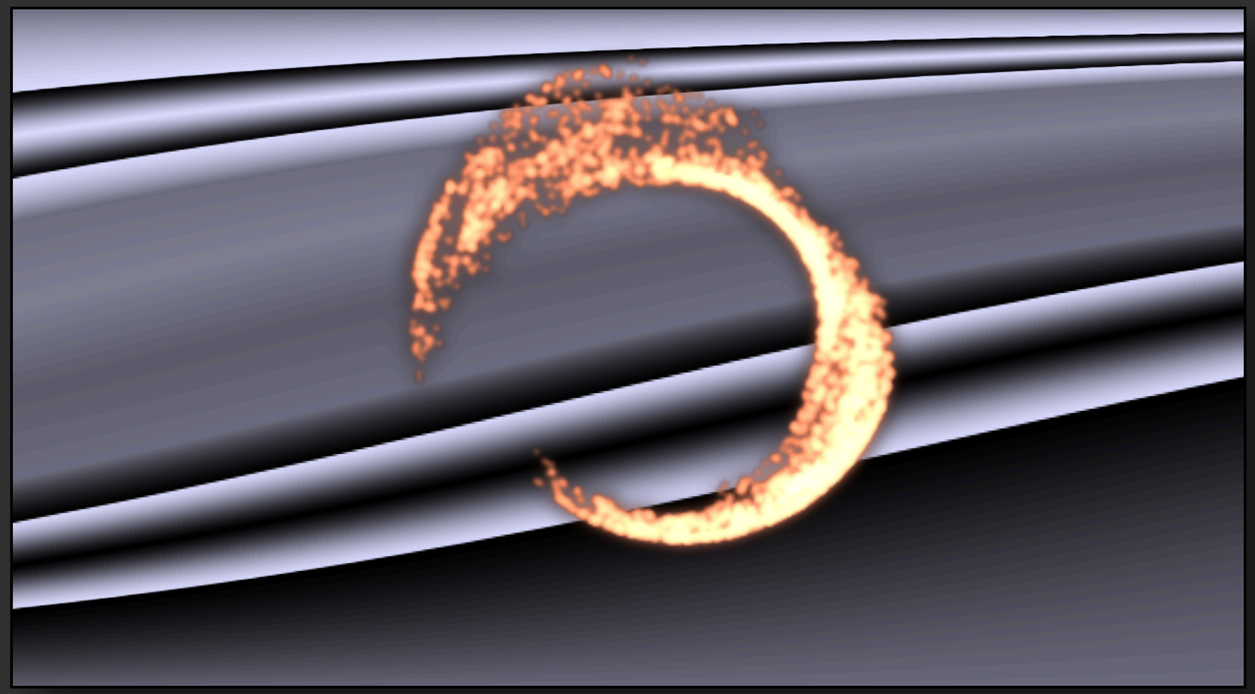
DAWESOME

KONTRAST

Welcome to KONTRAST!



KONTRAST is not another wavetable synth.

Twist. Feel. Done.

Sound was never meant to be programmed.
It was meant to be discovered.

Peter aka Dawesome

Not another wavetable synth.

We spent a lot of time making sure you don’t have to think about how it works.

Have fun!

GETTING STARTED

1 Install the software

Download the installer for your system:
Mac KONTRAST.pkg
Win KONTRAST.exe

Start the installer with a double-click.

System Requirements:

Mac:
10.13 (Ventura) or higher
64-bit Apple Silicon / Intel
AU / VST3

Windows:
win 10 / 11 (64-bit)
VST3

TIP

On Mac sometimes you may need to copy the installer to the desktop and start it from there. Don't ask me why - I will ask Steve when my time has come.

2 Setup your midi

Just choose the best fit from the drop down. You only need to do this once.

You can also configure the inputs freely to your specific needs.
Click here for details.

3 Unlock your license

You can purchase a license via our website: DAWESOME

To activate the license on your system click the button in the lower right corner.

Then enter your tracktion.com login credentials to activate the plugin.

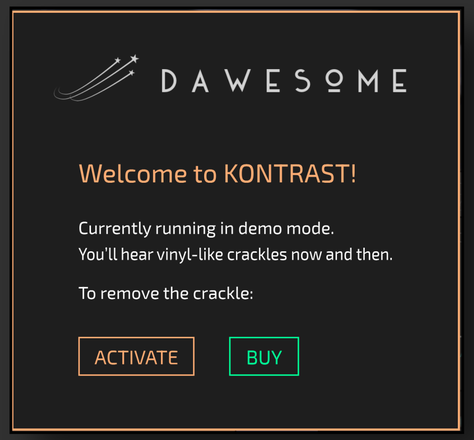
TIP

At tracktion.com you can get a 90-day trial license.

DEMO / TRIAL

We believe in the quality of our instruments and we trust you can make your own choices:

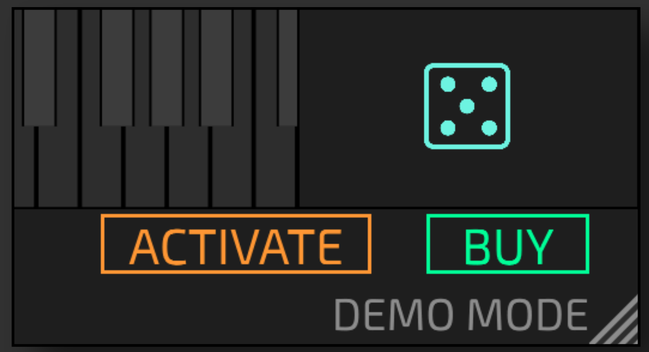
You feel it. Or you don't.



There are two ways to explore KONTRAST:

After installation it runs in DEMO MODE:
A mild vinyl-like crackle now and then - this is the only restriction.

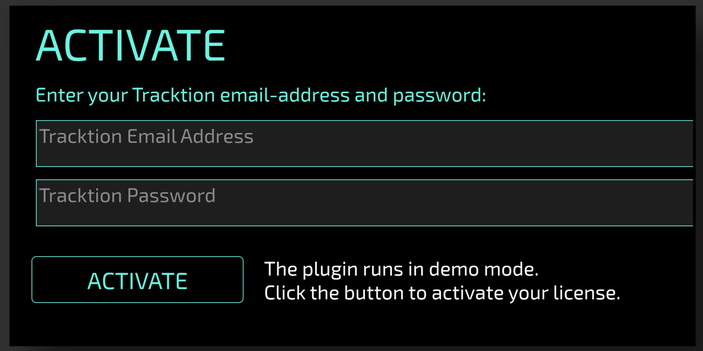
Or you can get a free 90 DAY TRIAL license.
This is the full version for 90 days - no restrictions.
Get it via DAWESOME or our distributor tracktion.com



If you have valid license you need to click the ACTIVATE button in the lower right.

Please enter the login credentials of our distributor tracktion.com

This will activate the plugin on your computer.



TIP

If your system is not connected to the internet you can also do an OFFLINE ACTIVATION.

Click ACTIVATE to see your Machine ID and request a keyfile from Tracktion support.

TIP

One license allows you to install the plugin on up to three of your computers.

OVERVIEW

MAIN MENU ☰

UNDO and REDO
of last operation

Click to BROWSE PRESETS

SAVE the preset.
Turns red if there are
unsaved changes.

This is a WAVETABLE
Each column is a slice.
Black means -1, gray
represents 0 and white
is +1

The MAIN OSC

The
SECONDARY OSC

This SCALE allows
you to choose
which pitch
classes are played.

Record a PATH
for the scanline.

Switch between sections:
* SEQUENCER
* SCANLINE
* FILTER
* FX

The OUTPUT
section

SETUP your
midi controller.

The MODULATION
sources

Drag and drop the
last played note as
audio from here.

MACROS for
efficient timbre
shaping

Click to activate a DEMO
or BUY a full license.

Click to RANDOMISE.
Hold to randomise more.

BROWSE PRESETS

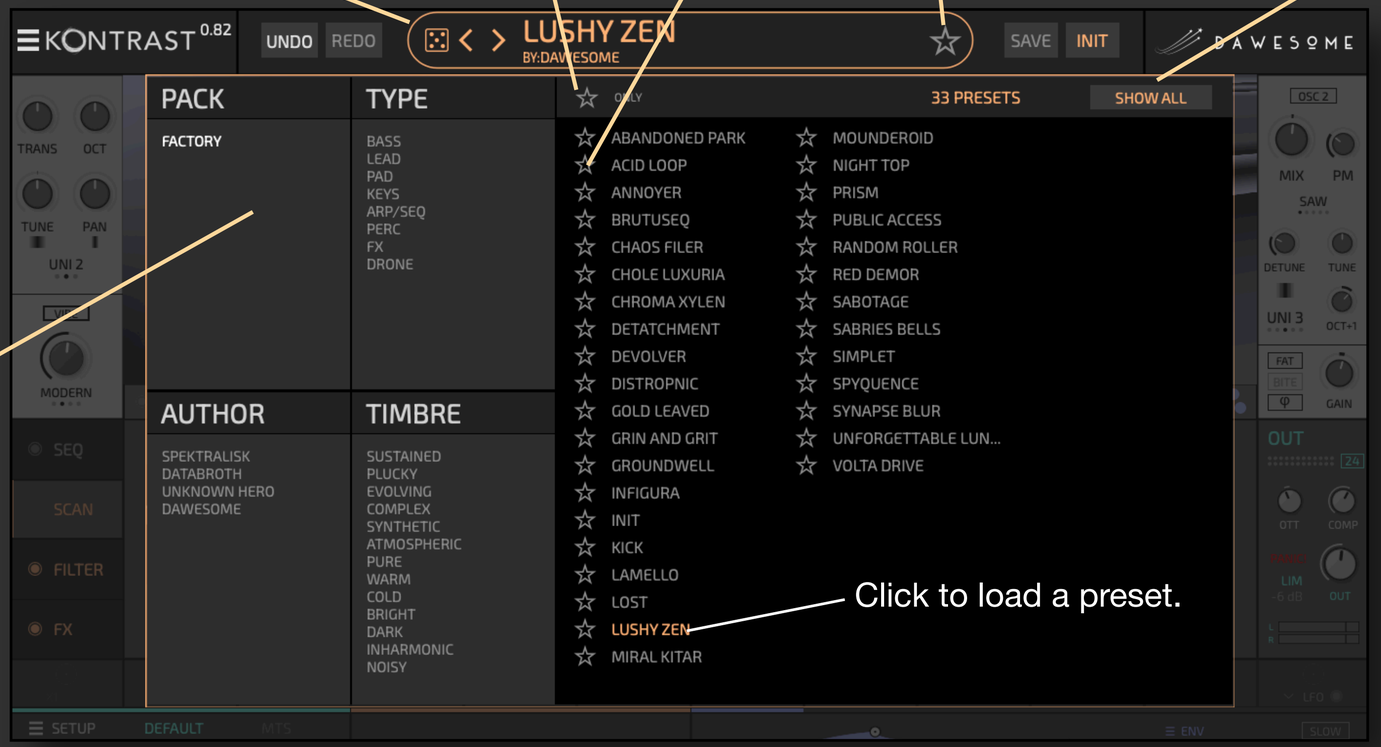
Presets are wonderful, aren't they?
Just click on the name and browse them all!

Choose a random preset.

Click to show only favorites.

Click to mark preset as favorite.

Click to remove all filters.



Choose one or multiple filters.

Click to load a preset.

TIP

Right-click a filter to expand the selection.

TIP

Click outside the preset browser to close it.

Or double-click a preset to load it and close the browser.

TIP

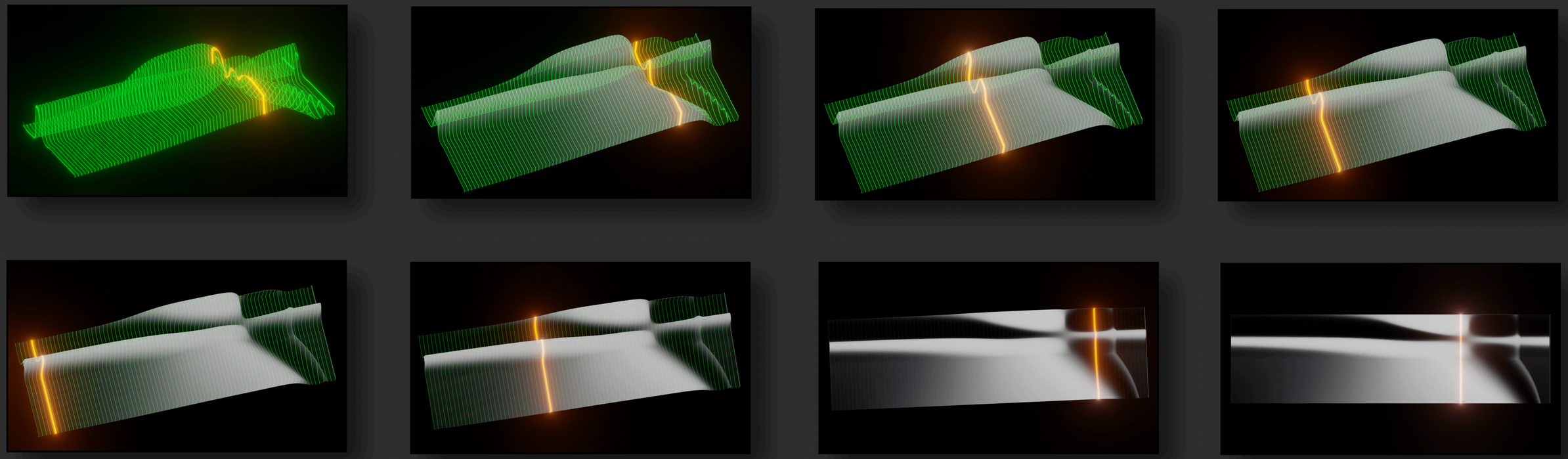
Right-click on a preset for further options.
User presets have more options than factory presets.

WAVETABLES

Wavetables? Those are the 3D grid lines that look like they're from an 80s sci-fi movie, right?

