



INCLUDES
AUDIO

Behringer DeepMind 12

£999

The much-anticipated Behringer polysynth is here. **Bruce Aisher** finds out if the DeepMind 12 is a wannabe or true contender

CONTACT WHO: Behringer **WEB:** www.music-group.com **KEY FEATURES** 12-voice polyphonic analogue synthesizer with 4 FX engines, 8-slot modulation matrix, arpeggiator, MIDI, USB and wi-fi. 2 DCOs, 2 LFOs and 3 ADSR envelope generators per voice. 1,024 onboard presets and downloadable OS X, iOS and Windows editor/patch manager



THE PROS & CONS



The onboard effects are very strong and offer a wide range of routing options. The plentiful supply of effects parameters can also be controlled by a wide range of modulation and control sources

The DeepMind has a healthy voice count, making the various unison modes less of a compromise in comparison to many analogue synths

The Mod Matrix offers a wide range of control destinations



The two onboard fans generate noticeable noise in a studio setting

After all the teasers, the first Behringer synth is here. The past five years have seen all kinds of musings about it being a Juno-style clone or an ARP monosynth. DeepMind 12 is neither of these, being far more feature-laden than a Juno-106 and polyphonic to the tune of 12 simultaneous voices. Also, with a metal case and wooden side panels, it looks like the real deal. Each voice consists of two oscillators and a noise

source. The oscillators are digitally-controlled (DCOs) so, in theory, lack some of the wayward charm of their less pitch-stable VCO brethren. The fully automated calibration process leaves you with a set of matched voices, but the synth does have ways of adding some artificial instability to the proceedings should you wish.

The first DeepMind oscillator offers a choice of sawtooth and square waves, or both simultaneously, while Oscillator 2 employs only a square wave generator (though the Tone Modulation parameter opens up

more tonal variation than you might expect by inserting a second variable width pulse into the waveshape).

OSC1 allows manual, envelope or LFO control of the square waves' pulsewidth – perfect for thickening up a single oscillator – and OSC2 offers similar options for modulating the Tone. Both have independently selectable octave ranges and pitch modulation (from a range of sources), but it's only OSC2 that offers a finer level of pitch control for creating semitone intervals or subtle detuning. It is rather fiddly when dialling in

those smaller variations and, given that not all parameters get their own front panel control, it would have been nice to get control over this from within the Oscillator Edit menu. Also the OSC1 waves are either on or off, whereas the levels of OSC2 and Noise are thankfully fully variable. Finally, OSC2 can be hard-sync'd to OSC1 for further timbral variation. The screen gives a helpful visual guide to what the resultant waveform will look like.

One advantage of the DeepMind's plentiful polyphony can be found in the Poly section. This is the home of

THE ALTERNATIVES



Roland Juno-106
£700 (used)

One of the most famous DCO-based polysynths. Limited in scope and polyphony, and with just a noisy (though great-sounding) chorus for effects, the 106 still manages to be both engaging and useful.

www.ebay.co.uk



DSI Prophet Rev2 £1,450
(projected)

The recently announced follow-up to the Prophet 08 has two multi-waveshape DCOs plus a sub-oscillator and Curtis-derived filters per voice. Could this be where the DeepMind's future competition will lie?

www.davesmithinstruments.com



Korg Minilogue
£499

Smaller in size, shape, polyphony and price. The Minilogue is a dual VCO polysynth that integrates polyphonic sequencing and an analogue delay.

www.korg.com

the synth's unison modes that stack voices in a variety of modes – from simple doubling to a monumental 12 voice monophonic sandwich. Given the relatively pitch-stable DCOs, the Detune parameter plays an important role in fattening everything up by shifting the pitch of combined voices up to 50 cents off centre.

This section is also home to the parameters that allow DeepMind to be a little more like its less linear forebears by applying 'drift' to oscillator tuning (and other parameters via the separate Param Drift setting). Drift Rate, provided by a randomised ramp generator, is also available to tweak. These three parameters do help DeepMind escape its, at times, somewhat clinical sound engine. It also would have been great to have had a wider detune range, especially when combined with the ability to use one of the envelopes to control detune amount.

Next, the filter section, which offers both 24dB and 12dB/octave

flavours. In both guises the filter can be pushed into self-resonance without an oscillator signal present and can therefore be pressed into service as a pitch-stable third oscillator (with keyboard tracking fully engaged). Front panel access is also provided for Envelope Depth (hard-wired to Envelope 2) and LFO modulation. The source for this, velocity control over envelope depth, and other modulation settings are accessible via the VCF Parameter Menu. Here you'll also notice that there's a Bass Boost feature, which takes its cue from Roland's Juno range, and gives the low-end a bump. The front panel

button for this is found below the HPF control which, like the Juno's, is a globally applied high-pass filter.

