



FutureMusic



## Korg opsix £699

Following in the footsteps of the excellent Wavestate, Korg offer up another modern take on a classic digital synth. **Si Truss** takes a look

**CONTACT** WHO: Korg **WEB:** korg.com **KEY FEATURES** 'Altered FM synth'. Six operator engine with five operator modes – FM, Ring Mod, Filter, Filter FM, Wavefolder. 37-note keyboard with velocity and release velocity sensitivity. 16-step sequencer with six note polyphony and four Motion Sequencing automation lanes. Multimode arpeggiator. Three effect slots. Randomisation tool. **I/O:** 2x stereo jack main output, headphone output, MIDI i/o, USB





## THE PROS & CONS



An accessible and inspiring – yet still deep – take on FM synthesis

**Operator modes add lots of unique character**

Colour-coded operator controls simplify patch programming



**A few extra user-configurable controls would've been nice**

Monotimbral

**No aftertouch from the keyboard**

**K**org kicked off 2020 by releasing one of the most impressive digital synths of recent years, the Wavestate – a modern take on their classic Wavestation that perfectly balanced nostalgia with modern depth and complexity. While Wavestate took pride of place at Winter NAMM 2020, Korg's booth also featured a mysterious unlabelled and unplayable prototype; an '80s-looking black FM

synth seemingly named opsix.

It turns out opsix was more than just a 'concept synth' and now Korg are rounding out 2020 with a full release. While this appears to be, broadly speaking, the same under-the-hood design as the instrument that we got a glimpse of back at NAMM, the look has changed. Gone is the black, DX7-style chassis in favour of a design that matches the size and look of the Wavestate, albeit with the addition of a stylish green tint to the front panel.

The connection between opsix

and Wavestate is more than just cosmetic though; the two instruments share a number of key features as well as a broad ethos, in that each presents itself as a modern update to a classic digital synthesis engine. Here, that engine is labelled 'altered FM synthesis', which is perhaps a slight misnomer – rather than fundamentally altering how frequency modulation synthesis works, the opsix takes a classic FM synth engine and expands upon it significantly.

At core, the opsix is a six-operator (hence the name) FM synth in the

style of Yamaha's iconic DX7. Each of these six operators is essentially a digital oscillator with its own ADSR amp envelope plus pitch and level controls. Each operator can act either as a carrier – an osc that produces sound – or an audio-rate modulator routed to one of the other operators. The arrangement of these is dictated by an algorithm – essentially a diagram displaying the assignment and routing for the six operators.

The opsix expands on the DX7 format in several significant ways though. For one thing, there's an

**THE ALTERNATIVES**



**Elektron Digitone**

£629

Multitimbral but more sequencer based (see over the page), Digitone offers a different but equally impressive modern take on FM

[elektron.se](http://elektron.se)



**Korg Wavestate**

£699

The opsix's sister instrument also updates a classic digital synth format, here using sample-based wave sequences and joystick-controlled vector synthesis

[korg.com](http://korg.com)



**Yamaha Reface DX**

£269

Yamaha's compact, modern take on the DX line lacks some of the programming depth of opsix, but sounds great nonetheless

[yamaha.com](http://yamaha.com)

increased number of algorithms, 40 compared to the DX7's 32, plus an interesting user algorithm mode where users can assign their own operator routing and modulation depth within the synth itself. This can be fiddly, but it's a cool feature to have onboard and works great with the randomiser tool (see below).

Plus, where classic DX7-style FM uses simple sine waves for each operator, opsix offers 21 shapes including classic virtual analogue waves with 12-bit, 8-bit and HD variations, several additive waves and two noise sources. While opsix is hardly the first synth to do this – plugins like Ableton Operator go further with additive wave editors – it still expands sonic scope a lot.

The highlight here though is opsix's range of operator modes that alter the relationship between carrier and modulator, and go well beyond the standard pitch modulation of straightforward FM synths. There are five varieties here: standard FM, Ring Mod, Filter, Filter FM and Wavefolder.

As with classic FM synths, in standard FM mode the modulators are used to vary the pitch of the

carrier operators. Ring Mod, on the other hand, works by multiplying the carrier and modulator signals to produce a new frequency, creating results that are often weirder and more metallic than FM.

Filter and Filter FM modes both work by feeding the carrier signal into its own resonant multimode filter before hitting the output stage. In standard Filter mode both the carrier and modulators are fed into the filter together, allowing users to create sounds more akin to a straightforward virtual analogue synth. In Filter FM mode, any modulators are used to rapidly modulate the cutoff frequency, which can result in fantastically gritty, distortion-like tones and even formant-style effects depending on the ratio of the modulator.

Finally, the Wavefolder works by folding the osc wave back in on itself after it reaches a certain threshold (anyone who's tried the Metalizer on Arturia synths will know the effect). Here modulator and carrier signals are mixed. The effect is in a similar ballpark to that of Ring Modulation, albeit often harsher and grittier. These latter qualities can be adjusted using

Gain and Bias controls.

What makes the opsix a real winner is that these modes can be mixed and matched in a single patch. So you can, say, use two oscs as a virtual analogue sub underpinning a four-operator FM setup, or blend FM, Ring Mod and Wavefolding to create dense ambient patches with a lot of complex harmonics.

Operators aside, opsix features global filter and effect sections and a modulation matrix. As with the Wavestate, opsix offers a range of resonant filter models including emulations of both the MS-20 and Polysix. It creates a nice range of tonal variety, and the same selection is available to the Filter/Filter FM modes at the operator stage.

