ANALOG ANTHEM

WAVETABLES & PRESETS FOR SERUM

DOCUMENTATION
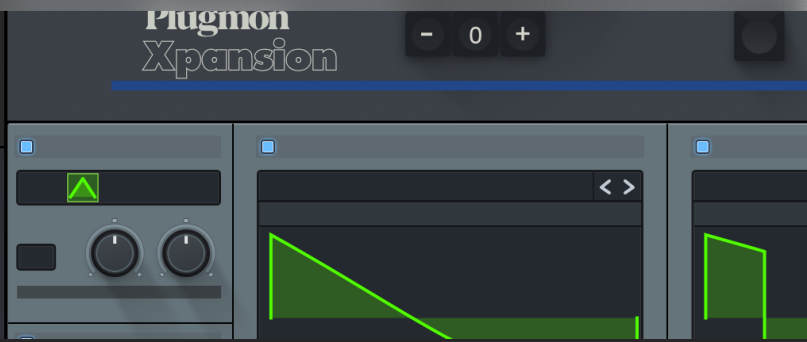
PLUGMON
GUI & SOUND DESIGN

About the Package

"Analog Anthem" is a Serum expansion featuring original wavetables.

How to Install Wavetables / Presets / Skins

- Open Serum
- Click **Menu** button.
- Click **Show Serum Presets folder** menu
- Put the wavetables to **Tables** folder
- Put the noise files to **Noises** folder.
- Put the presets to **Presets/User/** folder
- Put the skin to **Skins** folder

About Wavetable Management in Serum

Serum presets seem to **store wavetable files in itself** — which is not an elegant way. As a result, each of FXP file of "Analog Anthem" takes 3.5MB in average.

Looking on positive side, this means that you can freely rename wavetable files, freely place them in any folder. Or ultimately, you don't even need to install wavetables. However you do that, you can still load "Analog Anthem" presets correctly.

About Noise Files Management in Serum

In contrast, noise files are not packed into FXP files, but are loaded from "Noises" folder. The file path must match so **you have to follow the correct folder structure**, otherwise the presets are not loaded successfully and an error message will be shown.

Our noise files are put in the folder named "Plugmon". And you have to put this folder right under the "Noises" folder. The path will be like below:

"Serum Presets/Noises/Plugmon/nanologue.wav"

"Analog" in Wavetables

How do wavetables contribute to analog sound?

How do wavetables contribute to "analog"?

Many don't think that a wavetable can evoke analog vibes. But it does matter, because it IS the very starting point of synthesis. Let's think again of what is "analog".

#Digital Wavetables

Basic digital oscillators is totally "digital". That means — (1) It leaps *instantly* between 0 and 1. (2) Its curve is totally linear. No *curves*, no *dips/hills*.
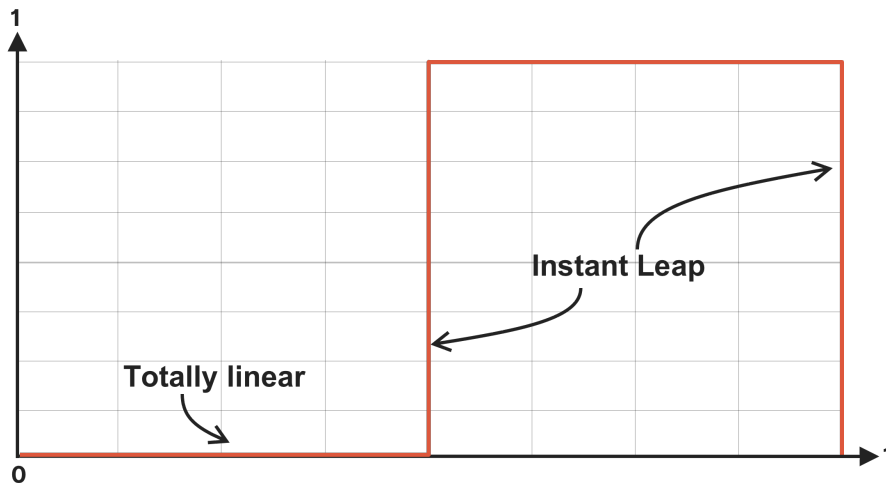
Analog synths, especially vintage ones, never oscillates as squarely as this, mostly due to its physical / technical limitations.

