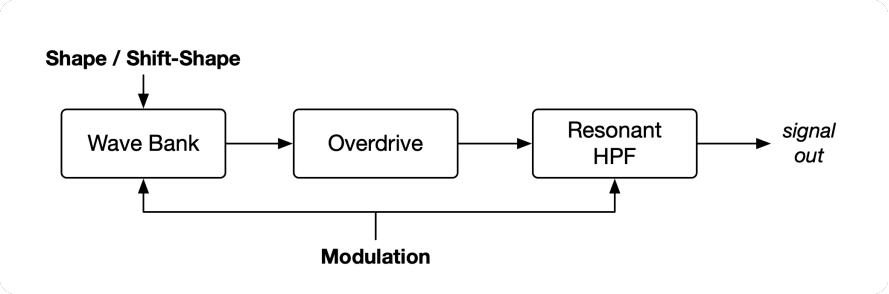
Multi-oscillator for Korg NTS-1, Minilogue XD and Prologue

https://tsoniq.com/software/korg/unity

unity

unity is a user oscillator for Korg Logue based synthesisers. It supports the NTS-1, Minilogue XD and Prologue.

unity takes inspiration from the JP8000's Super-Saw oscillator, extending it with a multi-model waveform generator, adjustable high-pass filter, overdrive and more.



With a newly initialised patch, *unity* produces just a single oscillator with the *Shape* control morphing between triangle and sawtooth forms.

Edit the *Density* parameter to add detuned oscillator pairs for a maximum of 19 oscillators per voice, and use the *Shift+Shape* control to adjust the detune.

Use the *Model* parameter to select a different set of waveforms, and the high-pass filter to further modify the sound.

Create dynamic waveforms by using the LFO to sweep the waveform shape, detune or high-pass filter.

Use the *Overdrive* parameter to give dense patches more bite.

Downloading and Feedback

The latest version can be downloaded from **https://tsoniq.com/software/korg/unity/**.

You can send feedback by email to **logue@tsoniq.com**, or leave a comment on the download page.

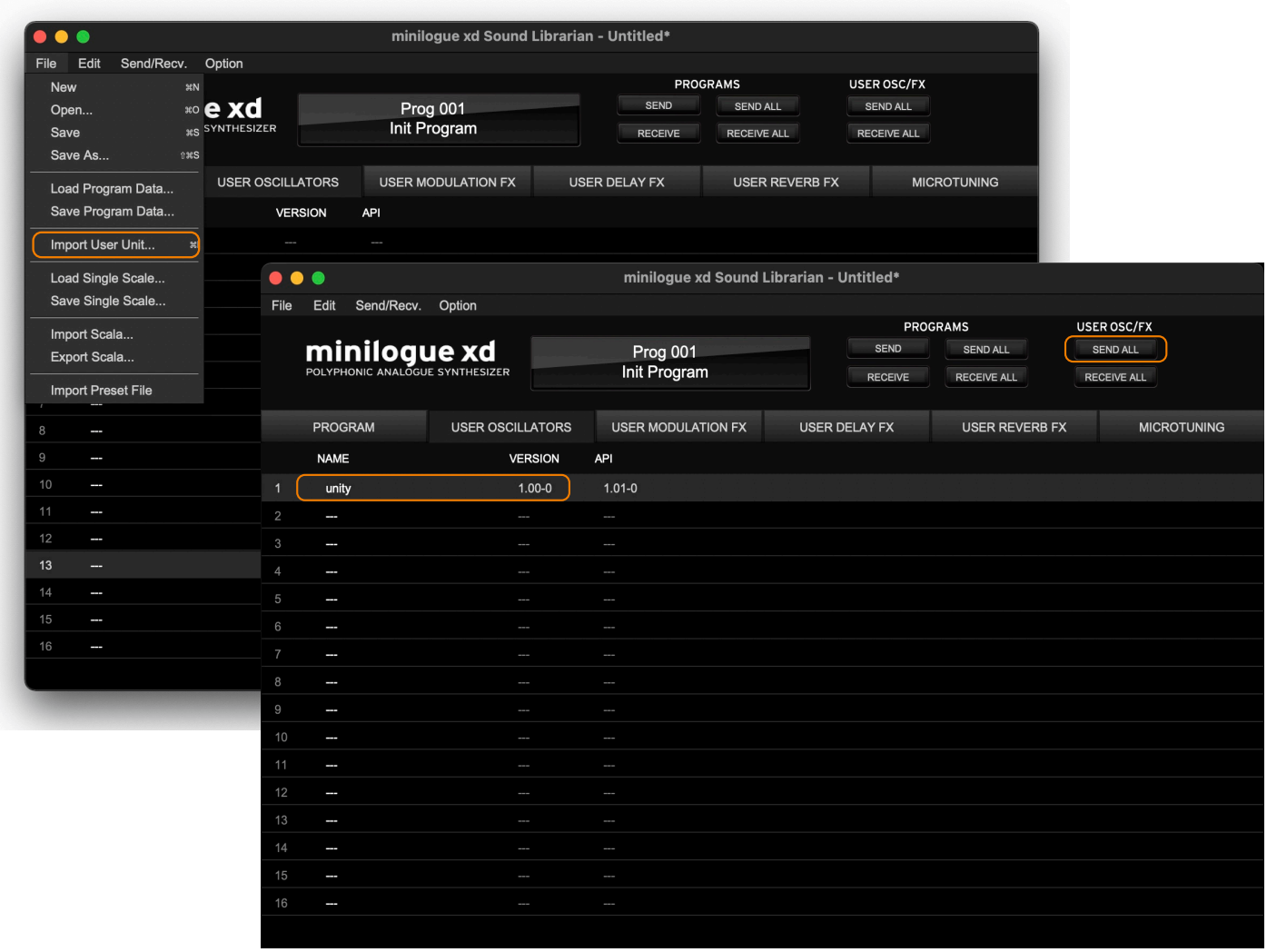
unity is free to use, but if you find the oscillator useful and would like to support future development on Korg platforms, consider making a donation via the download page.