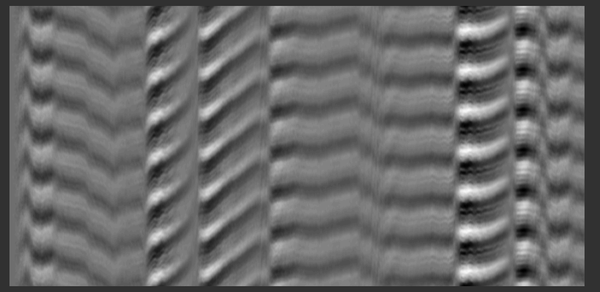
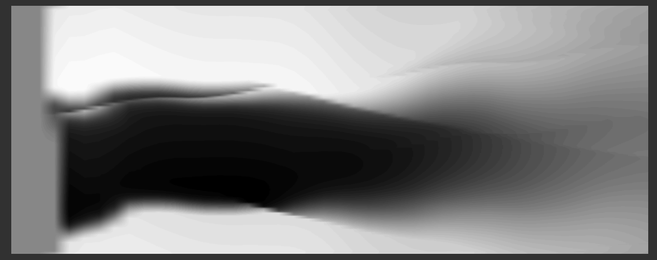
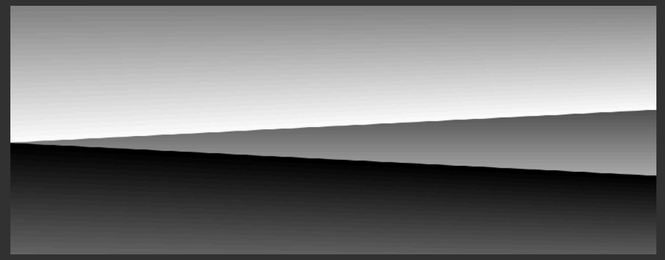
In **KONTRAST** we take a birds-eye-view on wavetables. Peaks are white, valleys are black.

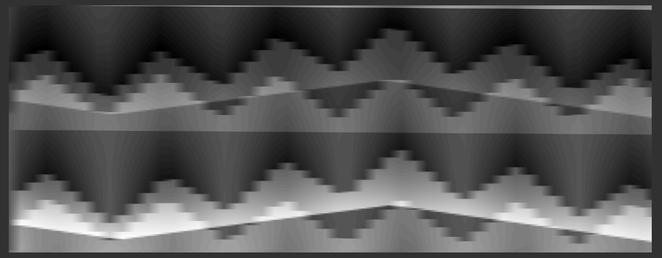
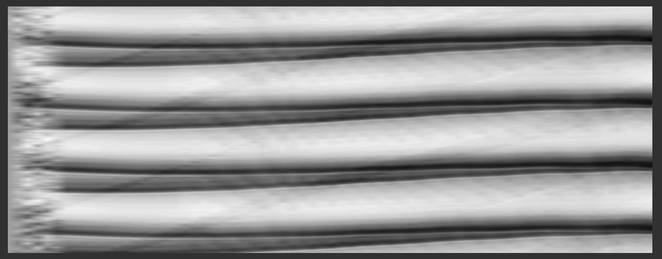
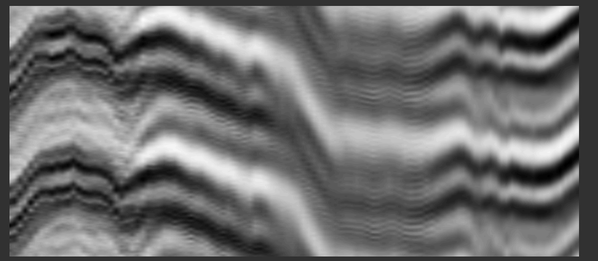
From top left to bottom right you see the same wavetable, with a yellow slice moving back and forth.

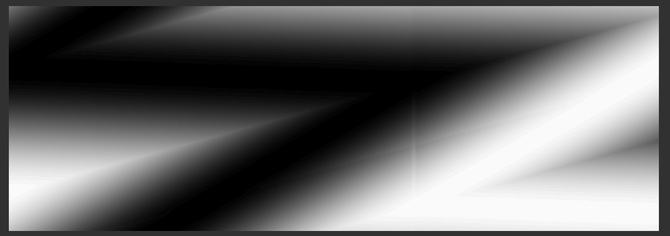


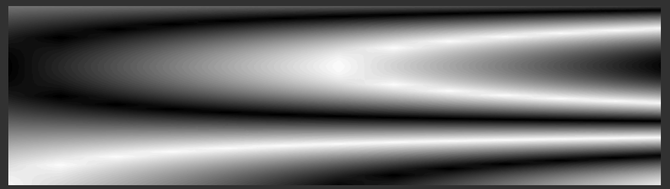
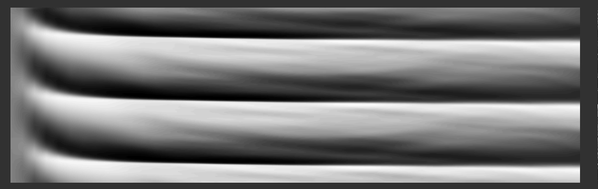
WAVETABLES IN KONTRAST





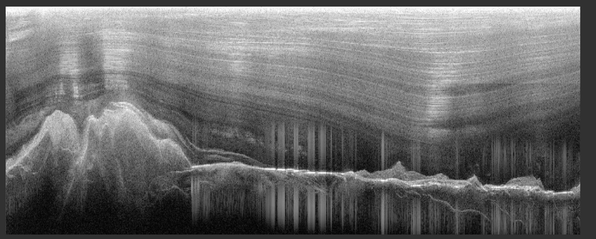




TIP

If you are like me you have LOTS of samples on your drive. Drag and drop them and you will see (and hear) your sounds with new eyes!

After a few minutes you will develop a new understanding of what audio looks like and the details you could always hear but never see.

Once you understand how audio looks like, take it to the next level: take your phone and hunt for photos that make good wavetables: bathtubs, structures, radiators ... there is not limit!



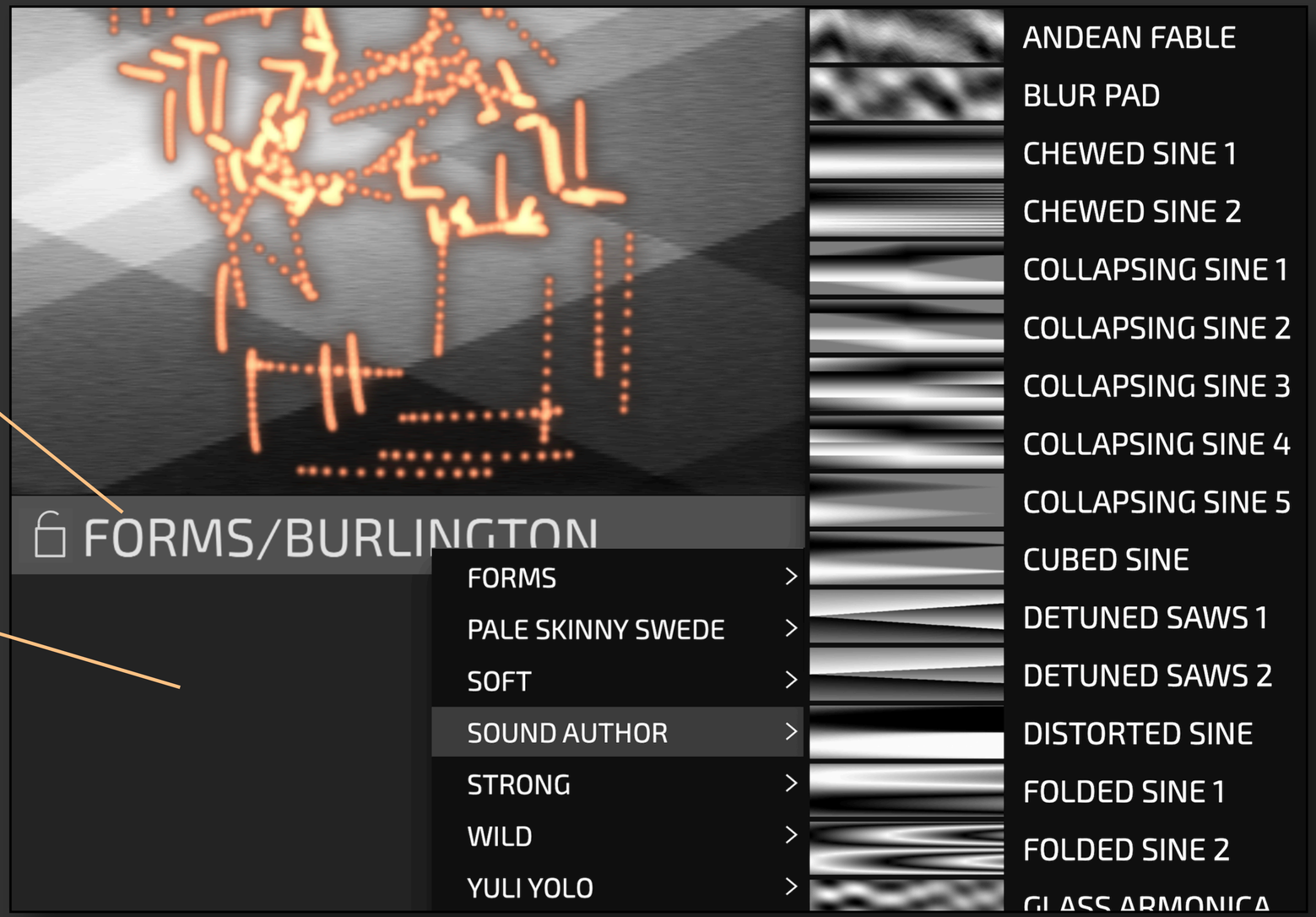

WAVETABLES IN KONTRAST

Click the name to choose a wavetable.

TIP

You can "lock" the wavetable: Now when you change a preset, everything is changed except the wavetable.

This is the fastest workflow to derive new sounds from your wavetable.



WAVETABLES IN KONTRAST

Reload the wavetable.

TIP

With "A" active, KONTRAST will automatically reload whenever the file is modified.

For example, you can edit an image in your favourite photo-editor - and whenever you save, it's updated in KONTRAST!

Pick a random wavetable.

Guess what? The name of the wavetable.

Blur the wavetable. This smooths out sudden changes.

Change the contrast of the wavetable. Adds overtones.

TIP

You can drag and drop wavetables. Normal .wav files will be converted to a wavetable.

You can also drag and drop images.

NOTE: single cycle waveforms do make much sense in Kontrast.

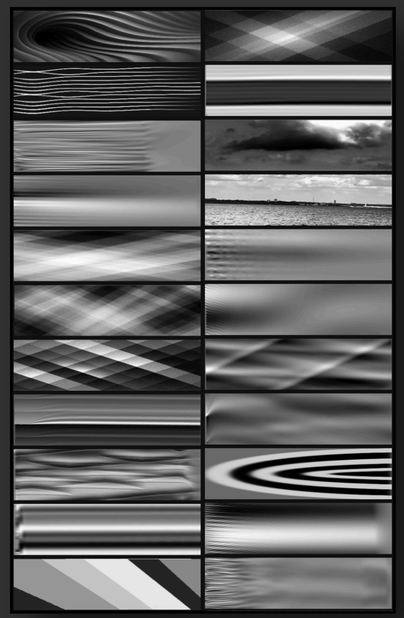
IMAGES AS WAVETABLES

You can drag and drop images (jpg, png) - these will be converted to grayscale and then converted to a wavetable.

Instead of creating wavetables by tediously editing slice by slice you just take a photo with your phone.

Don't expect a photo of a violin to sound like a violin, or a photo of your last vacation to sound like the endless sea.

We got the best results from simple geometries, all sort of textures, light reflections etc.



TIP

No need to resize images in an editor - KONTRAST will do it for you.

However, when you create images yourself: use 2048 as height and 1024 or more for width to get the best acoustic results.

If you want to keep the visual aspect ratio go for 11:3
(for example 7500 x 2048)

TIP

You can drag out the current wavetable from here. In this way you can also reuse your image based wavetables in other synths.

Want to hang your sound as wall-art? Use "right-click and drag" to export as an image!

SCANLINE

Classic wavetable synths "slice" the audio into straight lines of audio. That is quite limiting: While there is only one straight line, there are millions of organic ones.

KONTRAST is made to set you free from these limits.

TIP

We spent a lot of time making sure you don’t have to think about how it works.

Click INIT. Play with each slider. See how the sliders alter the scanline and the sound.

Then start combining multiple parameters: the engine models an analog, nonlinear circuit - it creates complex and interesting interactions: a living beast.

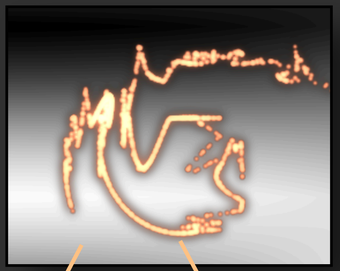
Position and Size

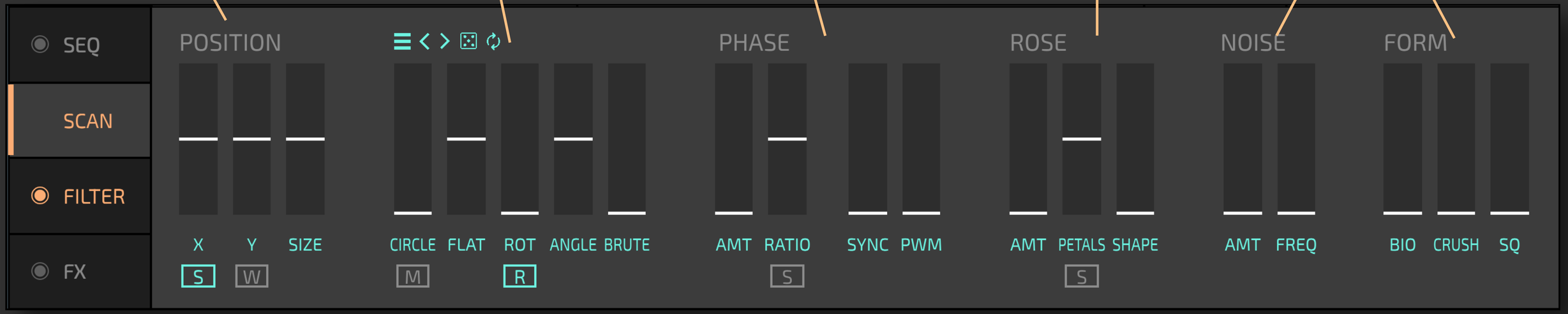
Circular

Spirals

Flower shapes

Irregular shapes





SCANLINE

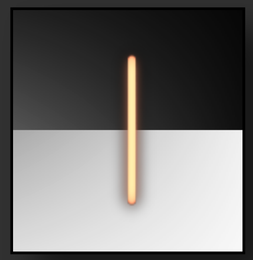
Click INIT.
The scanline is a straight vertical line - slicing your audio.