#Analog Wavetables

In analog world, each synth has unique curvature and transition speed.
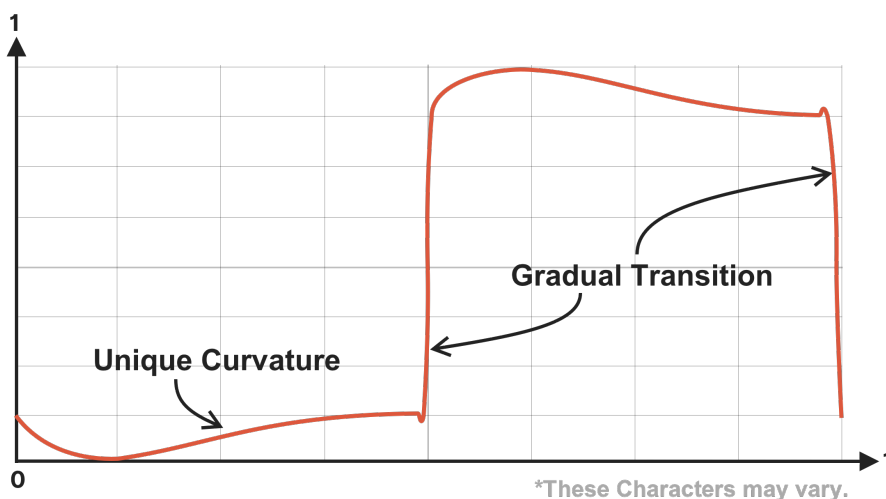
Curves, ditches, gaps generates unique harmonics so in analog synths, Tri or Square waves actually contain even harmonics. And gradual transition makes similar effect to LPF, creating warm taste.

Can wavetables imitate such tiny things?

—With **the power of UHM** it can. U-he's UHM wavetables have 2048 samples resolution, which can readily replicate all those finest level characters.
Say you use the very last 8 samples for smoothening transition, even though it is only 1/256 length of a single wavetable, it creates warmth effect.
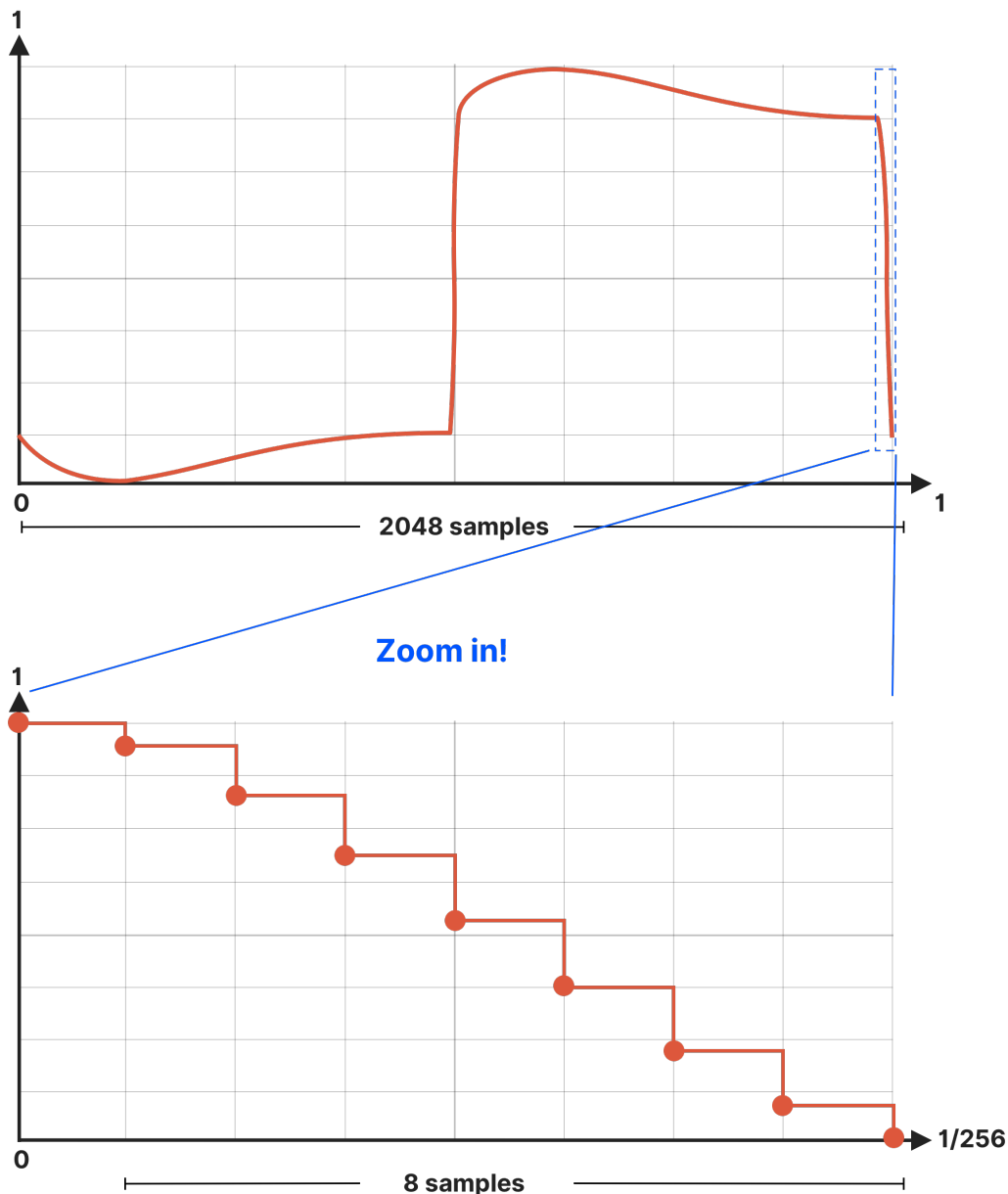

