

Klark Teknik DN370

Terry Nelson puts this analogue graphic EQ on the bench and likes what he hears.

It would be no exaggeration to say that Klark Teknik has built its reputation on the graphic equaliser. The number of DN27s still in use around the world attests to the longevity of the design and, connoisseurs would say, to the efficiency of LC techniques! [LC refers to a particular type of inductor-capacitor filter design.]

The DN27 evolved into the DN360 solid-state unit (with a brief passage as the DN30/30) and this is still a staple diet for many a control rack in sound reinforcement systems around the world.

The lure of digital was not ignored and the DN3600 programmable equaliser saw the light of day, this being followed very recently by the Helix system.

Earlier in the year saw the release of the latest EQ from KT, a fully analogue non-programmable graphic equaliser, the DN370.

The marketing position appears clear: "what can we do to entice non-DN360 users to the Klark Teknik

with Phoenix connectors for permanent installs. A label also indicates whether the unit is fitted with optional input and/or output transformers.

Bench Test

Before actually listening to the DN370, I decided to start off with a few measurements to check on the electrical performance.

The in/out switch is a true system bypass and effectively transforms the unit into a straight wire, so it was hardly surprising that noise was off the scale of the analyser. Switching the unit in circuit at unity gain showed -83dBu on Channel A and -80dBu for Channel B. As our PA depot does not exactly have super clean mains, it is possible that mains noise was introduced. However, you would still be hard pressed to hear this.

Unity gain is unity gain at the zero detent and the gain control goes from minus infinity to $+6\text{dBu}$. The

frequency response is within an impressive 1dB from 12Hz to 25kHz with -1dB more at 31.5kHz and both channels were identical. The latter is important for stereo imaging.

The signal present LED lighted up dutifully at -40dBu and I did not manage to get the Clip LED to light up.

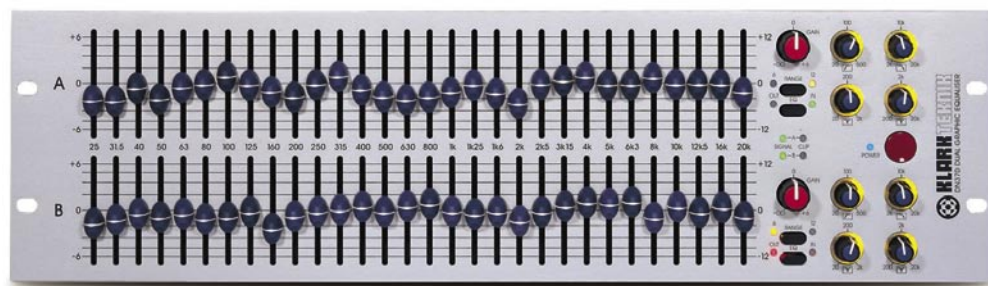
The red LED for EQ Out is very bright to communicate to the user that the unit is bypassed whereas the green LED for EQ In is suitably low key.

The high- and low-pass filters exhibit very smooth curves and I worked them out as being around 8dB/octave near the turnover frequency and steepening to 12dB/octave further into the slope. The pots are given a basic calibration of 20Hz and 500Hz for the extremities of the HPF with a centre figure of 200Hz , and $2\text{kHz}/10\text{kHz}/20\text{kHz}$ for the LPF. In both cases, the actual frequency was virtually spot-on with the legends.

The two notch filters per channel have ranges of 20Hz to 2kHz and 200Hz to 20kHz respectively, thus allowing quite a large margin of overlap.

The depth of each filter is about -8dB and the width is almost $1/6\text{th}$ octave. Combining the two filters at the same frequency provides -16dB of cut without any broadening of the bandwidth. As with the HPF/LPF, the calibration was very close.

Turning to the $1/3\text{-octave}$ filters, these showed far



brand?" The reply is equally clear: find out what they don't like about the unit and make an EQ that meets their requirements, hence the DN370.

Above the DN

The DN370 is housed in a 3U chassis with the standard KT silver finish. The two EQ channels are situated one above the other and consist of a bank of 45mm vertical slide faders with purple lozenge-shaped buttons, a Gain control with centre detent and two rotary controls for high- and low-pass filters. Underneath the gain control are two push switches; Range with associated LEDs for 6dB and 12dB and EQ with LEDs for Out and In. To the right of these switches are two more rotary controls for notch filters.

The front panel is completed by Signal and Clip LEDs for Channels A and B plus a large push-button power switch with associated blue LED to the right in between the channel controls.

The rear panel houses a fused IEC mains connector and input/output XLRs for channels A and B together

less interaction with adjacent bands than is usual and the symmetry between the 'skirts' was within 0.3dB. The range was +11dB/-9dB to 8dB for the 12dB setting and +6dB/-5dB for the 6dB setting.

