 (£2499 with DAC768 option)

AUDIO FILE

hi-fi news OUTSTANDING PRODUCT

SPL Phonitor xe

With deep roots in 'professional audio' and a novel discrete op-amp module as a key driving force, SPL is looking to bring a splash of colour to our audiophile universe

Review: **Andrew Everard** Lab: **Paul Miller**

Well, it makes a change from the usual choice of silver or black… Yes, you can have the German-made SPL Phonitor xe USB DAC/headphone amp, which starts from £1899 depending on specification, in either of those colours if you want, but it's also available in the bright red anodised finish you see here. Not that it needs colour to catch the eye for the unusual battery of features makes it either intriguing or something of a head-scratcher: what do all those knobs and switches do? And then there's the pair of illuminated, retro-looking VU meters – this is clearly not your common or garden DAC/headphone amp.

Supplied fitted with the optional DAC768 module, which adds £600 to the basic price, the Phonitor xe is unmistakably a piece of studio equipment, which is hardly surprising given its manufacturer's roots [see boxout, p69]. The SPL catalogue is comprehensive, including recording and mastering devices through to plug-ins and four variants of the Phonitor concept.

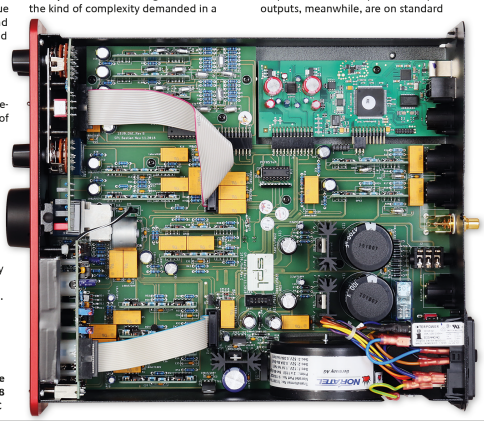
The latter range kicks-off with the £399 all-analogue Phonitor One, which the company describes as 'concisely featured', through to a pair of headphone-only amps including the flagship xe. Top of the pile is the Phonitor X, promoted as a 'ProFi Preamplifier Monitor Controller', which adds pre outs to the headphone amp to feed active loudspeakers.

BUILT TO LAST

Then there's the Director MkII, a £3199 DAC/preamp, not to mention a £2299 stereo power amp, the Performer s800, rated at 285W/4ohm and bridgeable to 450W, and a decidedly hefty monoblock, the Performer m1000, boasting 750W/4ohm and 1000W/2ohm. It's yours for £3799, making it clear that SPL's pricing is more aimed at the studio buyer than the stratosphere of enthusiast hi-fi. And yes, you can even have that 25kg mono amp in red, black or silver, and with a range of matching/contrasting decorative inlays attached to the fascia using neodymium magnets. Just because something's built as no-nonsense studio hardware doesn't mean it can't be fun, too.

Made, like all of SPL's products, in North Rhine-Westphalia, near the Dutch border, the Phonitor xe carries that studio heritage through the quality of its design and build. Its panelwork is thick and solid feeling, and the controls have that 'machined from solid' feel – which is good, as they are!

Everything here seems built to last, withstanding the kind of abuse and use to which studio equipment is subjected, and so should shrug off a relatively pampered life in a home hi-fi system. Mind you, with that background comes the kind of complexity demanded in a pro environment: most of us, however hi-fi-savvy, would struggle to set up and use a multichannel mixing desk to its full capabilities, and so it seems with the Phonitor xe. Far from just taking an input at one end and driving a pair of headphones at the other, this colourful box offers the prospect of much tinkering and fiddling.



RIGHT: Fourteen 'VOLTAiR' op-amp modules are edge-on in the crossfeed/angle matrix [top left], line input [mid right] and headphone amp [bottom left]. Spartan DSP-based DAC768 module [top right] uses the AKM 4490EQ DAC

MISSION CONTROL

Of course, that assumes you can get your head around what all those controls actually do: after all, chances are you'll never have encountered anything like them before. Best then, perhaps, that we cover the conventional stuff first.

The Phonitor xe has inputs for both analogue and digital sources, the former on a choice of unbalanced RCAs and balanced XLRs, the latter on USB-B, coaxial and AES/EBU and Toslink optical. Headphone outputs, meanwhile, are on standard 6.35mm and balanced 4-pin XLR sockets, with both these connections duplicated on the amp's front and rear panels. A little 'F/R' slider switch between the front sockets directs the output fore or aft.

ABOVE: The red fascia option is a riot! Angle, crossfeed and Laterality (balance) matrix may be defeated, leaving input select and volume plus balanced and single-ended headphone sockets. Illuminated VU meters are accurately calibrated

As is usual these days, the digital section – here based around AKM's 'Velvet Sound' AK4490EQ DAC – can handle content at up to 192kHz/24-bit via the conventional optical and electrical inputs, while the USB-B 'computer audio' input extends this up to 768kHz/32-bit and DSD256/11.2MHz. SPL offers driver downloads from its website for those using the Windows operating system, while Mac OS and iOS devices require no external driver. However, you will need the Apple camera adapter should you want to feed the Phonitor xe from your iPhone or iPad.