OK it looks like stairs but any audio signal on a computer is handled like this, when extremely zoomed. This means that, in this case, it takes 8 gradual steps to move from 1 to 0. This reduces the digital-ish buzz you hear on default OSCs.

With UHM programming you can control transition length, depth, even the curvature *of this 8 samples*, which is how we characterized each wavetables.

What can NOT wavetables imitate?

Of-course, wavetables cannot replicate all the behavior of analog synths. For example, in analog synths lower notes have strong curves and they get straightened as notes go higher.

Lower notes = Strongly curved   **Higher notes = More like linear**
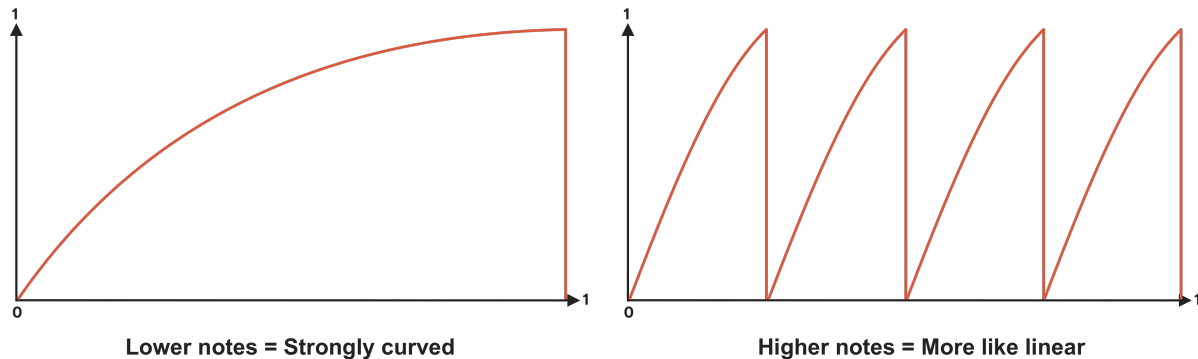
And there is a tendency that lower notes are rich in treble, which get *slightly* softened as notes go higher, making the impression that "fat bass line, warm lead sound" things.

But since wavetables are just static wavetables, these behaviors cannot be reproduced.

Referencing Point

We basically used a **lower note** as a reference of replication, because the lower a note goes, the more overtones we hear, the more seriously a waveform matters. But for **polyphonic-oriented** synths, we set relatively higher reference points, so that poly phrases in middle range can sound in the best quality.

As a result, waves based on mono synths tend to sound brighter, while ones based on poly softer — but anyway these characterizations are in very tiny scale.

Other analog-ish things

And following things are also cannot be done within wavetables.

Unstable tunings / Slight noises / Saturations

But you can mimic these nuances by utilizing other functions in Serum, such as detune, input gain, random modulation and so on. Our presets make full use of them.

Not all, but some

So it's nonsense to think that waveforms alone can evoke full vibes of analog, but it's also nonsense to think that waveforms have nothing to do with analog taste.
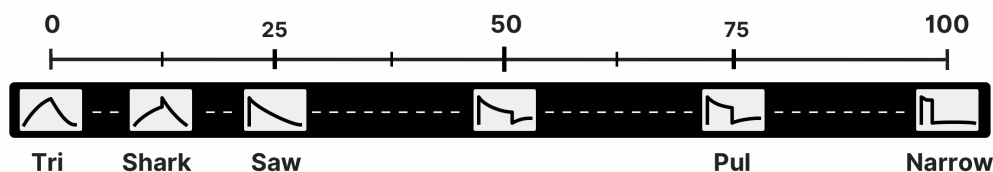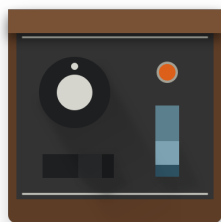
Now, let's have a look at each wavetable!