Move the X-slider and the scanline changes position. Move the X-slider to the right, the sound becomes a square wave. On the left end, you will hear a sine wave.

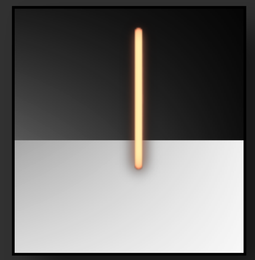
Sine wave on the left end.

Square wave on the right end.

With the scanline on the right end, reduce the size - the scanline becomes shorter. If you now move the Y slider, you will hear a pulse-width-modulation effect:



Equal distribution of white and black.



80% black, 20% white.

Resulting waveforms

TIP

Move the X-slider to the left end. Experiment with how the movement effects sound with a sine wave.

What happens when you make the size much bigger?

What happens when you activate the W - and change the size?

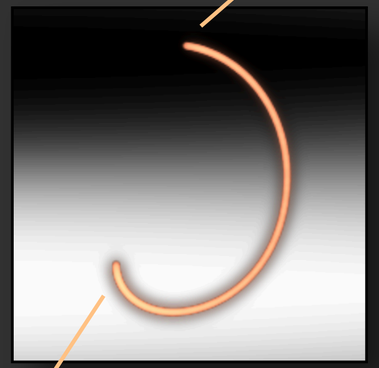
What does the tooltip say is the function of W?

SCANLINE

Click INIT.

Move the CIRCLE slider. Notice how the sound changes.

A half open circle has a sharper sound. We have introduced a jump from black to white into the waveform.



Black on one end.

White on the other end.

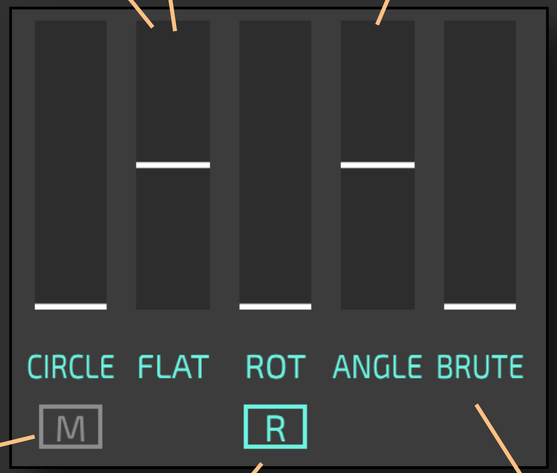
TIP

The jump in the waveform depends on the underlying colour of the two ends: move the shape around. What happens if both ends are in a white spot?

This is where the power comes from: your scanline interacts with the "landscape" created by the wavetable.

You can "flatten" the shape horizontally or vertically.

You can rotate the shape by a fixed amount.



TIP

Use ROT to rotate the shape - slow settings create evolving, organic sounds.

This is the secret sauce to effortlessly make organic sounds.

Now activate M - which stands for masking. It does some dsp trickery to hide the jump - this makes the sound smoother, but can also add a touch of inharmonics.

When R is active, the rotation is reset for every note-on.

TIP

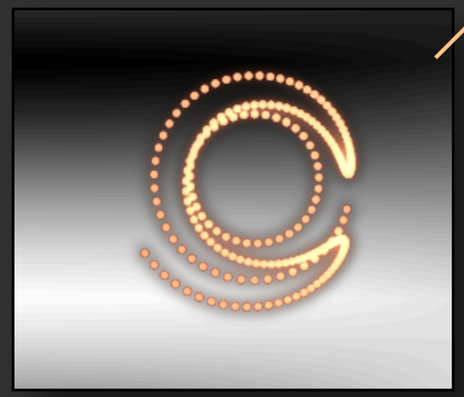
Brute adds random jitter to the angle of the shape - adding a dark, brutish growl.

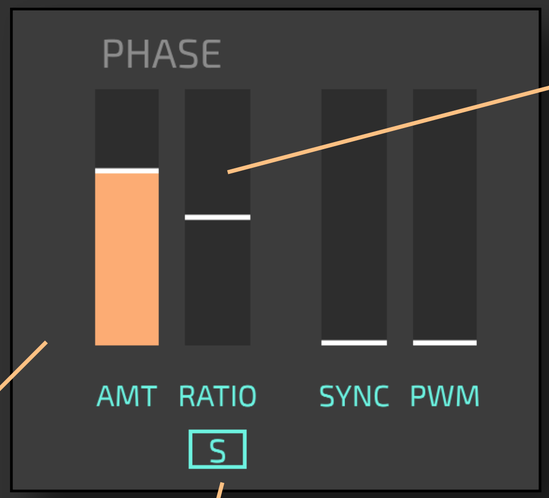
SCANLINE

Click INIT.

To best see and understand the parameters in the PHASE section set CIRCLE to about 50%.

Now move the AMT up. Notice how the shape builds spirals that lead to FM like tones. Happy greetings to the DX7!





TIP

When S is active, the RATIO will snap to rational numbers with small denominator - leading to stable shapes. Use this when you want to explore shapes.

When S is inactive, the RATIO can also have irrational numbers - these lead to unstable shapes. Use this when you look for tasty inharmonic or weird sounds.

TIP

Now move the RATIO slowly out of the centre position: there is an entire zoo of vivid, organic shapes, each with its own character interacting with the underlying wavetable!

Some of the cute creatures from the zoo!

SCANLINE

We are not done with the PHASE section - there is more to explore!

TIP

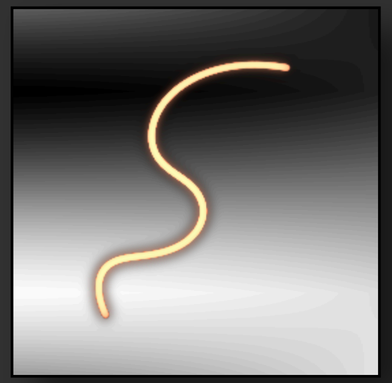
Of course, you don't need to master everything at once.

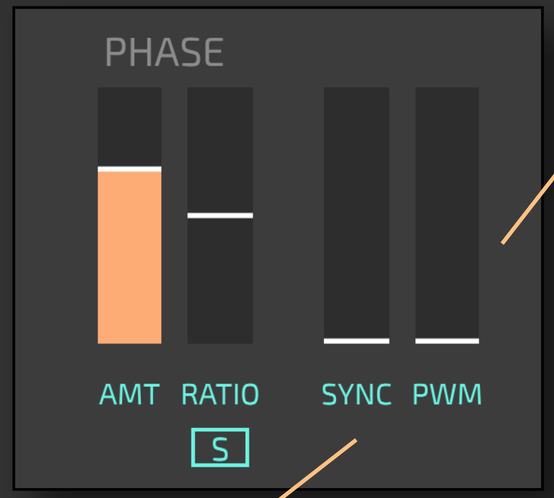
All these options are a lot to digest. How do you eat an elephant?

One bite at a time.

Click INIT.

To best understand SYNC and PWM, start with a simple shape, for example AMT at roughly 50% and RATIO with a small value.





PWM - Pulse Width Modulation is another popular feature from analog synths.

Here it nicely interacts with SYNC (and all the other sliders).

Have you always wanted to know how PWM would sound if you were to combine it with FM on a wavetable, but never dared to ask? The time has come.

Many analog synths offer a feature called *hard sync*.

The engine in **KONTRAST** that creates all the shapes emulates an analog circuit, and so it can also offer a generalization of this with the SYNC slider.

It is far more complicated to explain than to understand. Just move it around. Enjoy the shapes and sounds it makes!

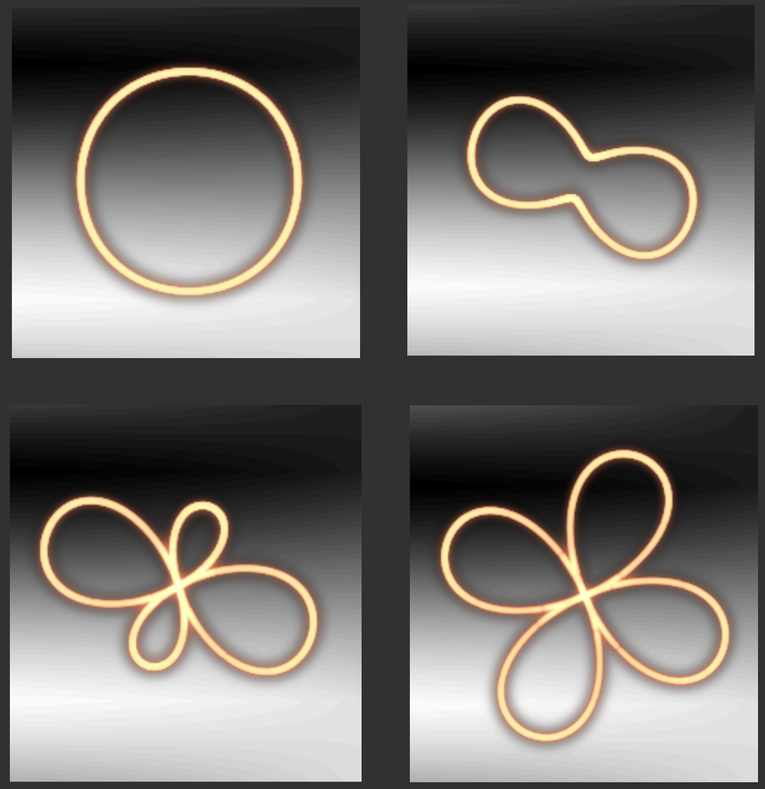
TIP

Add a slight touch of ROT - this will rotate your shape and make your sound organic and evolving.

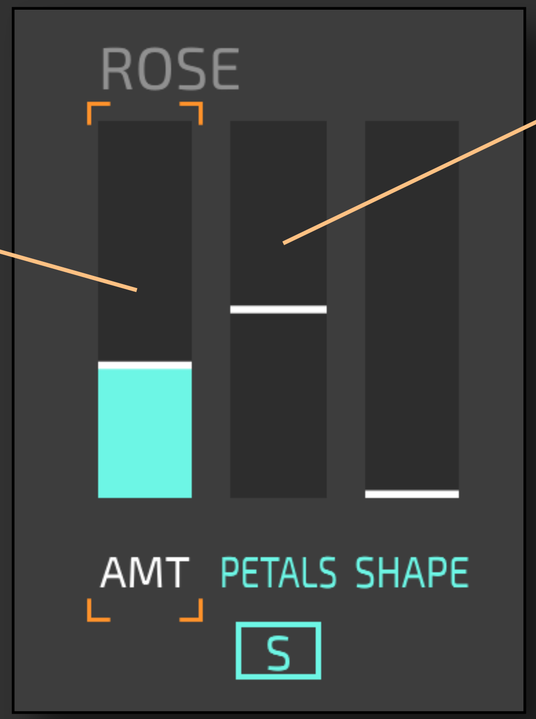
SCANLINE

Now let's explore the beautiful ROSE curve.

Click INIT. Move CIRCLE all the way up to start. Then gradually move the AMT in the ROSE section.

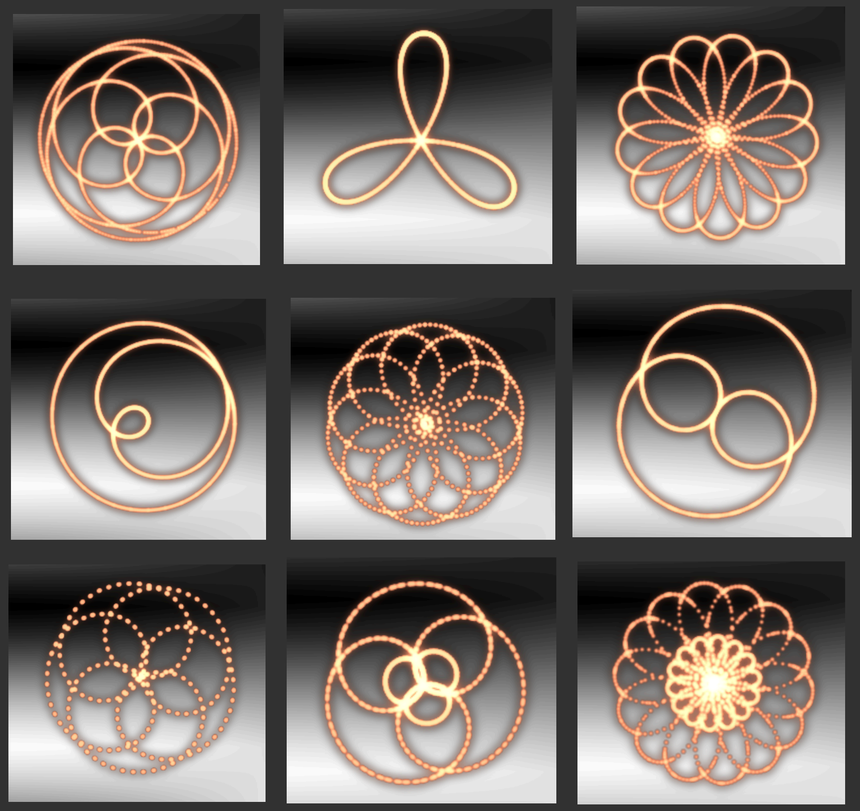


Increasing AMT makes the petals more pronounced.



The RATIO slider in the PHASE section gave us a zoo of interesting creatures. In a similar way, the PETALS slider in the ROSE section gives us a whole botanic garden of blossoms.

Many of these have a lush and pleasing inharmonic timbre, but of course this also depends on the wavetable.



TIP

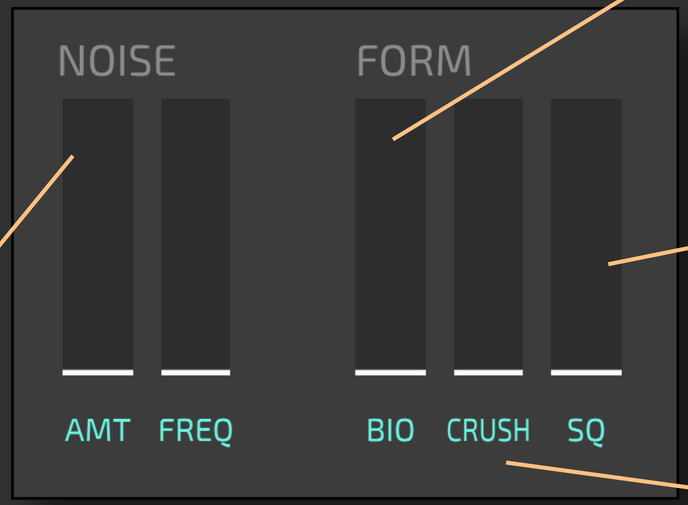
First make a shape, then combine it with other sliders to add movement or alter the timbre.

