

Acme Opticom XLA3

Levelling Amplifier



Hugh Robjohns

With a name like 'Acme', we could only be talking about an American company — and I immediately form mental images of a cartoon coyote's ludicrously unlikely road-runner-catching contraptions! However, the Acme product under consideration here is the Opticom XLA3 — which is no use for apprehending road-runners, but is an interesting optical audio limiter based around high-speed cadmium-selenide (CdSe) photocells and all-valve circuitry. The design is deliberately intended, apparently, to produce 'dirty,' harmonically rich, non-linear dynamic limiting effects which, although claimed to be 'aesthetically pleasing,' also provide the Opticom with the reputation of being the 'guitar amp of compressors'.

Overview

The substantial steel case is painted a shiny, military olive-green, and the distinctly retro

Like Wile E. Coyote's spectacular mail-order Acme contraptions, the Opticom has few controls and plenty of attitude — but it's rather more successful!

style is continued with back-lit, kidney-shaped VU meters, 'chicken-head' pointer control knobs, and even a Hammond/Leslie-style (oh, alright then, Fender-style) three-way toggle switch. The 2U rackmount case is surprisingly shallow, extending only about 150mm behind the rack ears... but you also need to allow an extra 70mm or so for the five exposed valves and a large power-supply capacitor, which are mounted externally on the back panel for easy access and cooling.

The rear panel carries a standard female XLR3 socket, wired in parallel with a TRS quarter-inch socket to accept a balanced line-level input, with a male XLR3 wired across another TRS socket for the balanced output at the opposite end of the chassis. The five valves comprise two ECC83s (12AX7), two ECC81s (12AT7) and a 12BH7 — all double triodes, all broadly pin-compatible, and all

mounted horizontally in ceramic sockets.

The ECC83 operates with a higher anode impedance and more gain than the ECC81, while the 12BH7's greater anode current and power dissipation capability makes it ideally suited to driving the audio output directly. All but the BH7 are equipped with metal bayonet-fit screening cans. A large double capacitor (part of the traditional C-L-C power supply circuitry) is also mounted externally on the rear panel, along with a fuse-holder, a ground-lift switch, and a captive mains cable fitted with a moulded US three-pin plug. The review unit was only capable of 115V AC operation (the mains transformer has a single 115V primary winding, with 6.3V heater and centre-tapped, 380V HT secondaries). Given the Opticom's slow-blow mains fuse rating of 0.5A, I used a 100VA rated mains step-down transformer to power the unit for the review.



Apparently, a 230V European version is planned — although obtaining CE approval would require some attention to the currently uninsulated mains connections on the power switch and fuse-holder at the very least. I know 115V AC doesn't bite quite like our more manly European 230V supplies, but exposed mains wiring really is unacceptable practice for the 21st century!

Having said that, the internal construction is very traditional, with very neat point-to-point wiring via open tag strips... leaving exposed 250V DC valve anode HT voltages all over the place. OK, so there's no reason for an owner to open the box and poke around inside, given that the valves are all mounted externally — but service technicians might need to, and it wouldn't be difficult to afford them a little protection against lethal voltages without

sacrificing the benefits of traditional point-to-point wiring. There's traditional, and then there's outdated...

The only other observation I'd make about the internals is that the balanced audio input and output cable runs might benefit from using twisted pairs or wires rather than just parallel wires, especially for the bypass and output wiring that runs right next to the mains transformer.

Unusually for a valve device, the signal path is entirely transformerless and appears

SOUND ON SOUND

Acme Opticom XLA3 \$2995

pros

- Aggressive dynamic control with a rich valve sound character.
- Very simple user controls make it quick and easy to find the desired sound.
- Vintage styling.
- Transformerless balanced audio throughout.

cons

- A bit of a one-trick pony, soundwise.
- Exposed rear-panel valves necessitate some installation care.
- Internal wiring is impressive but perhaps not up to modern standards.