Understanding Each Wavetable

Taming 1 wavetable

is worth more than

Merely having 100 wavetables.

Mini D

0   25   50   75   100

| Tri | Shark | Saw | | Pul | Narrow |

"*Mini D*" is modeled after the legendary, most famous 70s vintage synth.

Shapes and Morphs

Its original 6 waveforms, including "Sharktooth", are replicated. Below are the correspondence table of original waves / WT position in Serum. The model synth doesn't have continuous morphing. So they're originally made, in reference to U-he *Diva*.

Waveform	WTpos
Tri	1
Sharktooth	32
Saw	64
Square	192
Pulse1	231
Pulse2	256

Saw-Pul morphing is very unique in that **it moves a la PWM**. And WTpos 256 still remains 80%-20% Hi-Lo pulse, which means that PWM range is relatively narrow when compared to other WTs.

Sound Character

Strong in **low & mid** but also has enough high range. Basically tuned for monophonic sounds, it can easily go harsh when stacked. If you have any impression of "muffled" or "dusk" sound on this synth, it must be due to the filter or recording environment or hardware conditions. It by nature has strong brightness and cutting off it with strong resonance makes "*that sound*".

Standard Settings

Use *"MG Low 24"*. The model has 3 OSC + Noise section, so if you want fully fat sound, you have to use unison (or sub OSC as compromise). Strong resonance surely bring out the best in this WT.

Mini Voyage
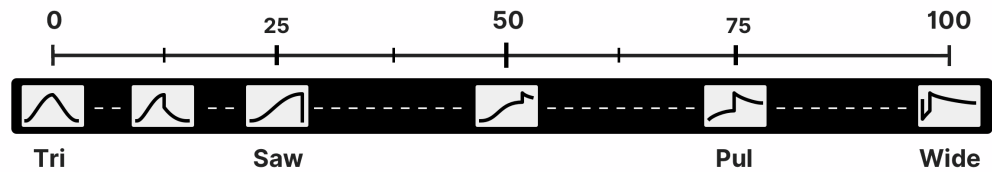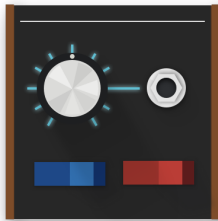
"***Mini Voyage***" is modeled after the 21st century's modern analog mono synth.

Shapes and Morphs

The model synth has continuous shape morphings, so simply they are replicated. Like *Mini D*, morph is done not by vertical crossfade, but by horizontal movement, so WTpos 64-192 again sounds like PWM.
Also WT around 60-70 has some glitchy sound, which is useful when you want some harsh high frequency.

Sound Character

Although the model is manufactured by the same company as *Mini D*, the characteristics are totally different.
Rich in **low~mid** end, and transitions are most strongly rounded among all the tables we made(= soft in **super-high**), which gives an impression of modernized, smooth touch.

Standard Settings

The model has 2 settings selectable. *Parallel dual 24dB LP* or *Serial LP→HP*. The model has unique feature that in dual LP mode the signal of filter1 and 2 is separately sent to L/R respectively, creating stereo effect. (But in Serum you cannot fully replicate this routings.)

Oberton

Tri   Saw   Pul   Wide

Originally Added
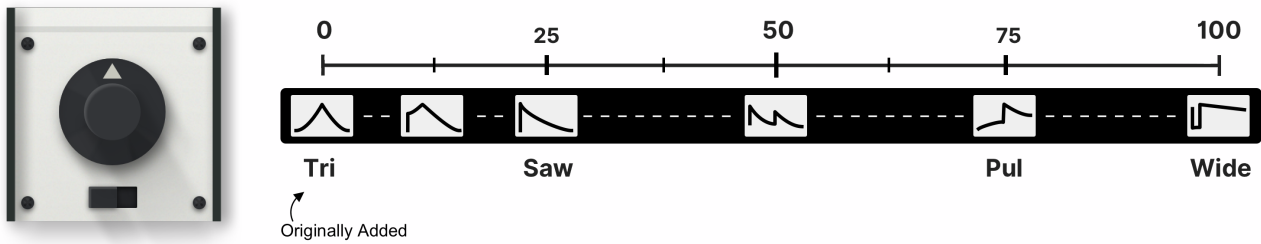
"*Oberton*" is modeled after another 70s famous synth module.

Shapes and Morphs

The model synth doesn't have Tri wave. To align Saw's WTpos to 64, *Half sine* is added.

WT128, which is quite like octave higher saw, is also useful. Between 64-128 creates good blended sound of 2 octaves.