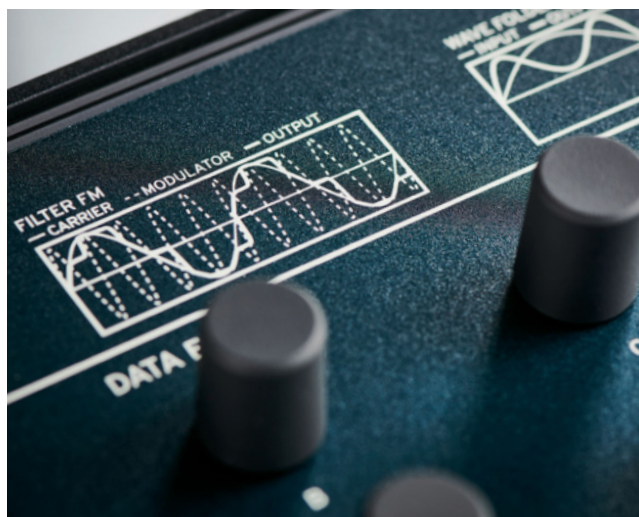
Each effect slot can be filled with one of 30 processors, from EQs and enhancers through compressors, limiters, multiple delay and reverb types, distortion and an amp sim.

Global modulation, meanwhile, is provided by three ADSR envelopes and three LFOs, each assignable to a broad range of destinations via the 12-slot patchbay. Destinations include modulation of individual

**KORG CLASSIX**

opsix inherits several winning features from existing Korg synths. Most notable are the arp and sequencer, which are reminiscent of that found on the Minilogue XD, the latter element including four of Korg's standard Motion Sequencing (aka automation) lanes.

The opsix also features the same endlessly-fun randomisation tool as its sibling Wavestate. This allows users to fully or partially randomise both the sound engine and



sequencer in order to inspire new patches or patterns. Given the complexity and range of the synth engine, more often than not full randomisation results in sounds that are weird and atonal rather than musically usable. There is, however, a lot of fun and inspiration to be found when limiting the scope of the randomisation, or randomising just selected parameters, such as the algorithm or the effects.



operator parameters, global filters and effects, or cross-modulation of other modulators. Each modulation routing can also be assigned a secondary control source for adjusting the depth via inputs such as the mod wheel, a control pedal, velocity, keytracking or another internal modulator.

Compared to subtractive synthesis, FM is an inherently complex process and can be a lot more fiddly to program. Classic hardware FM synths always struggled with this – Yamaha's DX range were notoriously time-consuming to program, and many users ended up using them largely as preset machines as a result. Recent times have seen vast improvements; in the plugin realm, the likes of FM8 make the process easier by giving access to all parameters in a more open, multi-window interface, while recent hardware like Elektron's Digitone and Yamaha's Montage have succeeded in making FM synthesis feel far more hands-on and expressive.

opsix is probably the most pleasingly accessible hardware take on FM synthesis we've seen to date though. The user interface is, relatively speaking, fairly clean and easy to navigate. To the left side is a bank of six faders and rotaries used to control each operator. The faders are used to set the operator level, while the rotary adjusts the ratio (ie coarse tuning). With a shift press, however, the faders can be used to alter the oscillator wave shape and the rotaries to change the operator mode.

In a particularly smart move, these controls are backlit, and use variations in colour to identify how each operator is set up. The opsix uses different colours to mark carrier and modulator assignments as well as, when shift is pressed, which mode is being used for each operator.

To the right of the interface are six data entry rotaries used to control the remaining parameters, making use of various menus selected by a row of buttons underneath. While this does mean that quite a few elements share the one bank of controls – from individual operator envelopes through to modulation tools, filters and effects – it's generally easy to navigate and rarely feels like parameters are buried too deep within the menus.

That said, the opsix could have benefited from a few user-assignable macro controls. The UI does have a home screen, which gives quick



**FADERS:** The faders and rotaries control operator level and ratio (coarse tuning). A shift press switches control to wave shape and operator mode

**OPERATOR MODES:** The diagrams along the synth's top edge detail how carriers and modulators interact in each operator mode

**ANALYSER:** opsix's central screen can be used as both a spectrum analyser and oscilloscope, which is handy for visualising patches

**SEQUENCER:** The opsix sequencer is six-note polyphonic and has four Motion Sequencing lanes for automation

access to several top level parameters like the algorithm, global attack and decay, and levels for each effect. There are also several assignable control sources like the mod wheel, keyboard velocity or pedal input. An additional rotary or two would've brought extra expression though, to let users tweak parameters configured to suit each individual patch.

It might disappoint some users that, like the Wavestate, opsix's 37-note keyboard will register velocity and release velocity but not aftertouch. The synth is also monotimbral, which is hardly unusual at this price point, but it does put it in contrast to its sister instrument

Wavestate, with its multi-sound layers and splits, or its closest competitor Digitone, which offers four simultaneous FM engines.

opsix's voice count is lower than that of the Wavestate too, at 32 rather than 64 voices. It does offer a unison mode though, fantastic for creating thick, powerful digital sounds capable of filling the full frequency spectrum.

In all, opsix doesn't quite have the frankly jaw-dropping complexity of Wavestate, but this is still one of the finest digital synths going. Rarely has a hardware FM instrument felt this fun and intuitive to program, and the ability to mix-and-match operator modes lends opsix a genuinely unique

sonic character. Another resounding success for Korg. **FM**

## FM VERDICT

# 9.3

opsix is packed with unique character, and – rarely for an FM instrument – it's fun and accessible. Another top-class digital synth from Korg