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Electrodyne 511

'Lunchbox' EQ

Reviews : Processor

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API's 'Lunchbox' 500-series seems to be breathing life into some little-known classic designs of the past, including this unsung hero of the EQ world...

Hannes Bieger

Electrodyne 511 \$1050

pros

Great-sounding, classic equaliser.
Quality construction with NOS parts, and transformer and inductors manufactured to original specifications.
Stepped attenuators.

cons

Peaking curves are not available for all corner frequencies.

summary

With its two inductor-based EQ bands, the Electrodyne 511 is a console EQ with very typical features for a design from the 'Golden Era' of recording. Sonically, it sits in its own niche, somewhere between Neve and API, and it's absolutely on a par with both of these famous classics. It's great to see new products worthy of the Electrodyne name.

information

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Only a small number of enthusiasts have passed on the Electrodyne torch in recent years. Those in the know took care of their vintage Electrodyne consoles with a lot of passion — and, it seems, more than a little secrecy! So much, in fact, that the once extraordinarily sonorous name of Electrodyne almost vanished from the scene, even though the American manufacturer once played a vital role in the recording industry...

Then & Now

Electrodyne helped to revolutionise the layout of the recording/mixing console as we know it today. Their transistor-based desks were a huge success in the '60s — a true 'Golden Era', when the foundations of modern recording and production techniques were laid — both due to their sound qualities and their technical capabilities. Many studios installed Electrodyne consoles in those days: Warner, Capitol, Decca, Motown and Stax, to name just a few. Electrodyne consoles made a significant contribution not only to what we know as the 'West Coast Sound', but also to the soul sound of those days. Even from today's perspective, the pioneering spirit of the company's engineers is worthy of note. Alongside Bill Putnam's Universal Audio and German manufacturers such as Siemens and Telefunken, Electrodyne played a vital part in the development of the channel strip as we know it today: preamp, EQ, echo-send and channel fader, all combined in a single, vertical module. Electrodyne's significance is also evident in the large number of other companies the console manufacturer has been associated with, because most of them are still well-respected today: Quad-Eight, Sphere, Langevin (with whom Electrodyne even shared production facilities in the early years), Reichenbach (now CineMag), Jensen Transformers. It reads like a Who's Who of classic American pro audio companies. In short, then, Electrodyne once operated at the heart of the American recording industry.



Photo: Hannes Bieger

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Today, the Electrodyne name belongs to Ken Hirsch's company Orphan Audio, who have serviced classic recording consoles since the late '80s. After their paths first crossed when working on the A-Designs Pacifica preamp (based on an old Quad-Eight design), Ken Hirsch and A-Designs president Peter Montessi agreed to collaborate on the resurrection of Electrodyne.

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The result, to date, is two 500-series modules, the 501 microphone preamp and the 511 EQ. Both modules were designed by Ken Hirsch to match the vintage specifications exactly, and both are manufactured by A-Designs and distributed in the US by Pete's Place Audio, a company founded especially for this purpose. With this lineage, then, both these modules are well worth a closer look — so we'll get started with the 511 EQ and look at the 501 in a future issue.

The 511 is a two-band equalizer with very typical features for an EQ from the '60s. Back then, although many manufacturers strived to expand the simple tone controls of the '50s, the fully parametric EQ remained beyond the horizon, and this is probably a reason why so many manufacturers came up with various unique yet very useful EQ layouts in this 'start-up' period.

Overview

As we'll see in the course of this review, the Electrodyne 511 certainly fits this description. Each of its two filter bands utilises a dual-concentric rotary switch to control frequency and amplitude, allowing for boosts and cuts of ± 2 , 4, 6, 9 and 12 dB. The high band offers shelving curves at 1.5, 3, 5 and 10 kHz, and the low band at 40, 100, 250 and 500 Hz. Additionally, each band can be switched to a peaking characteristic at some frequencies: 1.5, 3 and 5 kHz on the high band, 250 and 500 Hz on the low band. The controls on the 1U 500-series front-panel are completed by a bypass button with a status LED.

The electronic circuitry inside the module is equally characteristic of the era in which this EQ's predecessor was designed. The 511 is based on the filter network of the original Electrodyne 711 channel strip (see the photo of the 'Sinatra' console). The filters are embedded in a very short and elegant discrete signal path consisting of only three stages. First comes the active balanced input buffer amp, and second in line is the actual EQ circuitry. The 511 features two inductor-based filter bands wrapped around an op-amp stage, which then directly drives the output transformer. Thus, in contrast to the venerable Pultec EQ, the 511 is an active inductor-based EQ, and this has several effects on the sound and behaviour of the filters, which will be discussed below. According to designer Ken Hirsch, the discrete A5000 op-amp used in the 511 is running in class A/B mode, and it is a development of the last 'historical' Electrodyne op-amp, ironing out some of the shortcomings of its predecessors. It is based on design notes from the original Electrodyne archives, and has received approval from the original design staff. The output transformer covers almost a third of the available space inside the module, which means that it is probably the biggest transformer inside any 500-series module (it's certainly the biggest I've seen to date). Like the inductors, the transformer is manufactured by CineMag to original specifications. (Remember that CineMag are the successors of Reichenbach, supplier of the originals to Electrodyne.)

All these technical details are evidence of how meticulously the 511 has been crafted, and how faithful to its vintage predecessors this module is. Even the transistors, which, fortunately, are still in production today, are the same types used in vintage units. The rotary switches are manufactured especially for the 511, and even the knobs and levers are NOS (new old stock) parts, to which Orphan Audio gained access when taking over all assets of the vintage Electrodyne company. According to Peter Montessi, many beta testers have approved the new Electrodynes as being sonically totally on par with their vintage counterparts.