Also, note that **Pul duty** is not perfect 50:50, which makes it sound boomy overall in WT64-192. WTpos 196 is the closest to perfect square.
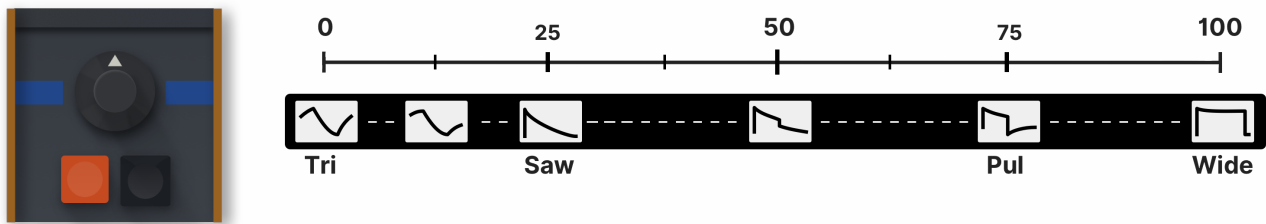
Sound Character

This one is chronologically closest to Mini D, but its character is different. Tuned for loose 12dB filter, **its high is by nature lessened**.
The typical situation where *Oberton* excels is the combination with semi-opened 12dB LP. Whereas *Mini D* sounds a bit harsh with its strong high frequency, *Oberton* still sounds sweet.

Standard Settings

Use *L/N/H 12* for the closest filter as original. Also, the model doesn't have filter keyfollow. So not using it is also a key.

Oberboss

0   25   50   75   100

Tri   Saw   Pul   Wide

"*Oberboss*" is modeled after mid 80s gorgeous analog synth.

Shapes and Morphs

Morphing is very standard. And its **Synced Saw** and **Synced Pul** are also included as independent files.

Sound Character

You can see *Oberboss* as a modern version, **brighter** version of *Oberton*. Higher frequency is not diminished, almost linear in spectrum, giving an impression of bold sound.

The sound is similar to the default saw, but still stronger in low and softer in super-high.

Standard Settings

*T*he model has very various filter choices. It even has 18dB filter so many presets in "Analog Anthem" use that settings.

Jupitron

0	25	50	75	100
Tri	Saw		Pul	Narrow
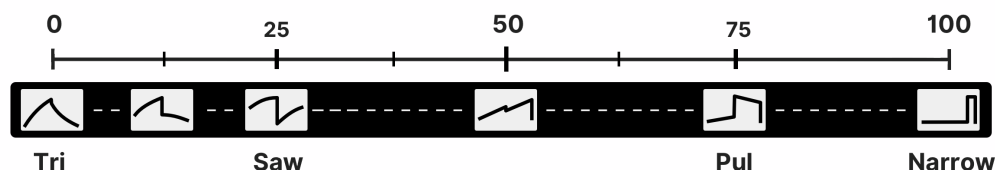
"*Jupitron*" is modeled after the very renowned 80s poly synth.

Shapes and Morphs

Tri wave is boomy because there's small vertical gap between left half and right half (like Sharktooth in *Mini D*). WTpos around 128, just as *Oberton*, sounds quite like octave higher saw.
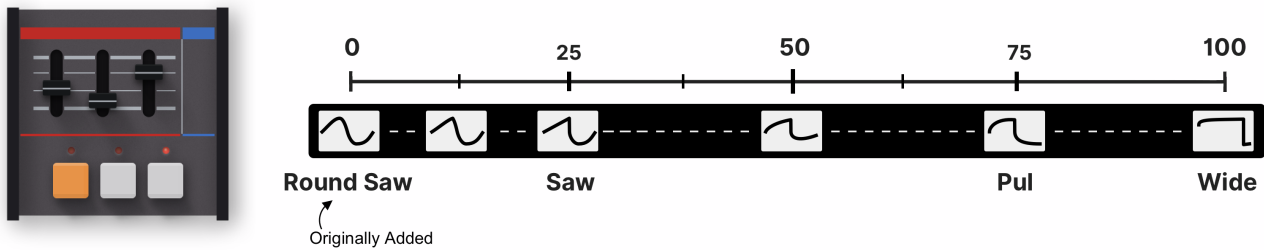
Sound Character

It's very soft, mild in super-high, hence the best player for **supersaw**, definitely (Though the supersaw is introduced not on this synth but the successor). You can create supersaw pad rich in middle range, without high getting too noisy.

And by the same logic as *Oberton*, mild high range ensures a good combination with semi-open 12dB LP filter.

Standard Settings

The model has *HP→LP serial routing*. The model can switch 12dB/24dB. It has relatively strong low, so HPF is the key to control bottom end (but note that the model doesn't have resonance on HPF).