So much for the measurements and we are already looking pretty good; however, as we all know, the acid tests are: what does it sound like and how does it perform?

Filter Pool

I am a great believer in good high- and low-pass filters, so these were naturally the first things I wanted to hear. And they're excellent. The amount of signal shaping and tweaking you can do with decent filters is amazing and I was able to clean up a noisy guitar amp – as well as beefing up the sound by accentuating the important frequencies without boosting them – and fatten out the sound of a bass guitar by cutting the ultra lows and slightly rolling off the highs.

In terms of low-frequency mud or high-frequency sizzle, the filters do an excellent clean-up job, but in terms of providing better definition to a signal, they are also extremely useful tools. In fact, the 'dual slope' characteristic of the filters is hardly surprising, as it owes its pedigree to those developed for the Midas consoles where 'musicality' was a prime concern. Other signals worth mentioning for this basic treatment were bass drum and, of course, vocals.

Equal to the Task

I then moved on to the graphic section of the EQ and the immediate impression was that this device definitely has a 'musical' response. One of the major characteristics of the LC network graphics is that they do not tend to ruin the sound but enhance it, hence the popularity of the DN27 or Court GN60. Unfortunately, in the 21st century, 'yer pays a price for this auld technology...' The units also tend to be rather heavy and can autodestruct if not treated with the proper respect

in racking and transport.

The DN370 is the closest I have heard yet to the LC 'musical' response and I was immediately into enhancing sounds rather than just cutting chunks out. I was able to work wonders with a very close-miked piano by tailoring the response of the two channels separately and was gratified to find that the stereo imaging remained constant.

An unexpected benefit was the fact that a mono signal could be given a substantial 'stereo' spread by applying different curves to two mix buses and thus expanding the overall image. Okay, you can do this with digital processors but the results obtained with the EQ seemed a lot more natural.

If we consider this type of treatment as 'studio mode' (although nothing stops you from doing it in a live situation), the unit shines in what can be considered 'sound reinforcement' mode, where the FOH and/or monitor buses will be EQ'd for system response and feedback reduction.

Without wishing to labour the point, subtle amounts of boost/cut can definitely make a mix 'shine' and this type of enhancement is rare in graphic EQs. When used for tailoring the response of systems to reduce feedback or peaks, the fact that the bands remain pretty dedicated means that you are not necessarily taking great scoops out of the overall frequency response and weakening the sound. For example, a full -11dB cut on a frequency band will reduce the two adjacent bands by about -2dB if they are at 0dB. In boost mode, the 'skirts' are just a little wider but this has more of a 'smoothing' effect on the response rather than muddying it.

The icing on this particular cake comes in the form of the two-notch filters and these were found to be very effective. As we all know, the advantage of notch filters is that they allow a troublesome frequency to be removed – or attenuated – without affecting the program material in any great way.

Toolbox & Creative

Once again, I found both 'toolbox' and 'creative' uses. In the former, I ran program material at the same time as a tone and, by superimposing the two filters, was able to virtually eliminate it. In a more typical situation, I brought a vocal microphone up to feedback, and within five seconds, I had the first frequency and then the second, following a gain boost, cleared out of the signal. These notch filters are precise and fast! The difference to the signal was hardly noticeable and this was in solo mode.

For the 'creative side', the removal of some breath noise on a saxophone actually gave it more presence and life, and the same result was noted on toms. Expand this out with the graphic section plus the filters and you have a whole palette of possibilities at your fingertips.

One thing I have not mentioned is the in/out facilities. There is the system in/out switch for full bypass and the individual filter sections are switched in and out by pressing the pot. When in circuit, an orange annular ring lights up so there is no doubt as to unit status: classy and practical. All switch functions are totally silent.

That said, the in/out switching was the only place where I was wishing for more! (Some people are never

satisfied.) It would be handy to have in/out switching for the graphic EQ section. You could easily have situations where just filters would be required for one situation and then a combination or just graphics for another. This would provide 'preset' curves rather than having to reset the graphic every time.

All in the Teknik

Manual graphic equalisers are still a mainstay in audio production because they are fast and easy to operate. Without those 60 faders you'll generally be okay, but when you have a paranoid 'producer' and budding 'engineer' breathing down your neck and/or panicking, you really do not have time to play with a mouse. Whatever your application, the Klark Teknik DN370 is an excellent tool and certainly well worthy of your attention.



Distributed by

• *EVI Audio*

Phone: (02) 9648 3455

Email: sales@eviaudio.com.au

Web: www.eviaudio.com.au or www.klark-teknik.com

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