> 'There's the prospect of much tinkering and fiddling'

Input selection is via a simple rotary control, while a large volume knob, milled from aluminium, controls an Alps RK27 'Big Blue' potentiometer with a feel SPL describes as 'spoon in the honey'. If that's not mellifluous enough for you, you can control the volume using any infra-red handset, the unit learning the remote's commands rather than vice versa.

Taking my cue from SPL's video tutorial – it's simple, by the way, using the 'IR Volume PGM' button on the rear panel to set the unit into learning mode – I used a £20 Apple Remote for the task. Of course, unless you're planning on using a headphone on the end of a mile of cable, the hands-on approach will still do nicely. Now for the more complex-looking stuff, starting with the 'uniquely finely resolved laterality control', found beside a mono/stereo switch for the output.

GRAND SCALE

This 'laterality' control is actually just a fine balance control and there's also a variable crossfeed adjustment to bleed some of each channel's output to the other channel, countering some of that 'left and right' headphone effect. Slightly trickier is the 'angle' control, which uses similar techniques to create the effect of virtual speakers positioned at various angles to the listener, from 22° to a fairly wide 55°.

It's an intriguing effect, and one whose subjective palatability varies with your choice of recordings. Rather like those DACs that offer myriad digital filters, the good news here is that you can either play with all this stuff, or leave it bypassed.

Indeed, even when playing orchestral recordings such as the LSO/Pappano set of Vaughan Williams's Symphonies 4&6 [LSO0867; DSD256], which was delivered with superb scale and power, yet also bags of internal detail, adjustment of the 'angle' control was more intriguing than convincing. To my ears it allowed a gradual progression from soundstage width and dimension to a tighter focus, but without any conviction as to which setting actually sounded 'right'.

HIGH VOLTAGE

With more intimate recordings, such the Oyster Duo's *Stolen Pearls* [Channel Classics CCS 43121; DXD], the 'zoom' effect of this control was more comical than satisfying. More useful here was a little increase of crossfeed, dependent on the 'phones used, to create a more speaker-like impression of an 'out of the head' sonic image.

More likely to be set and then left are the two DIP switches built into the underside of the chassis which are marked 1 and 2. Switch 1 increases the gain of the headphone amp, while switch 2 increases the gain (sensitivity) of the analogue line

PROFESSIONAL FIDELITY

SPL's initials stand not for 'sound pressure level' but 'Sound Performance Laboratory'. The company was founded in 1983 by Hermann Gier and Wolfgang Neumann, the latter with his own recording studio in the late '70s, as well as designing and building technology for recording. Faced with declining fees for studio rental, he sold up his share to concentrate on manufacturing, bringing in bass player and sound engineer Gier to help market the products after Neumann had built him a bass preamp. In fact, their first project together was a mixing desk for a relative of Gier's, who worked in a hospital. It was commissioned for the recording of operations for training videos…

Since then, SPL has specialised in 'audio gear for multimedia, film, music, hi-fi and broadcasting'. And for a company with roots firmly in pro audio, where many would have you believe that accuracy is all, SPL's approach is refreshing. Yes, it says it's all about innovation through advances in technology and design, but 'Experimenting and listening is more important to us than designing by the book'. One of Neumann's real passions is filtering, and the way it can be implemented – as you may have guessed from the facilities on offer in the Phonitor xe.

DAC/HEADPHONE PREAMP

ABOVE: Single-ended (RCA) and balanced (XLR) line ins join digital inputs on XLR (AES), coax, optical and USB-B. Balanced and single-ended 6.35mm headphone outs are switched in place of duplicate sockets on the front fascia [see p69]

input. I'd suggest these are best left in their 'off' position unless you have a line source with a truly feeble output. Moreover, the Phonitor xe has a prodigious output capability, particularly with high impedance headphones [see PM's Lab Report, opposite], in no small part due to its proprietary VOLTAiR op-amps that operate at a very high voltage.

With this extra headroom on tap, those DIP switch boosters really won't be needed. I found the Phonitor xe more than capable of driving cleanly well beyond the pain level even with these switches 'off'.

POUNDING OUT

Mind you, with that much voltage output and the low source impedance, you could, with the right adapter cable, use the headphone output of the Phonitor xe to directly drive a power amp or active speakers to full clipping.

By now you may well have formed an impression that this is a very superior headphone amp, capable of handling anything you might throw at it, and you wouldn't be wrong. Whether revealing the fine detail in a recording or pounding out the likes of The KLF's *The White Room* [KLF Communications JAMS CD006] at very serious levels, the Phonitor xe proved a captivating and musical companion, with none of that sense of an over-analytical sound often ascribed to studio equipment.