The VCA section consists of one front-panel slider level, which does facilitate overloading the VCA if required. The VCA is hard-wired to Envelope 1 and gets a depth control in the edit menu screen shared with velocity sensitivity and a voice panning parameter. The latter spreads voices across the stereo spectrum – a feature that sounds great when combined with the unison modes.

The DeepMind has independent, software-generated, envelopes for both the VCA and VCF sections, with

Unison modes stack voices, from simple doubling to a monumental 12 voices

DEEP EFFECTS

Given that Behringer's holding company own a smorgasbord of music tech companies, including Klark Teknik and TC Electronic, it's no surprise that they've taken advantage of this for the effects. The manual names the 'device inspiration' for each of the 34 DSP-derived effects and many are based on classic units from Lexicon, Roland and others.

There are four effect slots that can be placed together in an insert or FX send configuration. Used as a send, the effects do not interfere with the audio path of the analogue synth engine. Ten different routings, including some with feedback, allow for some very creative effect configurations that go much further than most onboard effects.

The quality of effects, and the scope for editing, is also high. For example, you can add a chorus followed by modulated hall reverb (inspired by the Lexicon 480L) that also feeds back into a pitchshifter and delay which is then routed into the reverb. Instant Eno/Lanois 'shimmer'.

While the effects may not be quite as good as the real thing, or some of the better plug-in emulations, they are an integral and welcome part of the DeepMind sound.



a third all-purpose envelope for other control duties. Unlike those in the '80s, these software envelopes can be very fast, with the added advantage of configurable curves for every stage. This vastly expands the synth's mimicry possibilities.

The two LFOs are also very well-equipped, with each capable of generating one of seven waveforms, though even here the Slew-Rate control allows you to smooth the underlying shapes for further choice. Unlike many vintage analogue polysynths, each voice has its own LFO, and there are a host of ways to determine how each is triggered and their relative timings.

Besides the section-specific routings for envelope and LFO modulation there is a dedicated Mod Matrix with eight user-configurable slots. Here 22 modulation sources can be routed to nearly 130 destinations including individual envelope stage times, levels and curves, panning, drift, high-pass filter cutoff frequency, effects parameters and the mod depth of other modulation slots. This section is comprehensive, very powerful and better than many soft synths.

The final icing on the cake here is the effects section, which employs some powerful digital DSP to deliver four simultaneous processing blocks that can sit in parallel to the analogue signal path if you wish it to remain unsoftened by digital modernity.

Mention must also go to the ARP/SEQ section. The Arpeggiator has all the features you'd expect, including Swing, but adds a pattern sequencer that automates velocity and gate time (but not notes) for each step independently of the current Arp pattern. There are 32 preset patterns and 32 slots for your own. This sequencer shouldn't be confused with the Control Sequencer – also in this section – that allows you to create 32-step custom modulation sequences. Add to that two types of chord memory function, portamento, pitch and mod wheels, and that's almost it, in terms of control, until you peer around the back and find the Pedal/CV input plus MIDI and USB connectivity. However, the final string to the Behringer's bow is wi-fi connectivity (both as client or access point) that supports rtpMIDI. In fact all three MIDI connection methods can work simultaneously, with the option of DeepMind acting as a MIDI



SCREEN With a lot hidden depths in the programming department, this screen is important. Edit buttons across the front panel provide multi-page access to additional parameters.

DCO 1&2 DCO1 offers a saw and square wave (with PWM), while DCO2 is square-only, though the Tone Mod slider interrupts the waveform with an additional variable width pulse.

UNISON DETUNE The DeepMind facilitates a host of voice layering options with voice in the stack detunable from next for extra fatness, especially with 12 of them at once.

CONNECTIVITY Although the synth sports the now-obligatory MIDI and USB connectors, it is the invisible wi-fi networking feature that is most unexpected.

hub and passing data between wi-fi, MIDI DIN and USB ports.

One possible criticism of the DeepMind's editing system is that not all parameters are available via front panel controls. Others are accessed from Edit buttons that offer screen-based tweaking. Frustratingly, the software editor takes a similar approach and requires you to open and close individual windows to edit various groups of parameters. While DeepMind is certainly interactive and powerful, it lacks the immediacy of some simpler classics like Roland's Juno-106 or Jupiter-8. For example, an FX bypass button would have been very useful; though this reveals something else about the DeepMind

– effects are central to its sound. Removing the effects leaves a decent synth with its own sonic template but one that perhaps lacks the charisma of beloved analogue classics. One also wonders if it could have lowered its voice count but added more oscillator options. The other oddity is its internal fans. They are audible, though can be turned off, but with no mention of long-term consequences.

All told, DeepMind is an impressive first entry into the synth arena for Behringer. Unlike some previous products of theirs, this is not a cut-price clone, and has its own take on what a £1,000 analogue polyphonic synth should be. Throw in the free cross-platform editing

software, massive 1,024 onboard presets and three-year warranty, and you have an alluring package. **FM**

FM VERDICT

7.9

The DeepMind won't undermine the market for characterful vintage analogue polysynths, but it is flexible and interesting.