Speaking of the sound, I should explain some points that are vital to the sonic character of the 511's filters. Both are extremely wide, with peaking-mode Q-factors of 0.35 for the high band, and a slightly steeper (but still extraordinarily gentle) 0.7 for the bass band. In contrast to passive inductor-based EQs, the 511 is a reciprocal constant-Q design. In other, less technical words: boosts have the same curves as cuts, and the Q factor does not vary with amplitude.

In Use

It should be clear that the 511 can by no means be considered a 'surgical' tool. Steep notching of problematic resonances is totally impossible with this module: it is not what it is intended for, and there's no point trying! Rather, the 511 can be viewed as the perfect EQ to rebalance the spectrum of an audio signal. It is an awesome sweetening EQ, which can emphasise the energy at certain parts of the spectrum. Thanks to the ultra-wide filter bands, the 511 always sounds smooth, never harsh, narrow or 'phasey' — not even when you take it to the extremes, with full boosts of up to 12dB. With such qualities, the 511 can be used to shape a signal either so that it fits perfectly well into the mix, or so that it shines and stands out of its context. Both goals can be reached with exquisite results, even though the 511 offers limited control in comparison to other EQs.

Despite the fact that peaking curves are not available at all frequencies, the layout of the 511 is totally self-explanatory. Peaking at all frequencies would have been a nice addition to the original features, though.

It's not easy to describe the sound of the Electrodyne without making use of clichés. Sonically, it sits on the fence, but I mean that in a positive way: its character lies somewhere between the two great console-EQ classics, API and Neve. The 511 shares its lush, rich tone with the latter: the bold, blooming bass and the silky highs. However, the sound never goes overboard, as the Electrodyne offers all the contours, the precision and the punch generally attributed to an API EQ. To make this list of references complete, some engineers even compare the Electrodyne to the Pultec, probably due to the soft, euphonic coloration that provides both size and weight to program material.



The clean discrete circuitry inside the module creates a very short signal path.

GLOSSARY: technical terms explained

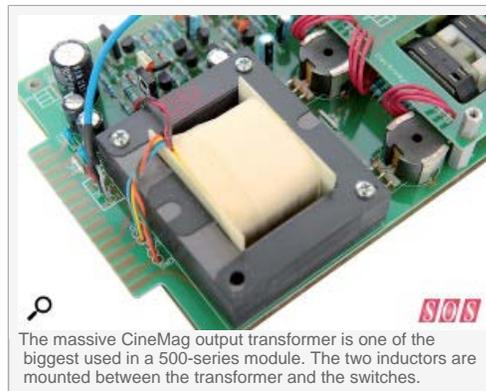
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The massive CineMag output transformer is one of the biggest used in a 500-series module. The two inductors are mounted between the transformer and the switches.

It may sound a little corny or lazy of me to compare the 511 directly with three EQs that are considered to be among the greatest classic designs of all time. But these are the right comparisons to make, because the 511 really is right up there with the best of the best. Of course, when you pause to think about it, the points of comparison are less astonishing, as this EQ design hails from an industry leader from the same era. In fact, I'd go as far as to say that the surprising thing is less that the sonic capabilities of the 511 are worthy of reverence and more that it seems to have been forgotten by so many for so long.

One final interesting note, borne out in my review tests, is that whereas some classic analogue tools seem to have a relatively small 'sweet spot', and seem always to be used by a variety of engineers for the same application, the 511 is different.

Sometimes it is a little unpredictable, in that the most appropriate EQ setting for a given application cannot always be anticipated. On transient-rich sources, such as the combined signal at the drum bus, for example, even a small boost with the 511 can go a very long way. On the other hand, more even-sounding signals, such as those from a Fender Rhodes piano or a pedal-steel guitar, may well take a generous 9 or 12 dB boost without suffering. In other words, just like a true console EQ, the 511 works well with any signal thrown at it, but ultimately it is not the numbers on the front panel, but your ears that must form the reference for making adjustments.

Conclusion

Because of these qualities, the 511 can potentially be used to great effect at all stages of audio production (albeit not for all jobs). Since it can practically do no harm, it could serve as an ideal tracking EQ, yielding reliable results even in hectic situations. Come mixing time, the 511 can be used for tonal shaping of most signals. Due to the rotary switches, it is easily recallable, making it easy to use a pair for EQ'ing stereo subgroups.

Even mastering applications come to mind, as the clear and open, yet punchy tone of the Electrodyne can add weight to the mix buss without screwing up fidelity. The ultra-wide frequency response from 9Hz almost all the way up to 200kHz and the high headroom (+30dBm into 600Ω) come into play here as well. Of course, while the sonic quality is suited to mastering applications, the 2-3 dB steps might seem a bit too coarse at times.

The Electrodyne 511 is not only among the best EQs currently available for the 500 format, I would go so far and say that it is one of the greatest EQs in any format. The limited functionality should not be viewed as a drawback. I suppose you could say that the best EQ is the one you don't need at all — but back in the real world, for sweetening applications, the Electrodyne feels just right!

Alternatives

In this form factor, the 511 has to be measured against the 500-series versions of the most famous EQs of this era: API 550a, AMS-Neve 1073LBEQ and A-Designs EM-PEQ. All these equalisers play in the same league and also in the 500-series premium price range. The Purple Audio LILPEQr has a similar layout with two bands, and is available at a much lower price. However, it features fewer EQ points, only shelving curves, and potentiometers instead of the Electrodyne's rotary switches.



This original Electrodyne 1204 console was custom built for Frank Sinatra. It features the predecessor of the current 511 EQ on every input channel.

Photo: Orphan Audio

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