Juna

Round Saw   Saw   Pul   Wide

Originally Added

"*Juna*" is modeled after a little sister of "*JP*", more specifically, the "*106*" model's DCO.

Shapes and Morphs

The model synth doesn't have Tri wave. To align Saw's WTpos to 64, *Rounded Saw* is added. Waveforms are rounded here and there, which characterizes this synth.

The model has only 1 OSC (+1 Pulse sub OSC), for lowering manufacture cost. To keep firm body with single OSC, the Saw has really unique shape, by which **low** end is strengthened. In the original synth, HPF is utilized to cut these fattened low.

Sound Character

It has the **weakest mid range** of all (especially so in Saw). Its emphasis is separated to the edge — low and super-high. So it's suitable for pads without getting in the way of leads, theoretically.

Since strong mid range is one of the typical characteristics of what we call "analog", *Juna* may feel to you the most remote from analog. But smoothed transition applied, it holds certain analog feel.

The model uses analog circuit, but its tuning is controlled by digital clock, hence "DCO". So "unstable tuning" is not a thing for this synth.

Standard Settings

Just like Jupitron, the model has *HP→LP serial routing*. The model can switch 12dB/24dB. Again HPF (without resonance) is the key to control bottom end. And Chorus effect is another characteristic of the model.

Professor V
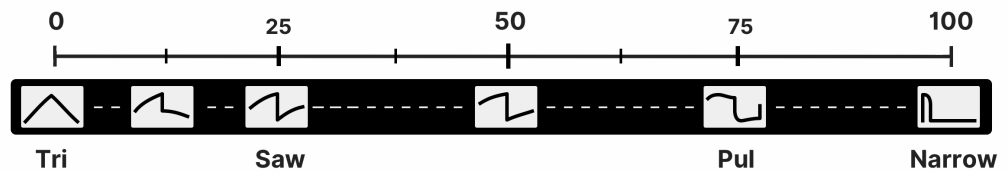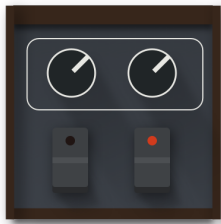
"*Professor V*" is modeled after the late 70s great polyphonic synth.

Shapes and Morphs

Its morph style is very standard. Each intermediate section between Tri-Saw, Saw-Pul is the simplest kind.
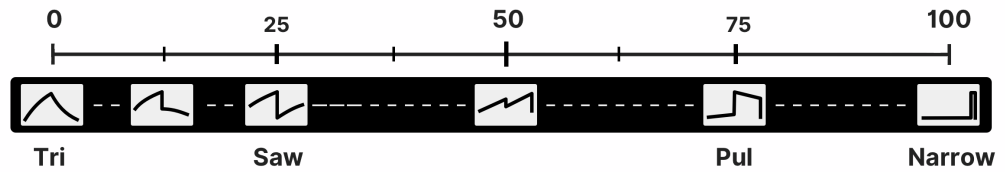
Sound Character

Very much **balanced**. Softness in super-high range creates some **warm** taste, but as that character is more subtle than *Oberton* or *Jupitron*, it gives **vivid** impression.

Standard Settings

24db LP. "German LP" sounds quite good. Since the model synth has 2 OSC with no Sub OSC, simple 2 OSC combination will suit.

Professor I

"*Professor I*" is the brother of *Prof V*, modeled after early 80s mono synth.

Shapes and Morphs

While Tri-Saw is simple crossfade, Saw-Pul is interesting. Just as *Oberton*, midpoint
sounds like octave higher saw.
And its **Synced Saw** and **Synced Pul** are also included as independent files. Compared to
the counterpart of *Oberboss*, Its range of the tune movement is much narrower.
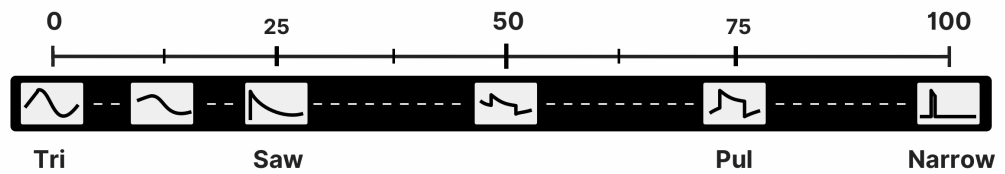
Sound Character

Solely tuned for monophonic sound, it has **stronger high** than *Prof V*. So using this for
leads and basses while using *Prof V* for pads and keys will be a good assignment.

Standard Settings

Totally the same as *Prof V*. Since the model synth has 2 OSC with no Sub OSC, simple 2
OSC combination will suit.