And of course: all these sliders can be modulated or controlled by MIDI / MPE / macros.

SCANLINE

The final section adds irregularities to the shape.

Again start exploring by clicking INIT and then shaping a circle.



NOISE needs both AMT and FREQ:

AMT determines how deep the irregularities are.
With high values these fold over to the other side of the shape.

FREQ determines how dense the irregularities are.

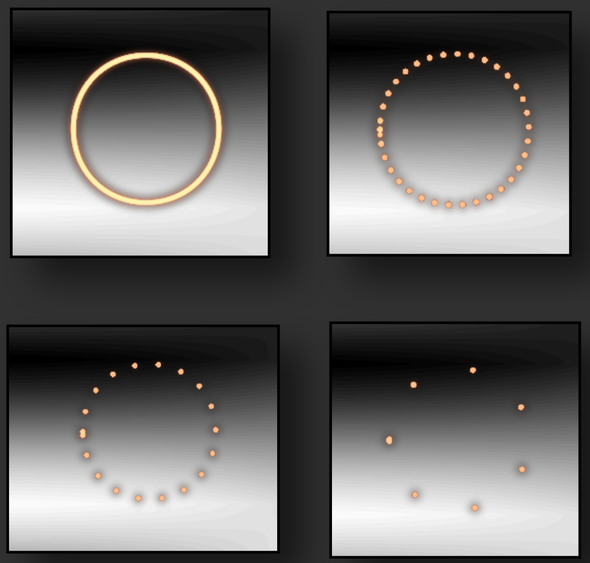
TIP

BIO adds organic irregularities. These evolve nicely when you ROT the shape. Looks and sounds mesmerizing!

TIP

SQ forces the shape into a square. This works nicely together with ROT, as it will creates sudden changes of the shape

CRUSH reduces the shape from continuous to fewer points. See it here applied to a circular shape.



Activate the "G" button below CRUSH to try it out. G stands for "Grid" and you will see why.

ANTI / ALIASING

Aliasing is one of those things that only happen in the digital world. In analog synths you don’t get it – oscillators and filters just behave continuously.

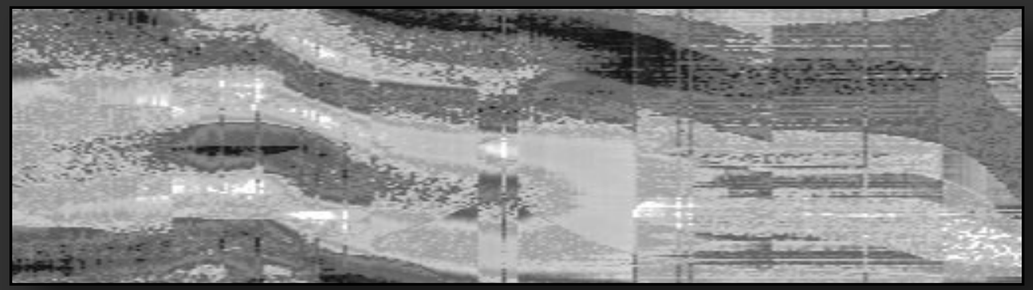
But in digital synthesis, sharp edges or very high harmonics can “fold back” into the audible range, creating extra tones that weren’t in the original.

Some people hate it.
Some people celebrate it.

In fact, in genres like early jungle, chip music, Glitch, Cyberpunk, or lo-fi the aliasing isn’t a bug – it’s the vibe!

KONTRAST gives you both worlds:
the engine uses several tricks under the hood to keep aliasing at bay, but it never assumes what *you* want. ***You*** decide whether to keep things clean, or to embrace the digital grit.

Example 1 - Digital jagged edges

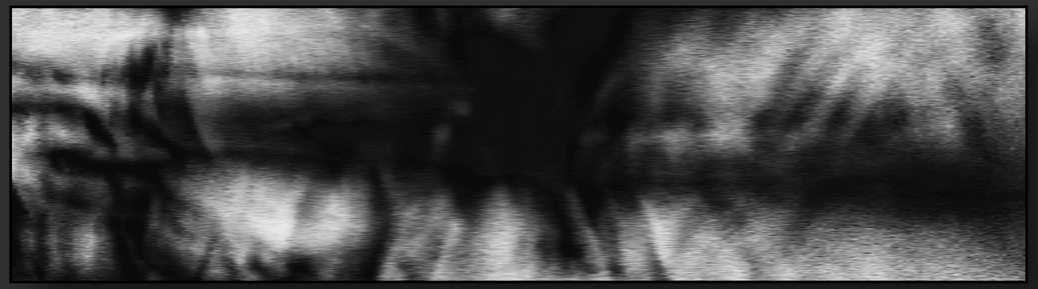


Pick a wavetable with super-sharp, jagged edges – it already looks “digital.” Surprise: it will also sound digital, because aliasing kicks in.

- **Don’t want that?** Turn up the BLUR knob to smooth it out.
- **Want it smoother in the higher octaves only?** Use Keytrack as a modulation source for BLUR – lower notes stay edgy, high notes get cleaned.
- Want more of that digital bite? Crank the CONTRAST knob and the aliasing will get even stronger. Then choose DIGITAL as VIBE mode and activate 8BIT.

ANTI / ALIASING

Example 2 - Noisy Wavetables



Some wavetables already contain noise. That noise will alias too, which can be messy. But:

- Dial in BLUR to wash it away – suddenly you've sculpted a cleaner oscillator.
- Or keep the noise and treat it like an extra noise source. That's basically a hidden noise oscillator, ready for sound design tricks.

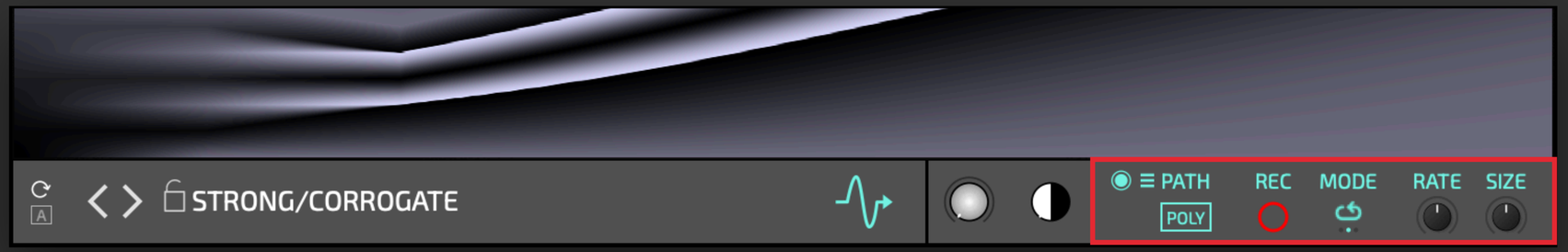
Example 3 - Aliasing as Exciter

Aliasing also creates noise-like components. That's gold if you use it to excite KONTRAST's MODAL from the filter section.

- Because aliasing mirrors frequencies, it produces inharmonic content – perfect for feeding into modal resonances.
- Combine with the INHARM control in the filter section, and you've got a playground of strange, metallic, or acoustic-ish textures.

PATH

Sure, you can assign LFOs to move the shape, but the faster way is to record a PATH with the mouse.



Save or load PATH presets.

Choose between PATH playback modes: One-shot, Loop, or Ping Pong.

Control the rate at which the PATH is traversed.
Centre position: same speed as the recording.
Full left is 4 times slower, and full right is 4 times faster.

Toggle PATH playback on or off.

Make the PATH larger or smaller. At full left, the path is 4x smaller, and at full right it is 4x bigger than the original size.

With POLY on, each note will travel the PATH independently.
With POLY off, all voices will travel the PATH together.

To record a PATH:

1. P**lay a note** so the shape is visible during recording.

2. **Click the red circle**. It will blink, but nothing will yet be recorded.

3. **Press and hold** the mouse button to start the recording and drag the shape around.

4. **Release the mouse button** to stop the recording.

TIP

When a path is playing, use X and Y to move the entire path.

OSC

Transpose

Transposition by semitones, octaves or fine-tune in cents.

This applies to both osc's.

Unison

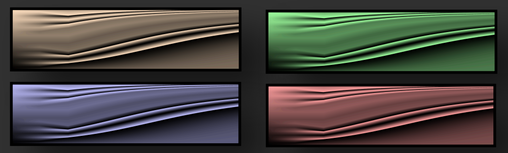
Set how much the tuning / panning is spread between UNISON voices.

Set the amount of UNISON voices for the scanline osc.

Vibe

There are different sound characteristics for the sound engine. You can set the intensity.

Each vibe mode has an associated colour of the wavetable.



TIP

Try FAT and BITE - they do what their names say!

Activate this to start each note on the same phase.

Secondary oscillator

Mix between the main OSC and OSC 2.

OSC 2 offers classical analog waveforms with a modifier PM that alters the waveform.

Switch the secondary OSC on/off.

Tuning offset for OSC2 vs the main OSC.

The gain for the entire voice.

SCALE - PITCH SNAPPING

Choose a pre-defined scale via the menu, or save your own.

FACTORY:

- BLUES
- BYZANTINE
- CHROMATIC
- DORIAN
- FLAMENCO
- FLOHWALZER
- FREYGISH
- HALF DIM
- HIRAJOSHI
- INSEN
- ISTRIAN
- IWATO
- LOCRIAN
- LYDIAN
- MAJOR
- MINOR
- MIXOLYDIAN
- PHRYGIAN
- PROMETHEUS
- SLENDRO
- TENSION
- TRITONE
- WHOLETONE

Choose the previous or next scale, or pick a random scale, or reset to all-notes-on.

Define a scale by clicking the discs to set which pitch-classes belong to the scale.

Notes played that do not belong to the scale snap to the nearest neighbour.

SEQUENCER

TIP

Independent step lengths per lane enable polymetric sequences.

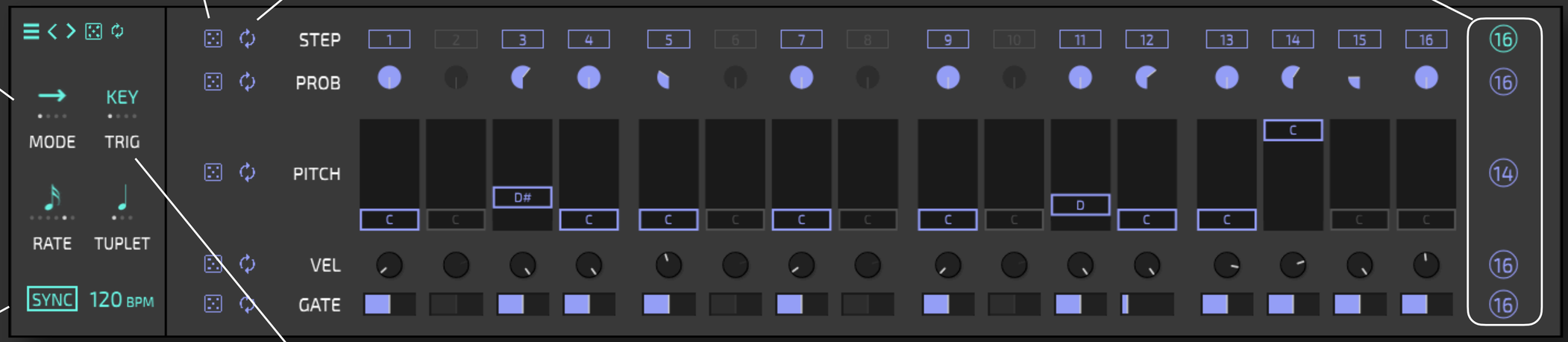
Step modes:

- → foreward
- ← backward
- ⇄ ”ping-pong"
- ⤮ random

Randomise parameters, hold longer for more change.
When holding shift-key or using right-click, the randomisation is more subtle or drastic.

Reset parameters to default values

Limit number of steps for the entire sequencer or single lanes



SYNC will synchronize the sequencer with your DAW’s tempo. Or choose your own tempo by dragging the BPM.

Retrigger mode controls on which condition the sequence starts/restarts:

KEY - on any keypress
LEGATO - on keypress, unless a note is already held
DAW - on playback start
HOLD advance one step on each keypress

TIP

Draw a pitch lane by dragging the mouse with left-button down.
You can move the entire lane with shift+drag

FILTER

Randomise FILTER preset.

Load next or previous FILTER preset.

Reset FILTER preset.

Open menu to save or load FILTER preset.

DRIVE

Add a bit of drive before filtering.

HPF

This is the cutoff control of the notch or HPF.

Select between various distortion modes

Select between HPF or NOTCH filter.

Control the resonance of either filter independently.

Control the cutoff frequency of the left or right filter. Click the link icon to link both knobs.

Toggle filter wiring to be in series or parallel.

Track filter frequency with note frequency.

Choose the mode of the first filter.

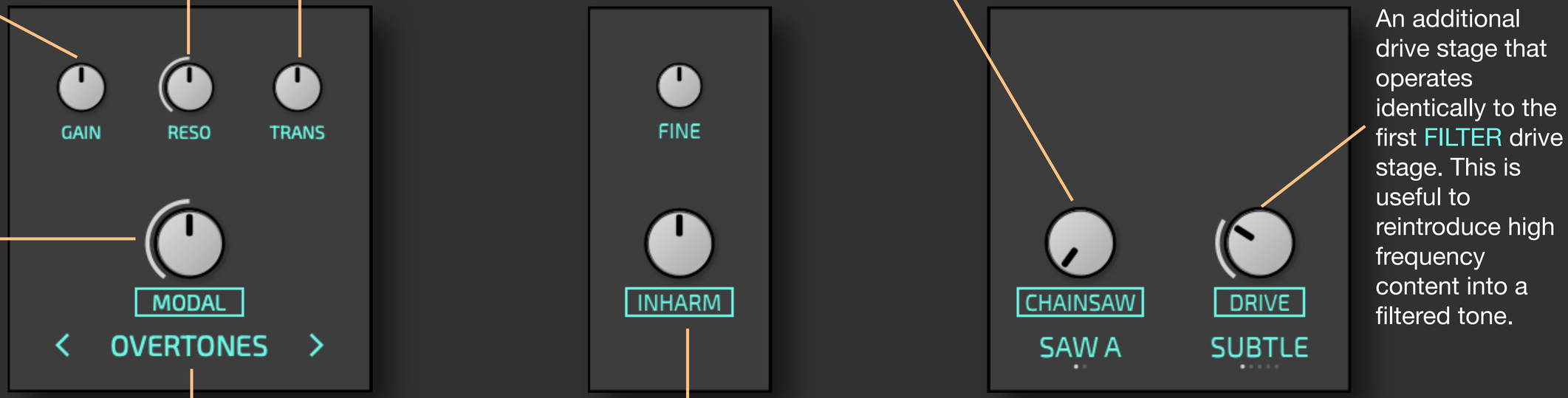
FILTER

Increase or decrease resonance.