Installation

unity is supplied as a zip archive containing separate files for each platform:

NTS1:	unity.ntkdigunit
Minilogue XD:	unity.mnlgxdunit
Prologue:	unity.prlgunit

Use the appropriate Librarian application (available from ***https://korg.com***) to import the unit and then upload to the synthesiser.



Patch Parameters

Patch parameters can be edited from the front panel of the instrument.

The following parameters are provided:

Parameter	Range	Function
Model	1-10	Selects the waveform generator model. See below.
Density	1-10	Sets the number of detuned oscillator pairs. A value of 1 gives just the central oscillator, while larger numbers add pairs of detuned oscillators with a spread controlled by the '*Shift-Shape*' control. The maximum *Density* setting of 10 gives the central oscillator plus up to 18 detuned oscillators spaced around the centre frequency, for a total of 19 oscillators (depending on *Model* setting and processor).
HPF Cutoff	0-100%	Sets the HPF cutoff frequency. The HPF tracks the oscillator frequency, with a positive offset controlled by the *HPF Cutoff* setting.
HPF Resonance	0-100%	Sets the HPF resonance. A value of zero corresponds to a flat pass-band, while increasing values will accentuate frequencies close to the fundamental.
Overdrive	0-100%	Sets the overdrive level. Increasing values result in apparently louder sound with increasing distortion. This can be helpful to thicken the sound if a high *Density* setting is used.
Modulation	1-4 (NTS1) 1-6 (others)	Selects a predefined modulation source and destination. See below.

Model

The *Model* parameter switches between one of ten oscillator models, each providing a different source of adjustable waveforms.

There are band-limited and aliasing analogue waveform models, plus ring-modulation and 2-oscillator FM.

Note that for Ring Modulation and FM models the *Density* parameter will need to be greater than one for the modulation to be apparent.

Model	**Description**
1	Blend between band-limited Triangle and Sawtooth waveforms via the Shape control.
2	Blend between band-limited Square and Sawtooth waveforms via the Shape control.
3	Band-limited pulse, with adjustable width.
4	As Model 1, but without anti-aliasing.
5	As Model 2, but without anti-aliasing.
6	As Model 3, but without anti-aliasing.
7	As Model 1, but with phase reset to zero at key on and with reduced detune spread.
8	As Model 2, but with phase reset to zero at key on and with reduced detune spread.
9	As Model 3, but with phase reset to zero at key on and with reduced detune spread.
10	Ring modulation with sine-wave pairs. The shape control adjusts the detune.
11	Ring modulation with triangle/sawtooth pairs. The shape control adjusts the detune.
12	Ring modulation with sawtooth pairs. The shape control adjusts the detune.
13	Frequency modulated sine-wave pairs. The shape control adjusts the detune.
14	Frequency modulation sawtooth pairs. The shape control adjusts the detune and width.
15	Frequency modulation pulse-wave pairs. The shape control adjusts the detune and width.

Modulation

The *Modulation* parameter specifies the destination for LFO shape modulation. To use LFO modulation:

- set the *Modulation* parameter to a value other than 1
- set the LFO target to "Shape"
- set the LFO intensity to something other than zero
- settings 5 and 6 are available on the Minilogue XD only and allow filter sweeps to be controlled from the front panel filter controls

Modulation	**Description**
1	Off
2	The LFO controls the waveform (Shape).
3	The LFO controls the detune (Shift-Shape.
4	The LFO controls the HPF-Cutoff frequency.
5	The Filter Cutoff and resonance knobs control the HPF (Minilogue XD and Prologue only)
6	The Filter Cutoff and resonance knobs control the HPF, with the cutoff control inverted (Minilogue XD and Prologue only)

Emulating a Roland JP8000 Super-Saw Oscillator

Try the following:

Shape: 100%
Model: 5 (aliasing triangle-saw)
Density: 4 (central oscillator plus 3 detuned pairs)
HPF Cutoff: adjust to taste
HPF Resonance: 0
Overdrive: 0

CPU Limits

unity's detuned oscillator pairs are very CPU intensive, with a *Density* setting of 10 corresponding to 19 fully independent oscillators running at the same time on a single voice.

unity has been calibrated so that on a Minilogue XD, no overload should occur.

However, we are unable to test this on other hardware platforms, so if you experience unexpected audio glitches, back off the *Density* parameter until the output is clean - and please let us know so that we can update the software.

Model Number	Maximum Number of Oscillators Per Voice		
	NTS-1	Minilogue XD	Prologue
1	15	15	15
2	13	13	13
3	11	11	11
4	17	17	17
5	19	19	19
6	15	15	15
7	15	15	15
8	11	11	11
9	19	19	19
10	11	11	11
11	11	11	11
12	11	11	11
13	11	11	11
14	19	19	19
15	11	11	11

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Release History

Version	Release Date	Changes
1.0	8/Nov/2021	Initial release.
1.1	28/Dec/2021	Added Prologue control support. Improved HPF performance.