K-20

Tri	Saw		Pul	Narrow
0	25	50	75	100

"**K-20**" is modeled after 70's compact monophonic *MS*(=Modular Synth).

Shapes and Morphs

Morph style is standard, but Tri is unique — It's more like phase-modulated sine wave. And just like *Oberton*, **Pul duty** is not perfect 1:1. WTpos 194 is the closest position to 1:1.

Sound Character

K-20 is tuned for dirty driven sound. When combined with dirty filters like "French LP" or "Scream LP", it creates good vibes of old school modular synth. It's balanced like *Prof. V*, but only a bit stronger in all harmonics.

Standard Settings

The model has *HP→LP(12dB)* serial routings. Both HP and LP have resonance. "French LP" filter's drive knob can create good modular vibes. Making full use of distortion and dual resonant filter is the key to create attractive sounds.

nanologue
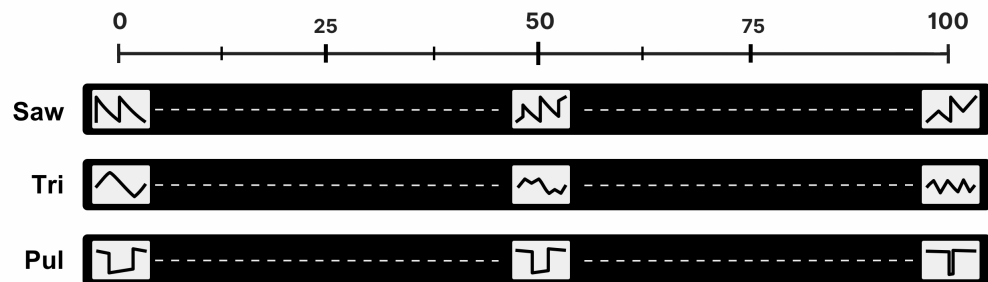
"**nanologue**" is modeled after the 21st century's new iconic analog poly synth. Each of Saw/Tri/Pul has unique shape morphing, so files are separated.

Unified version

Saw WTpos0 is octave higher by design, which makes morphing very unique. But it's cumbersome when you switch from other WTs to see if *nanologue* fits in the situation. So we made "Unified" version as well, with which you can take a look at all the waves.
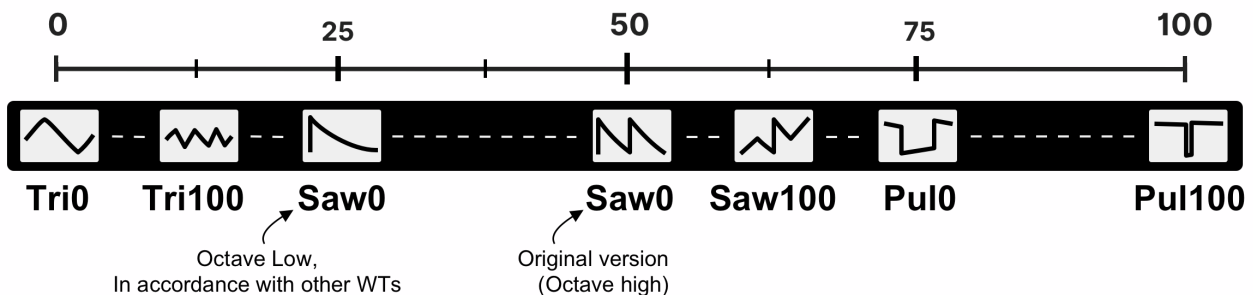
But remember that all morph is *rushed*, which might well cause rough transition. Use independent ones for guaranteed sound quality.

Conversely, WTpos 64-128(= Similar to Hard Sync Saw) is available only in this WT. Also, WTpos 160-192 (=Saw-Pul mixed) is useful, saving another OSC.

Sound Character

Very warm and high range is restrained, **strongly aimed at polyphonic sound**. You can easily get quite attractive pads/keys with its soft high and unique shape morph.

Standard Settings

The model has simple single LP. *"German LP"* fits very much. 24dB/12dB is switchable in the model synth. Saw shape is so characteristic that modest stack is recommended, otherwise it could get harsh.

Summary

Below is the list of "Standard Settings" described above, and the released year of their model synths.

Name	Year	Filter
Mini D	1972	24db LP
Mini Voyage	2002	24dB Parallel Dual LP / LP→HP
Oberton	1974	12dB LP/BP/HP
Oberboss	1985	Any
Jupitron	1981	HP → 24/12dB LP
Juna	1984	HP → 24/12dB LP
Professor V	1978	24db LP
Professor I	1981	24db LP
K-20	1978	HP (with reso)→12dB LP
nanologue	2016	24/12dB LP

Should WTs be used in "Standard Settings"?