Increase or decrease input GAIN. Centre position is neutral.

Transpose the resonance in semitones.

What do you get when you cross FM synthesis with physically modeled gravitational systems? Turn this knob to find out.



An additional drive stage that operates identically to the first FILTER drive stage. This is useful to reintroduce high frequency content into a filtered tone.

Dry/Wet control of MODAL.

Select from factory resonators.

INHARM shifts the harmonics of a signal. This can result in subtle moving tones when applied in moderation, and otherworldly timbres when applied liberally.

Custom Resonators

Drop an audio file onto MODAL. Qualities of the sound source will be imprinted onto each note. Ideal sound sources are quite short, spectrally rich, and spatially interesting.

TIP

All stages of FILTER may be toggled on or off. If you are not using a FILTER stage, turn it off to reduce CPU usage!

FX - SHIMMER

Choose the SIZE of the SHIMMER effect. Higher values lead to longer decay times.

The internal feedback loop of the SHIMMER effect contains a pitch shifter. Pick values like +5.0 or +12.0 for classic Brian Eno shimmer effect. Use uneven values for discordant timbres suitable for cinematic horror.

Increasing DRUNK causes the pitch to stumble around. This effect feeds back onto itself, creating a dense cacophony like that of an angry swarm.

The internal feedback loop of the SHIMMER effect has analog-modeled LPFs. Increasing DARK engages these filters, tapering off high frequency components.

FX - CLOUDS / REVERB

The spaciness or sparsity of the CLOUDS

Control the size of the reverberant space. High values lead to long reverb tails.

Choose the prominence of early reflections.

Variable LUSHiness.

Control how wide (stereo width) the reverberation is.

The higher DAMP is, the more high frequency content is attenuated on each reflection. Low values resemble very reflective surfaces, such as concrete. High values behave like absorptive surfaces, like heavy curtains.

Control the size of the reverberant space. High values lead to long reverb tails.

FX - GRAINS & LOOPHOLE

TIP

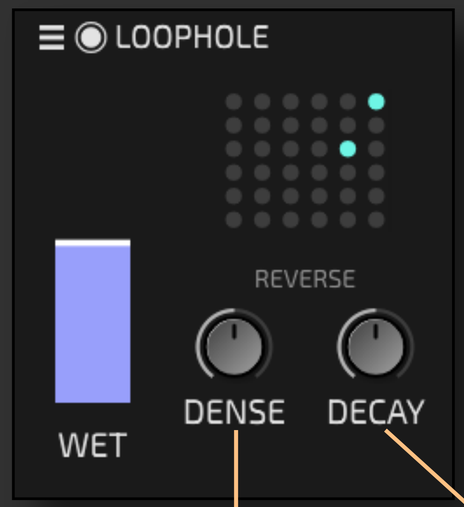
With high DENSE and DECAY in LOOPHOLE, you create organic “freezes”.

Each grain gets its own tuning. TUNE controls how much the tuning is offset.

GLITT sets the probability that a grain is pitched an octave up (knob turned to the right) or down an octave (knob turned to the left). In centre position, all grains are played in the original octave.

JIT adds randomness to the grain emissions. At full left, the grains will be emitted periodically, with equal intervals. High values are much less periodic.

CALM controls grain duration, from very short (knob full left) to very long (knob full right).



With low DENSE, you get stuttering echoes.

DECAY on full will loop forever - new audio material will slowly be mixed in.

FX - DELAY & DUAL DELAY

SYNC will synchronize the delay module with your DAW tempo.

The TIME parameter sets the duration between the original signal and the first echo.

Ping Pong mode. Echoes will bounce between left and right channels.

Ping Pong SYMetry mode. In this mode, each left PING will be exactly the loudness of the proceeding PONG.

Control the attenuation of high frequencies.

Control the attenuation of low frequencies.

Link left and right feedback knobs

SPILL signal from the left feedback loop to the right, and vice versa.

Turn left to attenuate high frequencies. Turn right to attenuate low frequencies.

FX - J-60 & CHORUS

The JUNO 60 is an iconic vintage synth from Roland. It contained a special chorus effect which became its signature sound. The J-60 module is a virtual analogue model inspired by this chorus

Control the speed of pitch variation.

DEPTH controls the amount of pitch variation per element.

THICK sets the number of elements that are used in CHORUS. A higher number of elements leads to a smoother sound.

FX - SWEET & PHASER

SWEET will make most sounds…sweeter.

Used in subtle amounts it can give a very modern and velvety sound.

Go wild for aleatoric detuning.

The RATE of the LFO that modulates the centre frequency.

The centre frequency is modulated by an LFO. Here you can set the DEPTH of this modulation.

The centre frequency of the PHASER

The PHASER is based on feedback. It allows for both positive and negative feedback; the two sound quite different.

TIP

The traditional use of a PHASER is to create slowly moving, evolving sounds. This works best with a slow LFO RATE, and medium levels of FREQ.

FX - DISTORTIONS

How ASYMetrical is the distortion? At neutral position, the distortion is symmetrical. Shifting the knob left or right provides ASYMetrical distortion characteristics

Adding a lot of DRIVE can drastically increase its volume. ATTenuation can be added to reduce this signal.

Choose SATURATion mode.

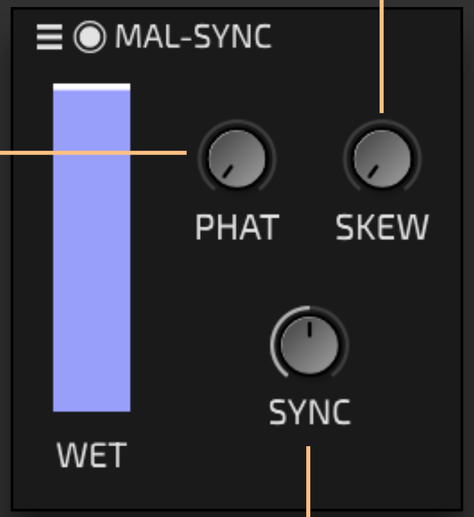
Both DARK and BRIGHT noise are named after the characteristics they provide.

PERLIN noise is named after Ken Perlin, who developed this noise originally for computer graphics. Add this to your chain to see what it does to audio.

FX - DISTORTIONS

SKEW bends overtones emphasizing additional partials.

PHAT emphasizes saw-like harmonics for a buzzing quality.



MAL-SYNC employs hard-sync from analog synths as an audio effect. SYNC adds overtones that you would hear from a hard synced oscillator.

RATIO behaves similarly to the way it behaves in FM synthesis.

FLUX adds inharmonics to a signal.

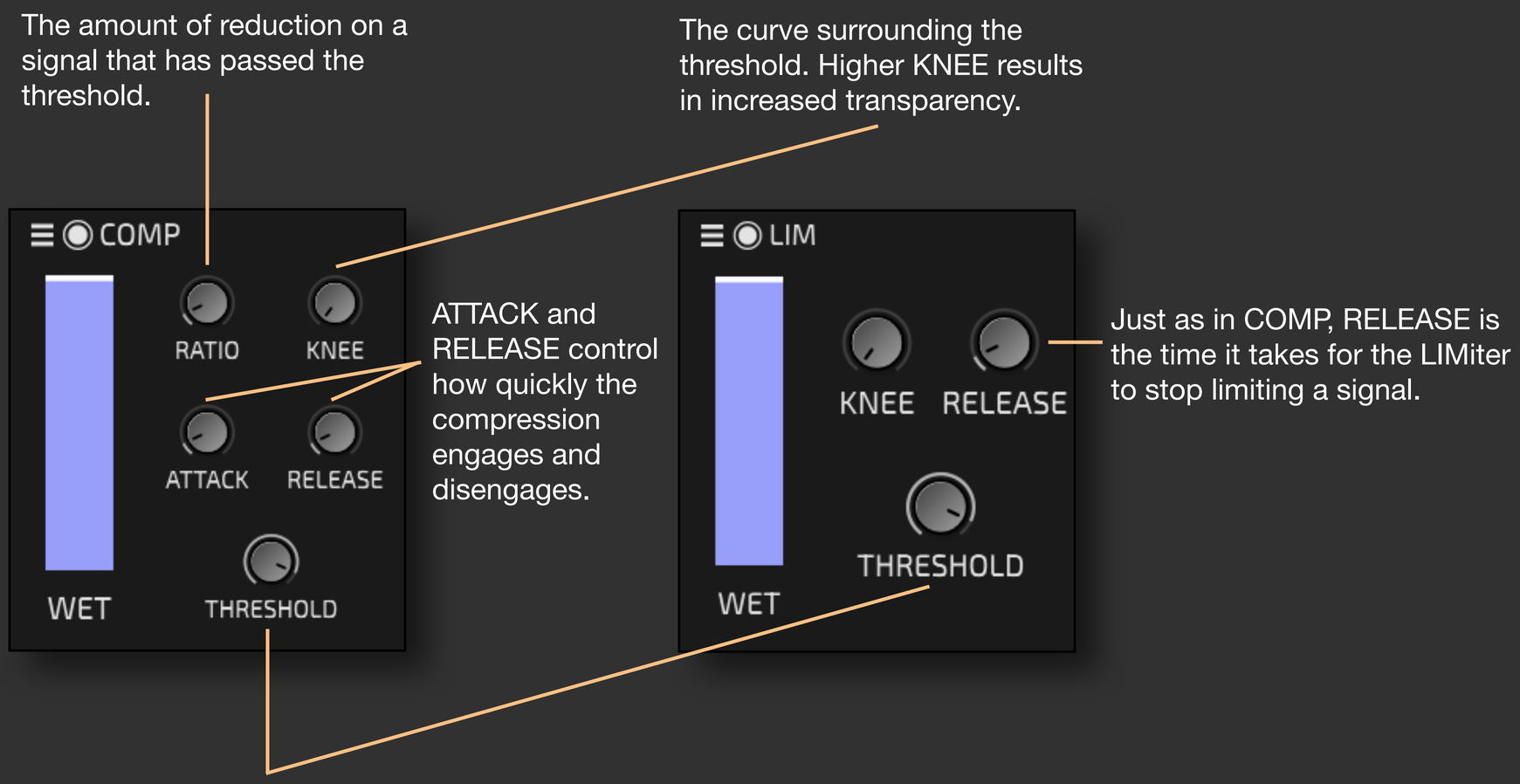
The ORBIT effect is most pronounced when CHAR is in centre position. Turning CHAR either left or right lessen's the ORBIT effect in different ways.

Each of the configurations behaves differently and sound unique.

TIP

Give these two a try. I mean: really, give them a try, you won't regret it. Start by applying them on something soft.

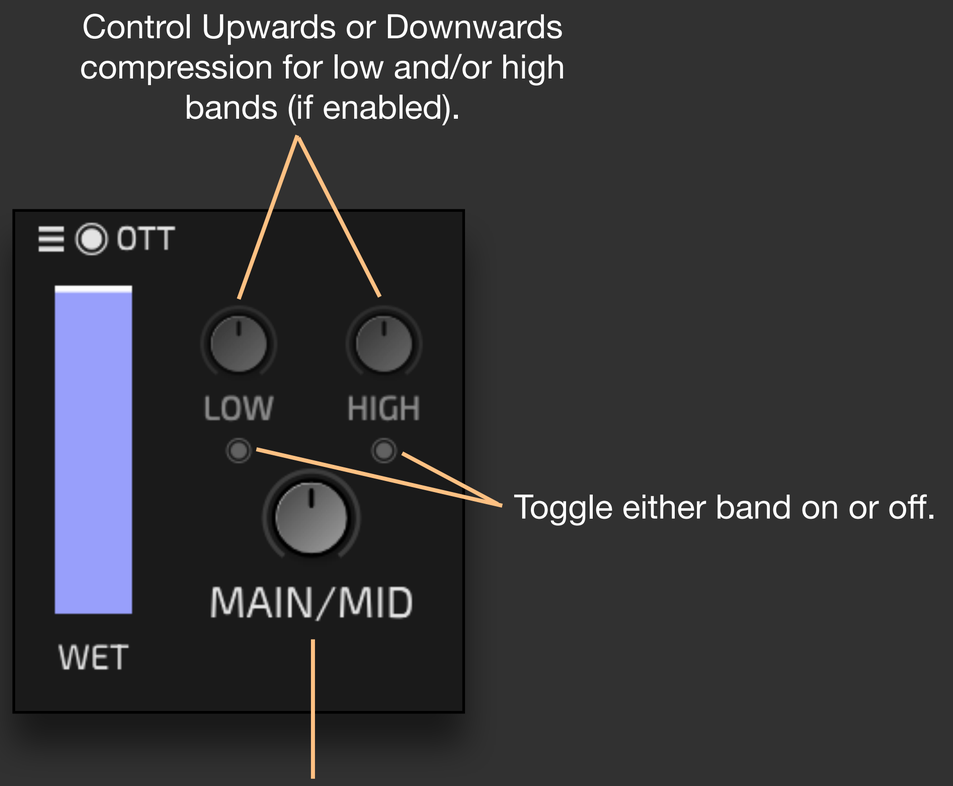
FX - COMP & LIM


The amount of reduction on a signal that has passed the threshold.
The curve surrounding the threshold. Higher KNEE results in increased transparency.
COMP
RATIO
KNEE
ATTACK
RELEASE
WET
THRESHOLD
ATTACK and RELEASE control how quickly the compression engages and disengages.
LIM
KNEE
RELEASE
THRESHOLD
WET
Just as in COMP, RELEASE is the time it takes for the LIMiter to stop limiting a signal.
Each configurations behaves differently and sound unique.

FX - OTT

OTT stands for “Over-the-Top” compression. It is a multi-band compressor that features both standard (downward) and upward compression.

Upwards compression is downwards compression flipped on its head. In downwards compression, signal *above* a threshold will be *attenuated*. In upwards compression, signal *below* a threshold will be *amplified*.



