
viper
ppg

viper-ppg

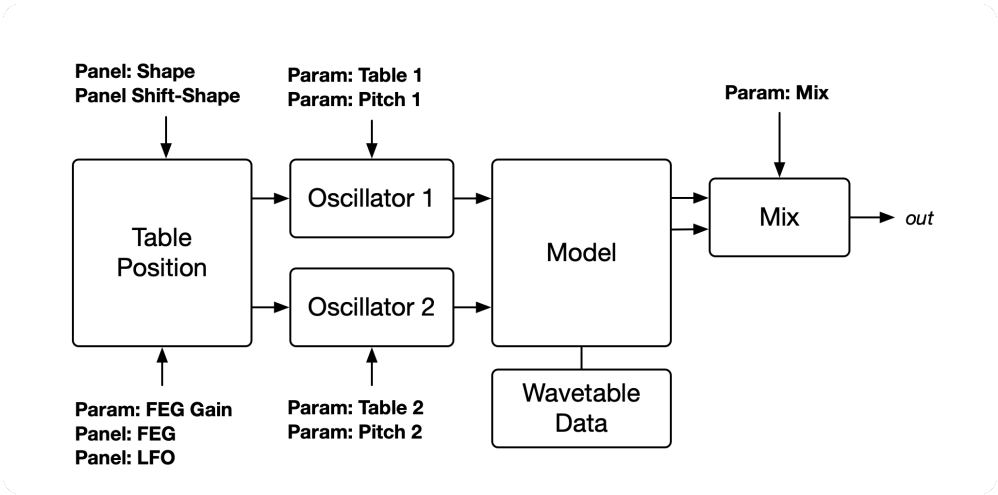
viper-ppg is a Logue multi-engine oscillator which provides high quality emulation of wavetables from the classic PPG Wave instruments.

The main features are:

- 31 wavetables using 256 waveforms modelled on the PPG Wave 2.3
- high quality, alias-free synthesis engine with 8 or 16 bit sample resolution
- dual oscillators with independent wavetables and pitch control
- wavetable position modulation via the LFO or filter envelope (Minilogue and Prologue only)

viper-ppg uses a specialised synthesis engine with models that reconstruct the original waveforms in real time. The engine is fully anti-aliased. Two version of the wavetables are provided: 'authentic', using 8 bit samples and stepped interpolation, and 'modern', using 16 bit samples and continuous interpolation.

viper-ppg can use the front panel controls to modulate the wavetable position, as well as the LFO and filter envelope (Minilogue and Prologue only). Oscillator 1 can be detuned.



viper-ppg's models are fairly accurate, but there are a some differences between viper's models and the original PPG Wave hardware.

Firstly, the original hardware tables contain the same four basic 'analogue' waveforms at the end of every table. These are not strictly part of the table's sound design, being intended to provide fixed waveforms for emulations of traditional analogue synths. Since Logue synthesisers already have analogue VCOs, these final waves are omitted to make it easier to create glitch-free table sweeps.

Secondly, several versions of the PPG Wave OS contain table data with what appears to be inadvertent numerical wrapping that corrupts some waveforms. This most obviously affects table 27 '*Formant 2*'. ***viper-ppg*** includes both corrected and clipping versions of this table.

Lastly, the final two wavetables ("sync" and "PWM") were rendered algorithmically by the original instruments. Memory and CPU constraints mean that ***viper-ppg*** emulates these with fewer table steps than the original sounds.

Parameters and Controls – Prologue and Minilogue XD

Use the multi-engine *Shape* control to set the wavetable position for oscillator 1.

Use the multi-engine *Shift-Shape* control to set the wavetable position for oscillator 2.

To modulate the wavetable position, set the FEG Gain parameter non-zero and adjust the filter envelope, and/or set the LFO destination to 'shape' and adjust the LFO speed and intensity on the front panel.

Parameter	Range	Function
Table 1	1 – 31, 32 – 62	Sets the wavetable for oscillator 1. Values 1 – 31 select the wavetable with coarse interpolation (authentic) Values 32 – 62 repeat the wavetables with finer interpolation (smoother).
Table 2	1 – 31, 32 – 62	Sets the wavetable for oscillator 2. Values 1 – 31 select the wavetable with coarse interpolation (authentic) Values 32 – 62 repeat the wavetables with finer interpolation (smoother).
Pitch 1	-100 – 100	Sets the pitch of oscillator 1, over a range from 1 octave below to 1 octave above. The adjustment is non-linear, providing finer control over detuned around zero. Be aware that the Logue software may default the pitch value to -100, resulting in sounds an octave lower than might be expected.
Pitch 2	-100 – 100	Sets the pitch of oscillator 2, over a range from 1 octave below to 1 octave above. The adjustment is non-linear, providing finer control over detuned around zero. Be aware that the Logue software may default the pitch value to -100, resulting in sounds an octave lower than might be expected.
Mix	0 – 100	Set the mix between oscillator 1 and 2. A value of 0% will sound oscillator 1 only, while a value of 100% will sound oscillator 2 only.
FEG Gain	0 – 100	Set the Filter EG modulation gain. Setting this to a non-zero value will add the current filter modulation envelope output to the wavetable position.

Parameters and Controls – NTS1

Use knob A *(SHPE)* to set the mix between the two oscillators. The minimum setting corresponds to oscillator 1 only, and the maximum to oscillator 2.

Use knob B *(Alt)* with shift to mix between the oscillators and the white noise generator.

To modulate the wavetable position, set the LFO destination to 'shape' and adjust the LFO speed and intensity.

If using complex effects processing you may experience audio dropouts due to the CPU load of this oscillator. If this happens, use the "Poly" setting to disable oscillator 2, releasing processing time for other functions.