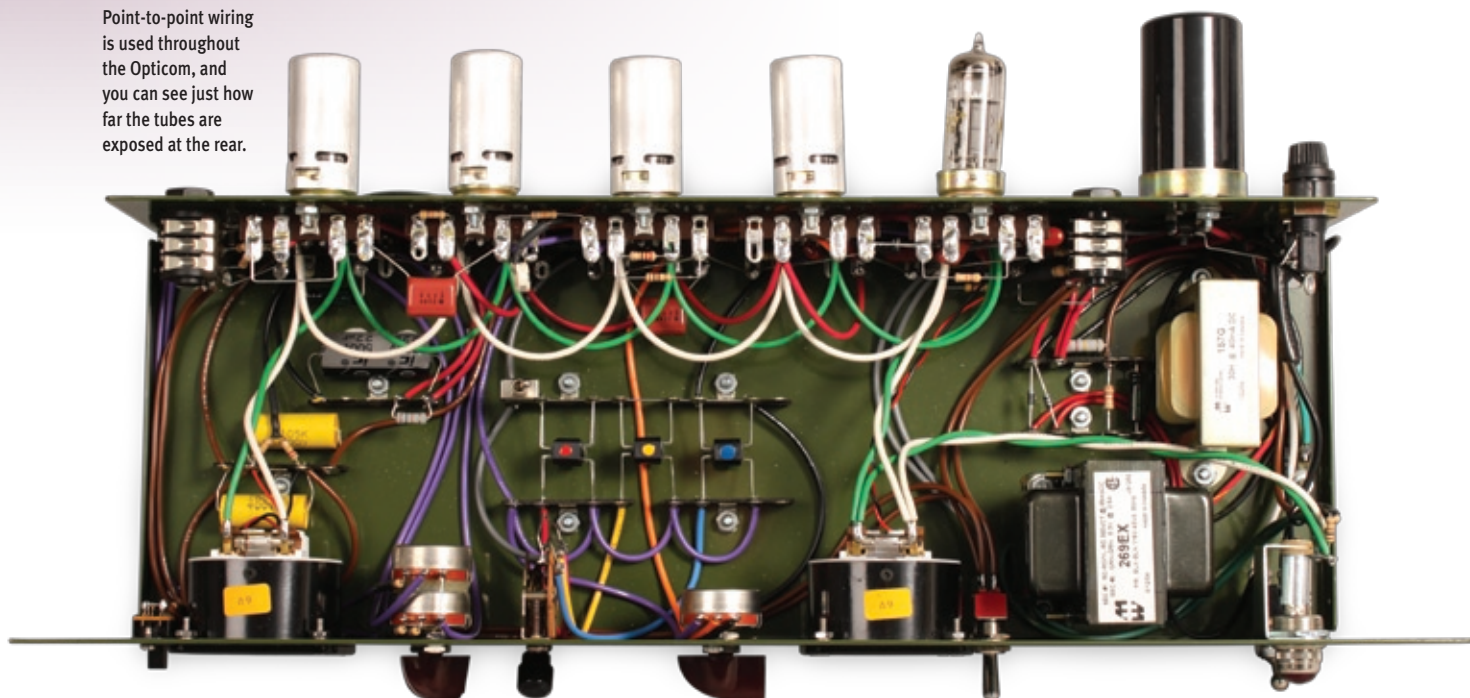
summary

This is a deliberately aggressive sounding valve opto-limiter with audio attitude and vintage styling. It's currently only available with a US mains-voltage power supply, but that situation may change in the near future.

to be balanced throughout, with the input feeding a 12AX7 via the ganged input-gain potentiometer, and the 12BH7 actively driving both sides of the balanced output. The only solid-state elements of the entire unit are the LEDs integrated in each of the three paired sets of cadmium-selenide optical sensors, and the silicon rectifier diodes in the power supply.

The front-panel controls are very simple and straightforward. The left-hand VU meter shows the threshold drive — the amount of signal above the preset limiting threshold —

Point-to-point wiring is used throughout the Opticom, and you can see just how far the tubes are exposed at the rear.



ACME OPTICOM



▶ and a slide switch doubles the meter range if required. Unlike a conventional gain-reduction meter that moves down from OVU, this meter functions more like a normal audio meter, but shows the signal above the limiting threshold. As a rough estimate, by the time the meter needle reaches OVU on this meter, there'll be around 10dB of gain reduction going on. With the range switch set to x2, you'll be able to view far more aggressive gain reductions without the needle wrapping itself around the end stop. The pointer-style rotary control labelled 'Input Gain' is used to adjust the threshold drive, although it appears to be configured as an input attenuator rather than a conventional gain control.