TIP

Try upward compression on notes with long releases and a nice reverb tails. Add OTT after reverberation in your signal chain, and listen to the tail! It will swell with an increasingly digital, crispy distortion.

CAUTION

CAUTION: this can make your signal levels very loud!

ALWAYS place a brickwall limiter in your DAW after the synth when you explore sounds.

OUT SECTION

A one knob OTT to push your signal.

The OTT is neutral in centre position. Upwards compression to the left, normal compression to the right.

CAUTION

CAUTION: this can make your signal levels very loud!

ALWAYS place a brickwall limiter in your DAW after the synth when you explore sounds.

Per default the polyphony is 12 voices. You can increase it to 24.

CAUTION: more voices do need more CPU.

A one knob compressor.

The final output gain of the synth.

Level meter.

A limiter with analog saturation. This will not only protect your ears, you can also to use this to push your signals into sweet distortion.

SIGNAL FLOW

Per voice:

Σ Sum (up to 24 voices)

FX section with up to 5 modules

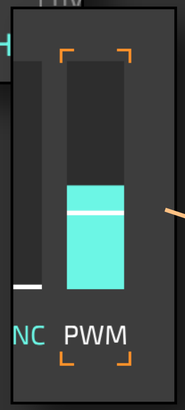
DAW

PARAMETERS AND MODULATIONS

With a few modulations you can turn any boring sound into something that sounds alive and interesting. Almost any parameter in **KONTRAST** can be modulated.

Click and drag a DIAL or SLIDER to change the parameters (unmodulated) value.

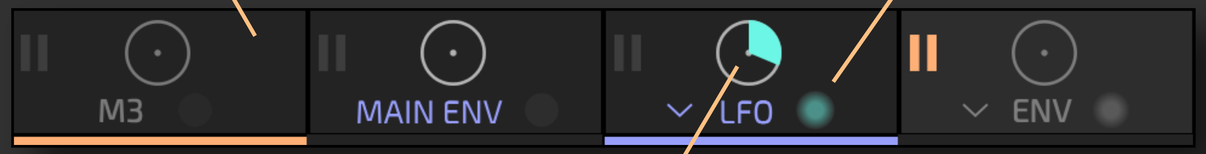
You can drag horizontally or vertically.



When a parameter is modulated the coloured ring or the slider bar indicates the current value.

Each of these sections represents a modulation source.
Their names are coloured if active and gray if inactive.

The diode represents the value of the modulation source.



Modulating a parameter is really simple: click on the parameter to select it. The corners show that this parameter is selected.

Now you can choose the depth of modulation for the selected parameter by dragging the depth dial.

TIP

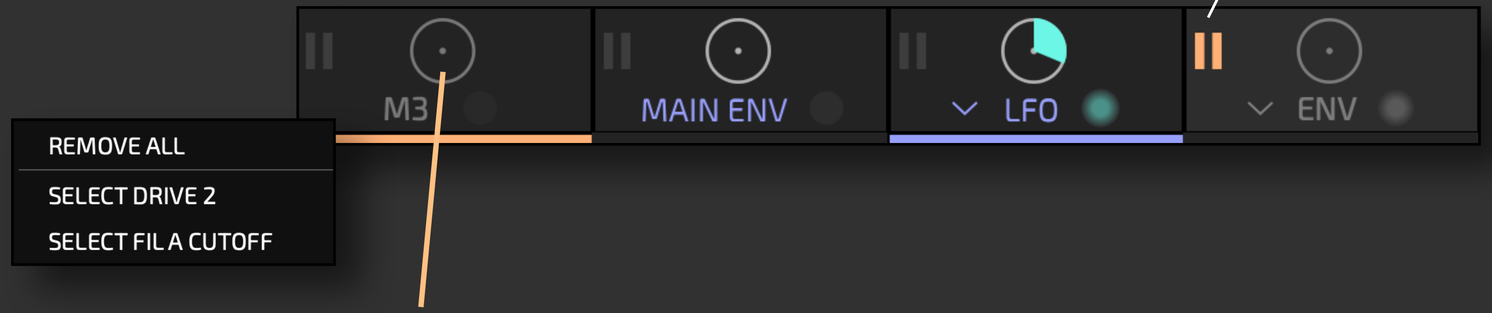
Shift+drag fine-tunes the parameter value.
Double-click resets it to default.

TIP

To remove a modulation, select the parameter and double-click the depth dial of the modulation source.

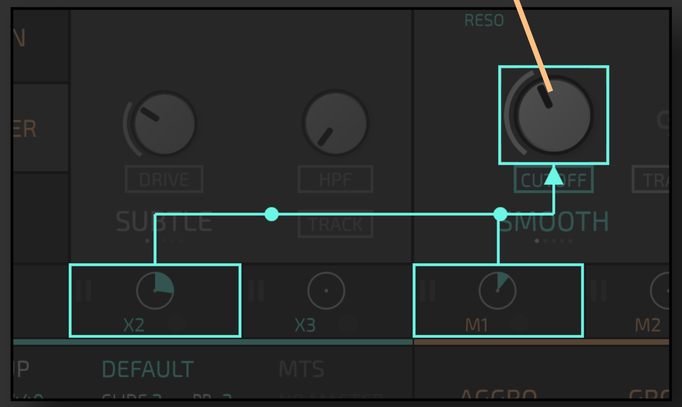
MODULATION

Click on PAUSE to stop the modulation.



Right-click on the depth dial to get a menu with options to remove all modulations or to select one of the modulation targets.

Right-click on a parameter to see all its sources.

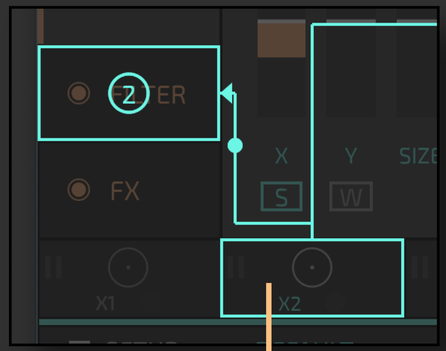


TIP

Any parameter can be modulated by more than one modulation source.

TIP

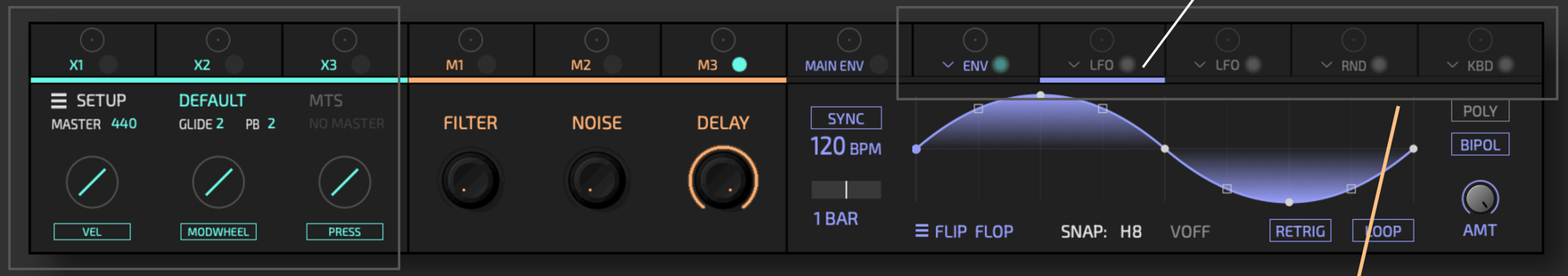
Modulation targets that are invisible on hidden tabs are indicated by numbers on the tabs. Switch to tab, or select target from menu.



Right-click on a modulation source tab to see all its targets.

MODULATION SOURCES

The coloured bar marks the currently visible modulation source.



You can tell **KONTRAST** what kind of expressive MIDI data is sent by your controller.
KONTRAST addresses this via the SETUP.

Macros are dials which function like modulation sources.
Assign them to any number of parameters for further shaping of the sound by hand or with DAW automation.

There are five universal modulation sources. For each source you can choose one of the six different types.

TIP

With a few modulations, you can turn any boring sound into something that sounds alive and interesting. Almost any parameter in **KONTRAST** can be modulated.

You can also modulate the parameters of the modulation source. For example, you can modulate the rate of one LFO with another LFO. This allows you to setup complex, chaotic movements in your sound.

NOTICE

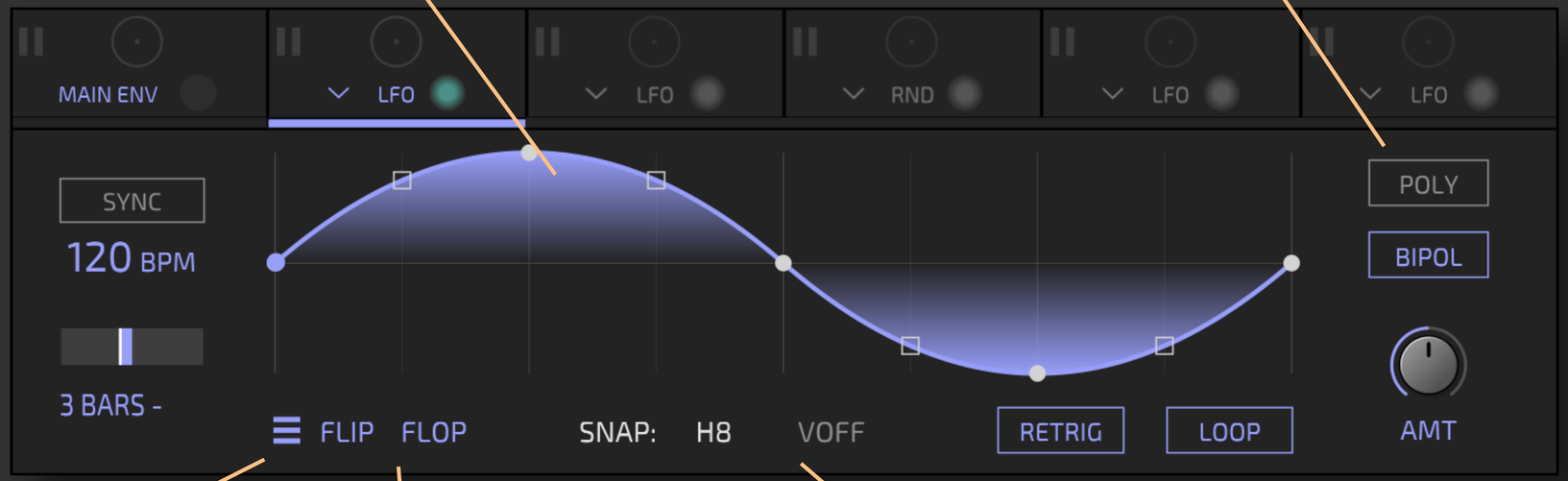
The POLY/BIPOL/SYNC/BPM options function the same way irrespective of the modulation source type.

LFO

Clicking in the waveform area adds points to the LFO shape. Click and drag points to move them, snapping to nearby gridlines (if any). Double-click points to remove them.

Shift+click or double-click creates a plateau between the nearest gridlines.
Hold and drag to raise or lower it.

If POLY is off, a single shared LFO affects all notes.



This menu lets you view, save, and load LFO subpresets.

Click here to flip the curve horizontally (FLIP) or vertically (FLOP).

Click here to choose a different grid for snapping horizontally (H) or vertically (V).

TIP

You can save and restore your own LFO curves as a subpreset via the menu.

NOTICE

With POLY disabled (or in MONO mode) the LFO does not retrigger on every sequencer step - even with RETRIG = ON.

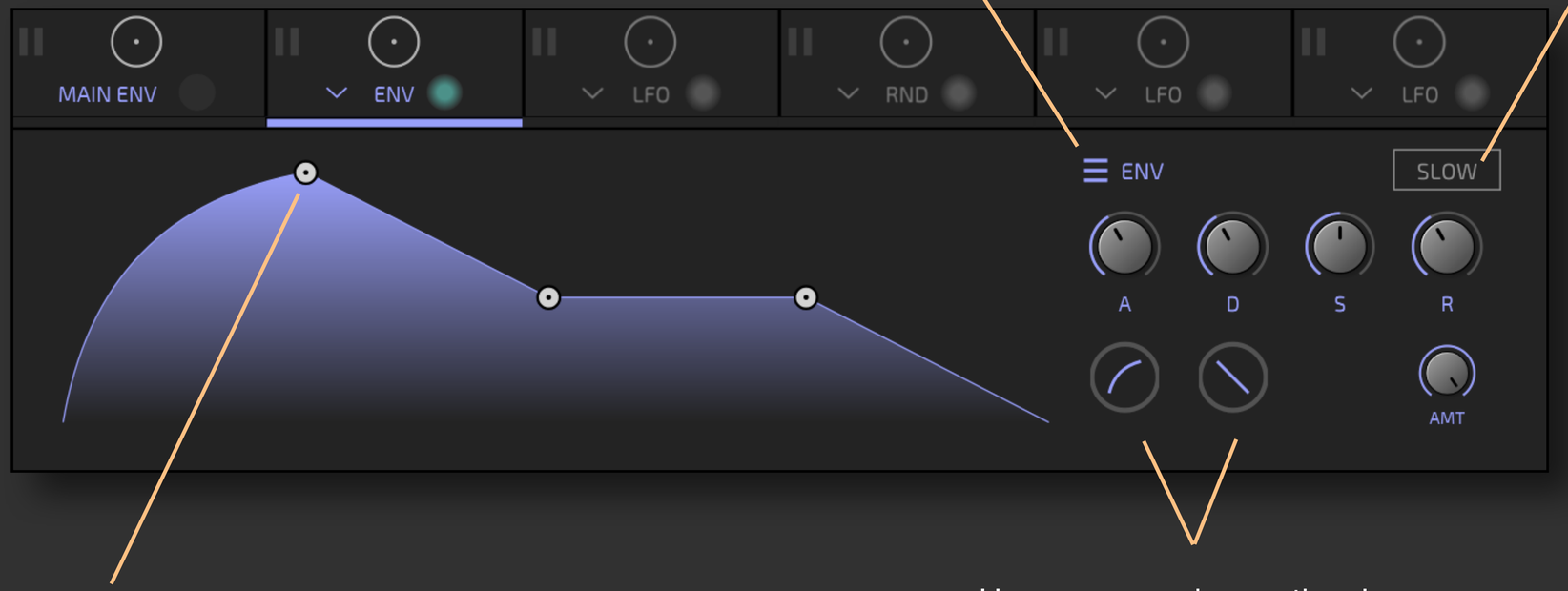
ENV

TIP

You can save and restore your envelopes as subpresets.