Parameter	Range	Function
Tab1	1 – 31, 32 – 62	Sets the wavetable for oscillator 1. Values 1 – 31 select the wavetable with coarse interpolation (authentic) Values 32 – 62 repeat the wavetables with finer interpolation (smoother).
Tab2	1 – 31, 32 – 62	Sets the wavetable for oscillator 2. Values 1 – 31 select the wavetable with coarse interpolation (authentic) Values 32 – 62 repeat the wavetables with finer interpolation (smoother).
Pit1	-100 – 100	Sets the pitch of oscillator 1, over a range from 1 octave below to 1 octave above. The adjustment is non-linear, providing finer control over detuned around zero. Be aware that the Logue software may default the pitch value to -100, resulting in sounds an octave lower than might be expected.
Pit2	-100 – 100	Sets the pitch of oscillator 2, over a range from 1 octave below to 1 octave above. The adjustment is non-linear, providing finer control over detuned around zero. Be aware that the Logue software may default the pitch value to -100, resulting in sounds an octave lower than might be expected.
Mix	0 – 100	Set the mix between oscillator 1 and 2. A value of 0% will sound oscillator 1 only, while a value of 100% will sound oscillator 2 only.
Poly	1 – 2	Sets the polyphony. Selecting 1 will disable oscillator 2, allowing more CPU for use by CPU intensive effects or filters. Selecting 2 will enable both oscillators.

Wavetable List

Table	Emulated PPG Wavetable
1	Resonant 1
2	Resonant 2
3	Mallet Synth
4	Square Sweep
5	Bell
6	Pulse Sweep
7	Saw Sweep
8	Mellow Saw
9	Feedback
10	Additive Harmonics
11	Resonant 3 High Pass
12	Wind Synth
13	High Harmonics
14	Clipper
15	Organ Synth
16	Square-Saw
17	Formant 1
18	Polated
19	Transient
20	Electric Piano
21	Robotic
22	Strong Harmonics
23	Percussive Organ
24	Clip Sweep
25	Resonant Harmonics
26	Two Echos
27	Formant 2 *(with corrected waveforms)*
28	Formant Vocal
29	Sync
30	PWM
31	Upper Wavetable
32	Formant 2 *(with original truncated aliasing waveforms)*
33 – 64	*(repeats tables 1 – 32, but with fine grained interpolation and 16 bit sample resolution)*

Downloading and Feedback

Information and updates can be found at **https://tsoniq.com/software/korg/viper**.

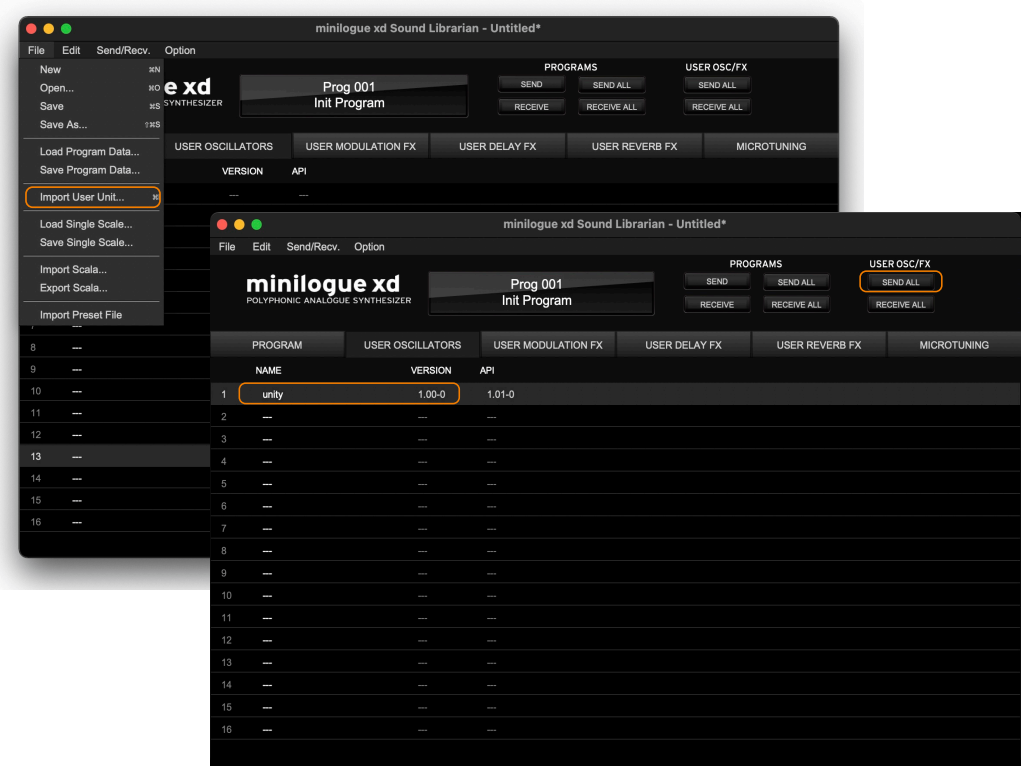
You can send feedback by email to **logue@tsoniq.com**, or leave a comment on the download page.

Installation

viper-ppg is supplied as a zip archive containing:

viper-ppg.prlgunit	Prologue 8 and 16
viper-ppg.mnlgxdunit	Minilogue XD
viper-ppg.ntkdigunit	NTS-1

Use the appropriate Librarian application (available from ***https://korg.com***) to send the appropriate unit to the synthesiser.



Requirements

viper requires a Korg NTS-1, Minilogue XD, Prologue 8 or Prologue 16.

Installation requires the use of a PC or macOS computer and the Korg Librarian software appropriate for the synthesiser.

Copyright, Warranty and Liabilities

Release History

Version	Release Date	Changes
1.0	11-Dec-2023	Initial release.