Whether used with headphones aimed at professional users – Focal Spirit Pro [*HFN* Dec '15], the new Austrian Audio Hi-X55 – or more 'civilian' models such as the B&W P9 Signature [*HFN* Mar '17] or Philips Fidelio X3, the sound was always intimate and convincing, with fine space and presence. This was evidenced by trumpeter Till Brönner's *The Good Life* album [Masterworks 88875187202], with which the Phonitor xe did a fine job in delivering both the presence of the instruments and every breath of the performance. The same qualities of detail being handled to enhance the music, rather than distract from it, were also obvious from a play of Paul Weller's *Fat Pop (Vol 1)* [Polydor 3556643], where the dense mixes were open for inspection without ever detracting from the quality of the performance and recording.

There's no denying that SPL's Phonitor xe has much to offer as a high-quality DAC/headphone amplifier, whether fed via its digital inputs or the analogue XLRs, even though I can't help but think the addition of a line/preamp analogue output to access that high-quality digital stage would make it a more comprehensive device. And it's really down to personal preference how handy those sound-shaping controls will be, or whether the 'fiddle factor' might just prove a distraction.

HI-FI NEWS VERDICT

It's hard not to be impressed by the Phonitor xe despite the lack of XLR/RCA line outputs that might have also allowed it to function as a fully-fledged DAC/preamp. With its unashamedly 'pro' specification, and striking red finish, this purist headphone solution is built like a tank – the controls feel like they'll carry on working forever and it'll drive a wide range of headphones to ridiculous levels with real ease.

Sound Quality: 86%

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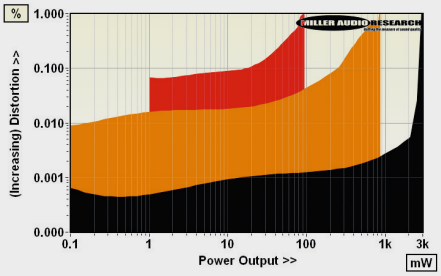
LAB REPORT

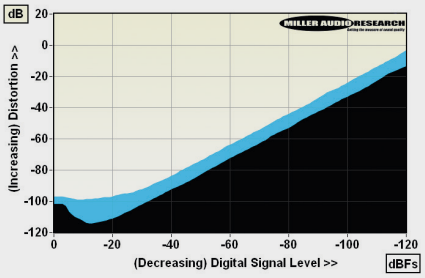
SPL PHONITOR XE

Key to the Phonitor's analogue performance are the proprietary 'VOLTAiR' discrete op-amps that feature in all its crossfeed/angle/laterality and main headphone preamp circuits. Running off high ±60V rails, the VOLTAiR-based headphone amp offers a 44.5V single-ended output, sufficient to develop an unprecedented 2.95W into 600ohm [black trace, Graph 1]! This voltage falls across lower impedances where maximum output is 865mW/32ohm (or 847mW/32ohm in the Low gain setting) with THD climbing from 0.015%/1mW to 0.018%/10mW, 0.043%/100mW, 0.4%/500mW and 0.7%/800mW/32ohm [orange trace, Graph 1]. There's sufficient current available to support 93mW into a very low impedance 8ohm insert earphone, for example [red trace, Graph 1] but note how distortion continues to increase with reducing headphone load. The effect is particularly marked at high frequencies as THD increases from just 0.0005%/20kHz unloaded (the VOLTAiR amps offer a vanishingly low 0.00005% THD at 1V/1kHz, unloaded) to 0.25%/20kHz into 32ohm.

The response extends from 1Hz-90kHz (–1dB) and gain is +0.5dB (Low) to +12.5dB (High) with ±3.4dB laterality (balance) either side. Residual noise is extremely low at 10µV (perfect for very sensitive 'phones) and the A-wtd S/N usefully wide at 99dB (re. 0dBV). Tested in the high gain setting, the USB DAC/headphone pathway yields a maximum 18.7V output (re. 1kHz/0dBFs) while the choice of fast roll-off/minimum phase filter in the AKM4490 DAC defines the digital/analogue response of –0.4dB/20kHz, –2.7dB/45kHz and –9.2dB/90kHz with 48/96/192kHz files. THD reaches a minimum of 0.0002-0.002% over the top 20dB of its dynamic range [see Graph 2], the A-wtd S/N is a wide 111dB and jitter moderate at 500-560psec (48kHz-192kHz/24-bit). **PM**



ABOVE: Power output vs. THD into 600ohm (black), 32ohm (orange) and low 8ohm (red) headphone loads



ABOVE: Distortion (unloaded) vs. 48kHz/24-bit digital level over 120dBFs range (1kHz, black; 20kHz, cyan)

HI-FI NEWS SPECIFICATIONS

Maximum output (<1% THD into 47kohm)	44.5V (single-ended)
Maximum power output (<1% THD)	865mW/32ohm (93mW/8ohm)
Output Impedance (20Hz-20kHz)	1.00–1.14ohm
A-wtd S/N ratio (re. 10mW/0dBV)	99.1dB / 110.9dB
Distortion (20Hz-20kHz, re. 10mW/0dBV)	0.013-0.25%/0.0012-0.0016%
Frequency resp. (20Hz-20kHz/100kHz)	+0.0dB to –0.06dB/–1.35dB
Digital jitter (48kHz / 96kHz)	500psec / 560psec
Power consumption	19W
Dimensions (WHD) / **Weight**	278x100x330mm / 4.9kg