This menu lets you view, save, and load ENV subpresets.

Click here to adjusts how fast or slow Attack, Decay and Release phases play out (normal=x1, SLOW=x10).



Edit the envelope by clicking and dragging the points.

Here you can change the slope of the attack and release curves.

FAQ

The Attack can be made logarithmic, the Decay can be made exponential, but not the other way around. Why?

It's an analog-modelled ADSR. In real analog synths, the envelope curves are shaped by charging and discharging capacitors: attack goes naturally from linear towards logarithmic, while decay/release go from linear towards exponential. That's why the ranges are asymmetrical. It's the same in pretty much every analog synth!

RANDOM

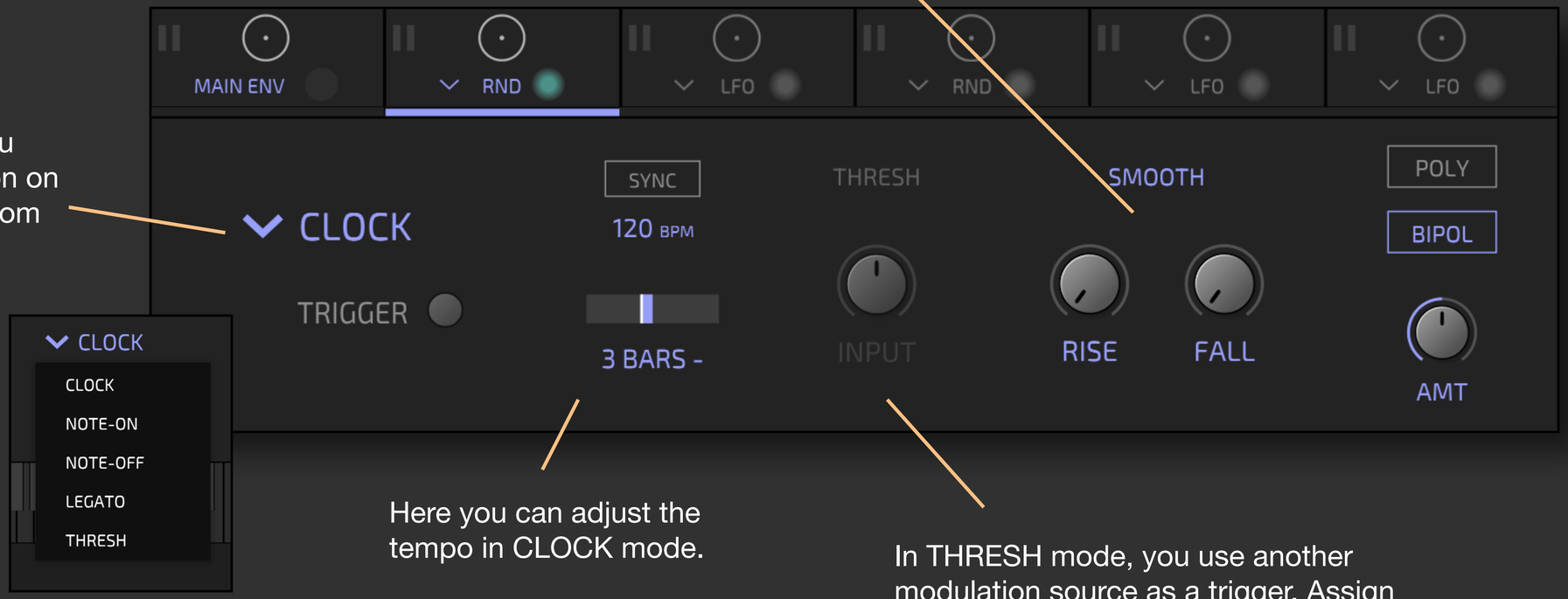
RANDOM generates random modulation values.

NOTICE

The SMOOTH section limits how quickly the signal can change. With both dials at 0, an instant change in input gives an instant change also at the output. With both at 50ms an instant change in input becomes a 50 millisecond ramp at the output. If you want increases to be instant while decreases ramp down slowly, leave RISE at 0 and turn up FALL to taste.

Use RISE and FALL to smooth the transition from one random value to the next.

This menu lets you choose a condition on which a new random value is triggered.



Here you can adjust the tempo in CLOCK mode.

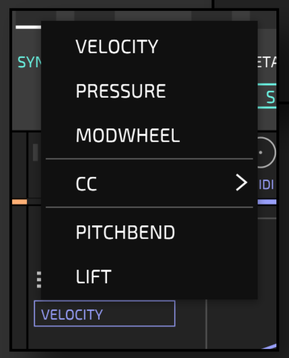
In THRESH mode, you use another modulation source as a trigger. Assign the source to the INPUT dial, and the trigger will occur when the modulated value crosses the dial's midpoint.

NOTE-ON and NOTE-OFF are self-explanatory.
LEGATO triggers at note-ons except if a note is already held.

MIDI

Use RISE and FALL to smooth attack and decay.

Click to choose the MIDI modulation source.



Click and edit curve points to change the mapping of modulation input. Double-click a point for removal.

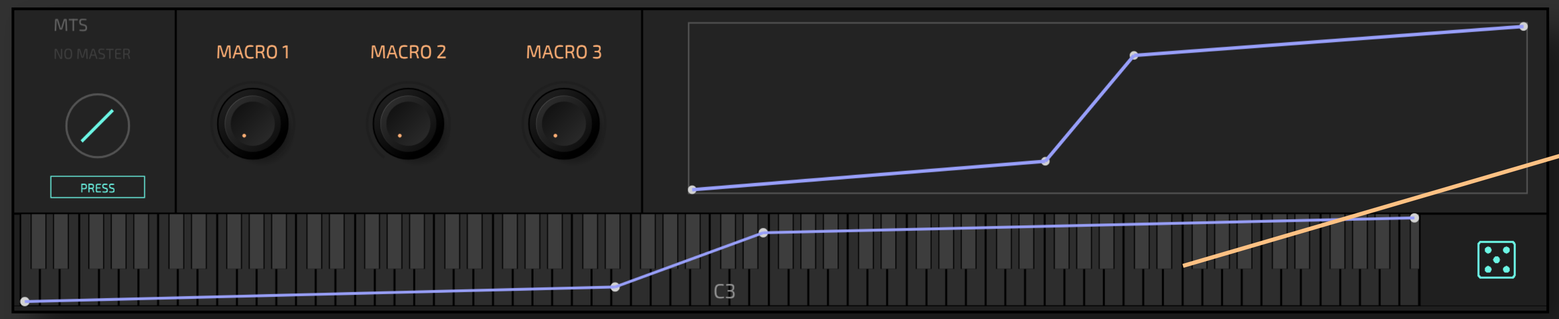
TIP

Find more details about the SMOOTH section under RANDOM.

KEYTRACK

KEYTRACK takes the note input and uses a curve to determine the output signal.

Click and edit curve points to change the mapping of a note.
Double-click a point for removal.



Right-click the widget to display an overlay on the virtual keyboard.

FUN

Sometimes you might not want a target to directly follow the modulation source. That's what the FUN modulator is for.

(FUN is short for "function")

Use RISE and FALL to smooth attack and decay.

Modulate the INPUT dial to feed signal into the FUN

TIP

The INPUT dial sweeps through this curve from left to right. In this example, as the input ramps from low to high, the output quickly ramps to high and then down to low again.

TIP

Like every parameter - you can modulate INPUT by more than one modulation source ... this way you can create a summed signal and process it further.

MONOPHONIC MODE

The MONO MODE can be used for basses and leads that have similar behaviour to monophonic analog synths.

You can drag and drop the last played notes as audio (.wav) from here.

Normally **KONTRAST** is a polyphonic synth. By activating MONO you can make it a monophonic synth with legato function.

With TIME you can control the legato speed.

When GLISS is active you will also have a glissando between two notes if you play legato.

Incoming notes are displayed on the virtual MPE keyboard display.

The size of the outer circle line indicates (polyphonic) PRESSURE or AFTERTOUCH.

The filled circle area indicates the VELOCITY.

TIP

You can play a note and then drag this as audio from here to the wavetable display - to get the sound re-synthesized!

TOP LINE

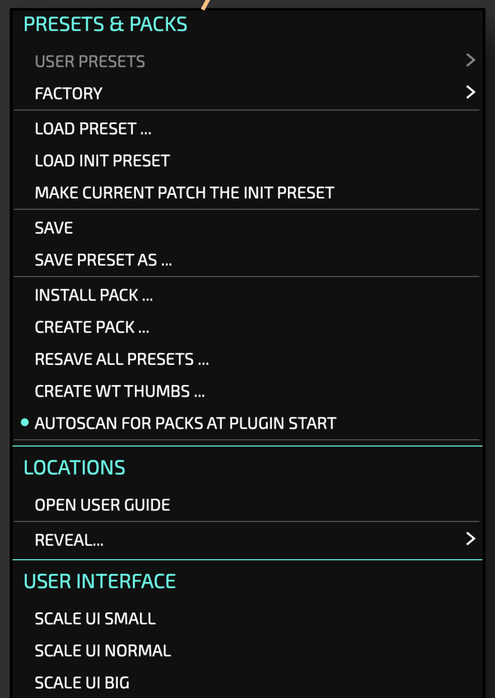
Current version of **KONTRAST**.

UNDO and REDO of last operation.

Click to save the preset.

Turns into red if there are unsaved changes.

Click to go to the DAWESOME website



Click to switch the preset to random, previous or next.

Click to change the author name.

Click to open the PRESET BROWSER.

Click to load the INIT preset.

Right-click to make the current patch the INIT preset.

SAVING PRESETS

Choose a name.

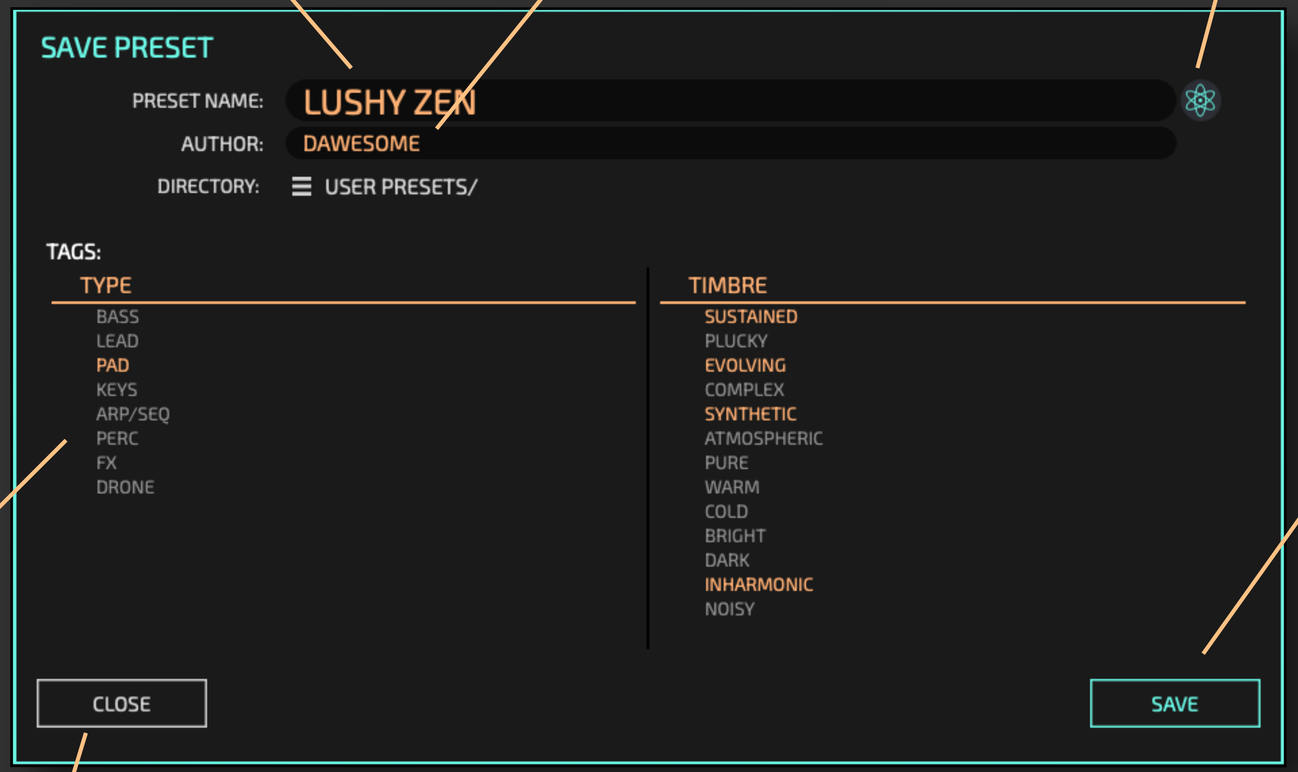
Enter your name as author.

No idea for a name?
Click here.

Or right-click to see 10 randomised name suggestions.

TIP

AUTHOR and TAGS can be used to filter presets in the preset browser.



Choose the tags that best describe your preset.

Click to save preset.

When preset name already exists, you can overwrite the preset or automatically generate a new version, e.g. PUFFY LIVE (2)

Click to close dialog without saving.

SECTIONS

Presets are cool, but not really flexible.

KONTRAST takes it one step further:
The synth is divided into multiple sections - and for each of the sections you can have your own presets.

Wherever you see these elements, you can use subpresets.

Save, reset, and choose a preset via the menu

Navigate to previous or next preset

Randomise and reset the parameters

TIP

Keep the mouse button pressed for more randomisation.

TIP

Shift+click to make the randomisation more subtle.
Right-click to make it more drastic.

SETUP YOUR MIDI

Nowadays there are a variety of MIDI controllers to choose from with different methods for expression, e.g., velocity, mod-wheel, MPE, aftertouch.

For the best results, you need to configure **KONTRAST** for your controller. **KONTRAST** ships with presets for some common options. You can find these in the SETUP menu.

TIP

This information is stored for the plugin, not with the preset. Hence you need to choose your SETUP only once, and when you browse presets, they will always match to your controller.

TIP

There are two different pre-defined setups for the OSMOSE. The first one has X2 = PRESS and X3 = SLIDE. The second one uses an input source called OSMOSE which combines PRESS and SLIDE to one gesture. Refer to the Osmose manual for controller setup details.

You can then give your configuration a name and use the SETUP menu to store it.

KONTRAST supports the microtuning system MTS-ESP. The synth connects to the master automatically. If a master is connected, MTS will light up, letting you select note-on or continuous retuning, and also displaying the current scale name.