Next along the panel, the three-position toggle switch adjusts the limiter's recovery response time between Slow, Normal and Fast — although it sounds as if there is also a degree of automatic recovery-time variability going on too. Switching the response modes appears to introduce additional opto-attenuator arrays, there being three separate paired sets altogether. Another chicken-head rotary control determines the final output gain (with around 10dB of gain in hand if required), and the output signal level can be viewed on the second VU meter, which is wired directly across the output sockets. The meter calibration follows the conventional alignment of OVU = +4dBu. Immediately to the right of the meter, a chunky silver toggle switch, labelled 'Limit',

Alternatives

The Opticom has something of an individual character, but at this price it finds itself amidst some very formidable competition — albeit of a different 'flavour'. We're talking such solid-state goliaths as the API 2500 stereo mix-bus compressor, Avalon's AD2044, Empirical Labs' Distressor EL8S or EL8XS, Universal Audio's Dual LA3A, and the Maselec MLA2, just for starters. If we restrict our search to valve compressor-limiters, the options are no less impressive, with contenders such as the Tube Tech CL2A, Summit Audio's DCL200, Pendulum Audio's OCL2, the Gyraf Audio Gyratec X, the Chiswick Reach stereo valve-compressor, and the ADL SCL1500 — all of which are stereo units, too.

actually provides a hard-wired bypass mode.

On the extreme right-hand side of the front panel, a second silver toggle switch powers the unit, with a red jewelled indicator lamp above. The Opticom was supplied for review without a manual of any kind, and the company's web site had no content at the time of writing, but according to the few bits of information I was able to glean from the Internet, there is supposed to be a side-chain link jack, so that two XLA3s can be coupled together for stereo operation if required. However, I couldn't find any evidence of one on the review unit!

In Use

With only three operational controls, using the Opticom couldn't really be any simpler. It's just a case of selecting the required response mode, advancing the input-gain control to achieve the desired amount of dynamic 'squash', and then adjusting the output gain appropriately to keep the subsequent equipment happy. Simple!

The slow response setting is the most benign mode, as you might expect, and allows pretty smooth dynamic control with a well defined peak-limiting action, which is nothing if not firm and businesslike in the way it deals with a dynamic source. Opto-compressors are traditionally fairly slow-attack devices, because of the typical inertia of an incandescent bulb when asked to shine more brightly, and although the Opticom uses fast-responding LEDs and Cadmium-Selenide opto-sensors, the attack phase is still slow enough to allow part of the initial transients through largely unaffected, giving the impression of subtle transient enhancement. With the Threshold Drive set so that the dynamic control is only tickled on peaks, the slow mode is also the most revealing of the Opticom's sonic character — which is a richly thickened and distinctly warmed-up sound. It is quite obviously coloured, but is also nicely judged and certainly very musical. The top end is also very smooth and polished-sounding —

As well as the tubes and expected XLR input and output, the rear panel includes a ground-lift switch.

distinctly vintage, and a good antidote for those who feel digital systems are too clean and bright — but it might start to become a rather familiar and overpowering sound if used to excess.

Switching to the 'Normal' mode, and then on to the 'Fast' mode provides increasingly more aggressive dynamic control, with progressively faster recovery times — which inevitably bestow considerably more perceived loudness, while also introducing some very obvious pumping artifacts (depending on the source material). Some additional, mostly even-order, harmonic distortion becomes quite noticeable in the normal mode, and it really stands out in the fast mode, especially with higher threshold drive settings. This kind of distortion tends to add body and character, but without getting particularly harsh or vicious, and I can see it being used as the favoured feature of this unit — the core of its sonic attitude, if you like.

Indeed, the Opticom always imposes a lot of character on the source — even the slow mode has serious attitude, and it builds dramatically from there. The transfer slope into limiting is also pretty angular — there's not much in the way of soft-knee compression before the limiter clamps down and takes control of any wayward dynamics. But that's all part of the uniquely attractive character of this unit. It's not meant as a transparent mastering limiter — it's meant to be the 'guitar amp of compressors' and Acme have certainly succeeded in that aim. This is an audio hooligan of a limiter, but actually a well-mannered one that your mum would probably like. **EOS**

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