

# FREQue II

*Review by Paul Nagle, Sound on Sound*

**Flying in the face of the 'digital all-in-one' trend, the FREQue II unashamedly provides specialist analogue processing for the audiophile.**

## Ring Modulators & Frequency-shifter

While awaiting delivery of the DACS FREQue II review model, I decided to do a bit of research in advance. A quick trawl of the Internet hinted at a gaudy, rather ugly-looking dual ring modulator and frequency shifter. The on-line images left me with the impression it was a budget unit - so I was quite surprised to learn it wouldn't spare much change from a thousand quid! Clearly, only first-hand experience was going to tell the full story.

In the event, when it arrived, it wasn't too ugly after all. True, the purple and red paint job did resemble the efforts of a manic simian artist, but in reality it could have been far worse. At least it wasn't bright yellow. At two rack units in height, this chunky module boasts no less than 17 knobs, and although of the basic black plastic variety, these are both smooth and responsive. Furthermore, seven small red buttons (with associated LEDs) and no less than 10 rear-panel sockets mean that there's no LCD or multi-functionality in sight.

This is a stereo unit, each channel featuring a separate ring modulator circuit, two shelving filters, an internal oscillator, plus level-setting controls. Channel two features an additional routing switch, an FM Depth control and a FREQue button (of which more later). In other respects each channel is the same. Curiously, channel two is positioned above channel one.

Other ring modulators I've encountered offer obvious distinction between their two signal inputs. However, the rear panel of the FREQue II has input connections for each channel labelled Mus and Mod. There are two built-in sine-wave oscillators whose outputs are available at the rear panel, though they can be routed internally to each modulator input if required. Each oscillator's frequency can be controlled externally from dedicated external Hz/Volt CV inputs, making the FREQue II an ideal partner for a modular synth, especially one from the Korg MS Series. You can, of course, connect audio signals to both music and modular inputs - indeed, some of the most sonically pleasing results are achieved when the modulation source is harmonically related to the musical input. The music inputs and each of the main audio outputs are balanced, although unbalanced operation is selected automatically if you insert a standard mono jack.

I was eager to get some sounds from this beast, so I started by connecting the stereo outputs of a drum machine to each channel's music input. I didn't connect anything to the modulator input, so I pushed each of the front-panel Osc buttons, enabling me to use the oscillators as modulation sources. Next, I adjusted the level of Music and Modulator for each channel by means of the four small and rather closely packed knobs. LEDs on the left-hand side of the front panel provided adequate visual feedback of signal levels, although logic might have seen them positioned rather nearer to their associated controls than they are.

Only then, with audio pouring through the FREQue II, did I start to appreciate the high quality of this processor. I have several other ring modulators, both within my modular synthesizer and stand alone units, and none of them come close to the clarity and smoothness that DACS' Audio have managed to achieve. The top end, in particular, sparkles - but not in the annoying way that typifies cheaper ring mods. Here, breakthrough of the original signal has been reduced to a minimum (by using phase cancellation) so that what you hear is ring modulated output with very few unwanted artefacts.

The onboard sine-wave oscillators provide convenient modulation sources, their range selectable from 0.1Hz - 10Hz, 0.3Hz - 30Hz, 1Hz - 2kHz or 1kHz - 16kHz. Within each, Fine and Coarse tuning knobs allow very precise setting of frequency, although some form of display readout would have been the icing on the cake. An Osc 2 to RM1 button is available should you wish to use the same modulator for both channels, and this is handy if controlling a stereo source. However, it's also fun for processing totally different signals, perhaps a bass and rhythm guitar, through each channel at the same time. The FM On switch routes oscillator one internally to the CV input of oscillator two, and the Depth knob controls the amount of the resulting modulation. Naturally, you can connect other modulation sources via the rear panel jacks to vary

the frequency of either oscillator, or both come to that. Each channel has an output balance that controls the ratio of the original music signal and the processed signal.