The answer is Yes and No.
It is Yes because each wavetable is strongly optimized for its original environment. As you see above, OSCs of 12dB filter synth tend to be soft in super-high range, or, *Juna* has strong fundamental because it's 1OSC synth, and so on.
But it is No because new combination may well create novel sound! You can enjoy trying new combinations just like u-he Diva synth.

Miscellaneous Information

About "PWM" files

Independent "PWM" wavetables are bundled for 2 reasons:

(1) In normal wavetables, either "Narrow" or "Wide" is put in WTpos 192-256. But some synths has both direction controllable via PW knob. In PWM files, both direction is fully replicated.
(2) Since PWM files use all their 256 frames solely for pulse width modulation, better sound quality is expected.

Download & Update

Re-download or update is provided via the website.
Your account page is : https://plugmon.jp/my-account/

Please login with your e-mail and password. **If you don't have account yet, you have to create one** (When creating, make sure that you enter the same address as you used on purchase).
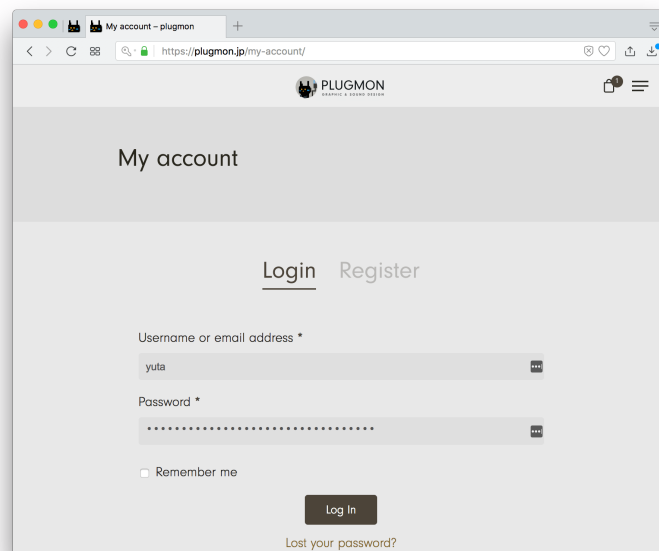
After login, go to "**Downloads**" tab, where you can download your purchased products.
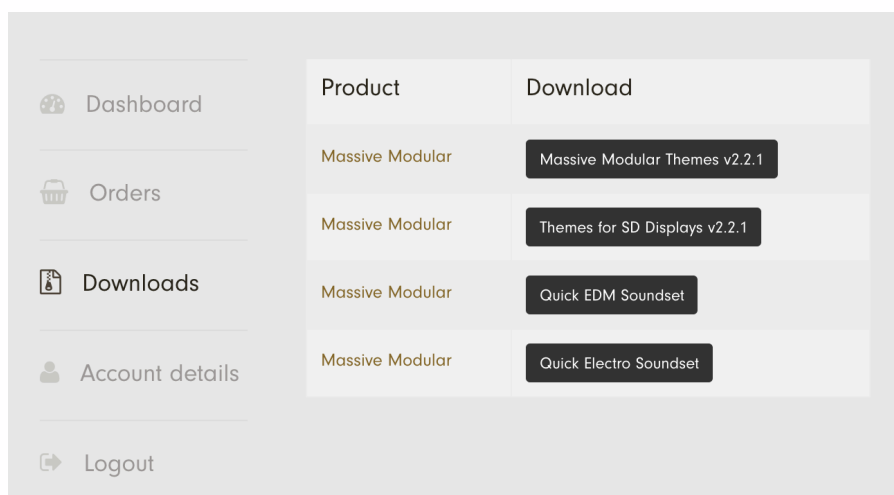
*If you have any troubles, please contact us.

List of Wavetable

Juna.wav	PWM K-20.wav
Jupitron.wav	PWM Mini D.wav
K-20.wav	PWM Mini Voyage.wav
Mini D.wav	PWM Oberboss.wav
Mini Voyage.wav	PWM Oberton.wav
nanologue.wav	PWM Prof I.wav
Oberboss.wav	PWM Prof V.wav
Oberton.wav	Sync Pul nanologue.wav
Professor I.wav	Sync Pul Oberboss.wav
Professor V.wav	Sync Pul Prof I.wav
nanologue Pul.wav	Sync Saw nanologue (variable).wav
nanologue Saw.wav	Sync Saw nanologue.wav
nanologue Tri.wav	Sync Saw Oberboss.wav
PWM Juna.wav	Sync Saw Prof I.wav
PWM Jupitron.wav	Sync Tri nanologue (variable).wav

Noise waveforms

nanologue HPF.wav
nanologue LPF.wav
nanologue.wav