Both channels feature two shelving filters to process the incoming signal; you can activate each of them with another of those cute red buttons. The filters are labelled Weight and Edge, just to add a little mystery, though the labels Bass and Treble might have been more familiar. Each offers +/- 12 dB of boost; the centre position leaving the signal unchanged.

### **What the FREQue?**

The unobtrusive FREQue button at the right-hand side of the panel activates the FREQue II's frequency shift mode, and with it a whole new slant on pitch-shifting. The amount of shift applied is set by the frequency of oscillator two (oscillator one's switch is deactivated when the FREQue button is engaged). Effectively, this process combines the two music inputs, and creates two shifted versions of them, one shifted upwards and the other shifted downwards by the same amount. Once FREQue is activated, channel one's output produces the upward-shifted signal, whilst channel two produces the downward-shifted one, 180 degrees out of phase. Using Output Mix knobs, you can determine how much of the original is blended with the shifted output.

Although this is pretty straightforward to explain, the effects it produces range from drastic sound warping to quite subtle thickening. External control of oscillator two's frequency becomes even more funky with this function. I experimented using an analogue sequencer's CV output to produce precise frequency shifts in sync with the musical input for some fascinating, quirky transformations – instant Bjork! I was a little disappointed that there was no MIDI control of oscillator frequency, nor indeed any onboard MIDI at all. Perhaps MIDI simply doesn't have a high enough controller resolution to do justice to the FREQue II? If necessary, a MIDI-to-CV converter could be employed, perhaps translating MIDI notes into voltages to drive those onboard oscillators.

DACS offer some practical applications for the FREQue II in a supplementary guide that is supplied along with the Spartan eight-page manual, and this guide is also provided on their web site. One trick I discovered was to route an entire stereo mix through the music inputs and then to pick just a single instrument from it (a bass or arpeggio part) as modulation source. As the song played, I found that adding a small amount of the FREQue's output produced an effect rather similar to an exciter, but with far more harmonic wildness. Used in dance tracks, the FREQue can add a hard, raw distortion, although if overdone it could easily become jarring.

The metallic fizz achieved when running the onboard oscillators at high frequencies was surprisingly clear and worked well with drum samples as music input. I'd also recommend using the sounds generated by other synthesizers as modulation sources, as these can be more extensively manipulated during playback. Similarly, I got some vocoder-like results using a slowly sweeping string pad as a modulation source, again with a drum loop as the music input. With my existing ring modulators, such experiments sounded altogether harsher and crunchier, but the FREQue II makes it easier to find 'sweet spots' even within fairly complex material. Using the frequency-shifting function and then activating FM allows you to produce gated-style effects by setting the FM control oscillator (oscillator one) to a low frequency. At times, you might connect the FREQue II like a conventional effects box (to your mixers effects sends and returns), or alternatively you could place it directly between sound source and mixer. Both methods spawned their own new ideas.

### **Conclusion**

I've used numerous ring modulators over the years, but none have felt either as musical or as natural to use as this one. Depending on the source material and your choice of modulation input, it is possible to obtain results that aren't instantly identifiable as 'classic' ring modulation. Whether it's producing distortion effects, high-pitched sizzles, circuit-bending rumbles or supersonic screams, the FREQue II has a surprisingly wide range of applications. DACS' Audio have added a few useful extras in the form of tonal control, FM, frequency-shifting and extensive connectivity, but, ultimately, the question will be whether anyone is going to be prepared to pay for such high quality in a stand-alone ring modulator. Though my own initial scepticism was eroded the longer I used the FREQue II, I fear the UK price will deter many. Make your own FREQue mind up ....

## **DACS Freque II**

## pros

- Very high quality ring modulation
- Built-in frequency-shifter function
- Extensive patchability

## cons

- Expensive...
- ...but doesn't look it
- No MIDI control

## summary

superb, flexible processor, the Freque II generates a broader spectrum of sounds than other ring modulators I've heard. The frequency-shifting function is a welcome plus, the shelving filters and the frequency modulation add extra mileage, but all at a price which is not to be taken lightly