You can control the sensitivity curve for each input.

You can configure the inputs freely to your specific needs.

THE SETUP - for Sound Designers

Acoustic music instruments do not simply switch notes on and off - the performer usually plays notes with *expression.*

How this is performed and how this sounds is different from instrument to instrument. On a piano you vary the speed and force when hitting a key, on a wind instrument you control the speed and pressure of the air flow and the size and shape of your mouth.

KONTRAST uses three specific modulation sources for expressive playing:

X1 - for *NOTE-ONSET* expression

X2 - for expressing *INTENSITY*

X3 - for expressing *TIMBRE*

How the musician physically *performs the expression* depends on their MIDI controller - hence this is configured here in the SETUP. This is the same for all presets.

How the preset *reacts to the expressive MIDI data* and how the sound is affected by it are saved as part of the preset.

TIP

1. For X1 you should always assume MIDI-Velocity.

2. Increasing X2 should increase the perceived intensity of the sound - in most controllers increasing X2 means that you apply more force. It feels very unnatural if applying more physical force leads to a softer tone.

3. On the OSMOSE the SLIDE is activated by pressing the key further down. That means that X3 increases only once X2 reached its maximum. Hence X2 should not create complete tonal mess if you want to offer X3.

Some examples of typical controller setups that you can find in the wild: The SETUP mechanism of KONTRAST allows you to make sounds that translates from your setup to the user's setup.

	MIDI	MPE	OSMOSE	User A	User B
X1	Vel	Vel	Vel	ModW	Vel
X2	ModW	Press	Press	Pedal 1	ModW
X3	Pedal	Slide	ModW	Pedal 2	PitchBend

PRESET PACKS

You can create PACKS from your presets and other users of **KONTRAST** can install these.

PACKS are a great way to extend the sonic capabilities of your instrument.

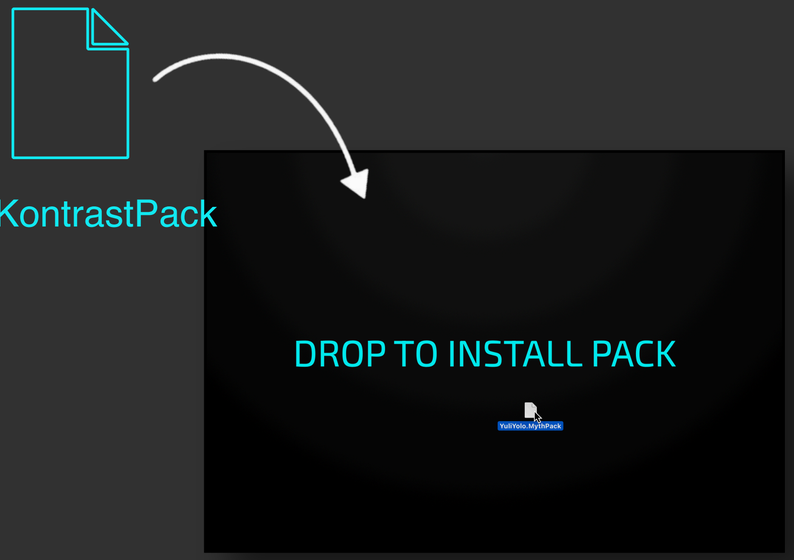
Installed packs shows up here

TIP

It is easy to create your own packs. Simply use the file system and create a folder that contains KONTRAST presets. You can organise these in a single level of sub-folders. Deeper nesting is ignored.

Choose **CREATE PACK ...** from the main menu. You will only need to locate the folder with your presets and a name to save the pack.

You can simply drag any .**KONTRAST**Pack to the **KONTRAST** user interface to install the pack, or choose INSTALL PACK from the main menu.



TIP

You can also activate **AUTOSCAN FOR PACKS AT STARTUP** via the main menu. When you open an instance of KONTRAST it scans your download folder - if it finds a pack for KONTRAST it will be automatically installed.

CAUTION

If you handle preset files, you should ALWAYS make a copy beforehand.

Better safe than sorry!

MICROTONALITY

KONTRAST supports two methods of retuning: MTS-ESP and MPE pitch bend.

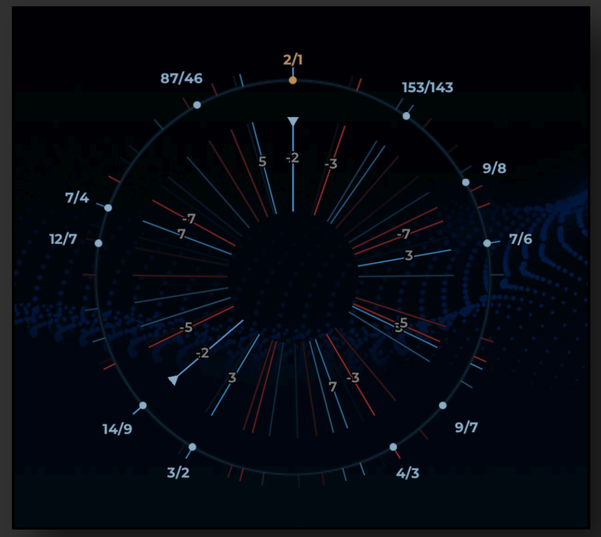
TIP

Microtonality means tuning notes differently than the 12 equal divisions of an octave, which is the modern standard.

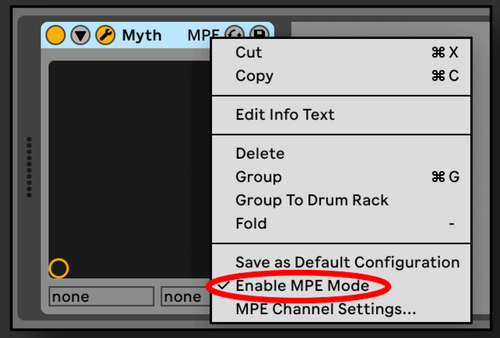
Many kinds of music make use of alternative tunings, but software instruments have usually been written to play in 12-equal notes. This has changed in recent times. More and more instruments allow the musician to decide how the notes should be tuned.

There are many possibilities. Some tunings differ only slightly from 12-TET, while others sound radically different. Happy exploring!

KONTRAST supports the MTS-ESP standard created by ODDSOUND.



You can also retune **KONTRAST** with MPE pitch bend, typically generated by a plugin like Entonal Studio or Abletons Microtuner. Make sure to load **KONTRAST** as an MPE instrument.



MTS-ESP

KONTRAST supports MTS-ESP, which allows you to easily explore tunings other than the standard 12-TET. You'll need an MTS-ESP source to set the tuning. For the following example, we'll use the (free) MTS-ESP Mini.

1 INSTALL / PREPARE

Install the free MTS-ESP MINI from ODDSOUND

Download some scales:

- the Surge Synth Team collection of Scala SCL and KBM files
- the Sevish Tuning Pack (v1.1) contains another small curated collection of tunings for intonation explorers
- The Scala Scale Archive is a large collection of over 5100 scale files

This should be sufficient to get us started and last through several music making lifetimes!

2 HAVE FUN

In your DAW, create one track and add one instance of MTS-ESP Mini. This track does not need to be armed for recording.

Load an instance of **KONTRAST** on any adjacent track. Arm it to receive MIDI input from your controller.

Now extract some of the above SCL-KBM files on your computer and arrange them so they are easy to drag-and-drop into your DAW.

Drag-and-drop "HD2 06-12.scl" from the Surge XT Tuning Library onto the UI of MTS-ESP Mini to get a feel for how it works. This should instantly tune **KONTRAST** to the scale.

Now play across the range to hear the new intonation.

TIP

Working in 12-equal, no extra effort is needed to make each software instrument play the same tuning; they (almost) all play 12-equal by default. Working in other tunings however. Up until now, working in other tunings required us to manage the tuning of each instrument individually.

When the goal is for all instruments to play in the same tuning, this gets very repetitive, albeit doable. MTS-ESP fixes that. It's the closest thing today to a central DAW-integrated tuning feature: set the tuning in one place, and all the instruments follow suit. Just like setting the tempo and time signature.

If the MTS-ESP source supports it, you can also change the tuning on the fly (with automation or MIDI). For example, slowly changing key from G to Bb over the course of 6 minutes.

TIP

I recommend the Surge Synth Team tuning Guide, which lists all MTS-ESP plugins.

FAQ

Q: I installed KONTRAST, but it does not show up in my DAW?

A: In most DAWs, plugins are listed by manufacturer name. You will find **KONTRAST** listed under **DAWESOME**.
If this does not help - please make sure that VST3 (or AU) is activated in your DAW.

For Pro Tools users: plugins come in various formats; the most common are VST, VST3 (and AU on Mac) - these are the industry standard. Pro Tools has a proprietary plugin format and is not able to host VST or AU plugins. **KONTRAST** is available only as VST3 and AU. But there is a workaround: you can use a wrapper plugin. There are two that I can recommend:

- KushView Element
- BlueCatAudio Patchwork

You load the wrapper Plugin in Pro Tools, and then you insert **KONTRAST** in the wrapper - it is simple and works as if you had opened **KONTRAST** in Pro Tools itself. The advantage is: there are many plugins on the market that are available only as VST or AU - with this wrapper you can use them all in Pro Tools.

Q: I am experiencing audio drop outs - what a lousy plugin!

A: I can understand your frustration! There are a myriad of reasons that can cause audio drop out ... rest assured that we spend an insane amount of work to make the underlying technology CPU efficient and to support aged hardware and OS versions. Please drop us a short description to peter@dawesomemusic.com - ideally with the information of your system, your DAW, your OS, and the specific preset that causes the issue.

FAQ

Q: Why are all your plugins so expensive - you are ripping me off!
Q: Why are all your plugins so cheap - this is too good to be true?

A: We are a tiny indie dev studio. Mainly we follow our heart and create the instruments we'd like to use as musicians. We do not aspire to get rich monetarily. We aspire to get rich in contentment and fulfillment. However, we also need to pay our bills, and we want to pay sound designers fairly for their work. We are trying to offer our work for the lowest prices possible to make a living. There is a 90 day free trial. During this time there is an almost 100% chance that there will be a SALE with massive discount.

Q: I have a question / feedback - where can I leave it?
Q: I have a cool idea for a great feature!

A: Just drop me an email to peter@dawesomemusic.com - I appreciate any kind of constructive feedback and I am trying my best to have any user satisfied, regardless whether you purchased or not. Usually I try to answer within a few days.

If you want to share any idea with me, please drop me an email to peter@dawesomemusic.com. Please note that I may have had the idea before and hence I won't pay you license fees if I choose to implement this idea or a related idea in one of my plugins. If you believe your idea has tremendous commercial potential make sure to get a signed agreement before sharing the idea with me / anyone.

Q: I like your work - how can I support you?

A: Thank you! My real reward for the work I am doing is my hope that you will find lots of fun and inspiration with **KONTRAST** or any of my other plugins. Most people have not heard about **DAWESOME**. Please spread the word if you want to support me.

Or send me a brief message via mail to peter@dawesomemusic.com - this will certainly cheer me up!

FAQ

Q: How to access your digital product after purchase?

A: Follow these steps:

1. Click the link to Tracktion provided in your email.
2. Log in or create a Tracktion account if you don’t have one.
3. Enter the redemption code from your email (the code may also be referred to as a license key) on the activation page.
4. Use the Tracktion Download Manager to install the product (not needed if you already have the demo version installed).
5. Open the plugin in your DAW and click UNLOCK.
6. Enter your Tracktion.com credentials to activate.

You can install the plugin on up to 3 computers.
Enjoy your new plugin!

Q: How to access and install KONTRAST Expansion packs after purchase?

A: Follow these steps:

1. Download the pack via the link in your email.
2. Open a single instance of the plugin the pack is built for in your DAW.
3. The pack will be installed automatically when AUTOSCAN FOR PACKS AT PLUGIN START is active.
4. Otherwise drag and drop the downloaded file to the plugin user interface …
5. … or use INSTALL PACK from menu
6. Click on BROWSE in **KONTRAST** or open the preset dialog to access the presets

Have fun!

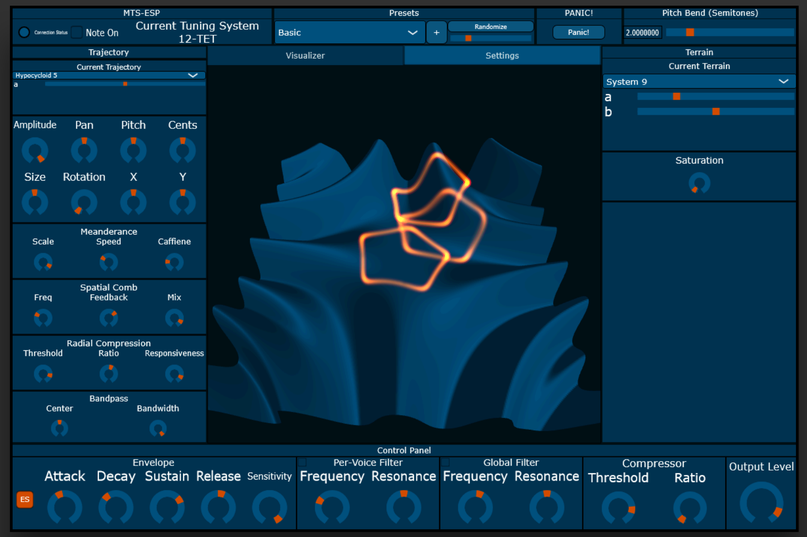
KONTRAST and Wave Terrain Synthesis

KONTRAST is an augmented wavetable synth. It takes the techniques of modern wavetable synthesis and expands them into another dimension — literally.

Today, wavetables are typically three-dimensional (a series of two dimensional waveforms), with a single parameter that chooses which waveform to scan. But what if we we entirely reconsider how this waveform is scanned? The roots of this idea reach back to the late 1970s, when the concept of a “wave terrain” first appeared to describe this wavetable perspective. Methods of scanning wave terrains would become collectively known as Wave Terrain Synthesis.

In Wave Terrain Synthesis, sound is created by tracing a path across a surface (Terrain) and reading its height values at points (x, y). This path is called a trajectory. The scan occurs at audio rates, and the rate of trajectory repetition determines the note. In wavetable synthesis, this trajectory is simply a repeating straight line. In wave terrain synthesis, the trajectory may take on any shape. The timbre is a result of both the shape of a trajectory, and the shape of the terrain beneath it.

In **KONTRAST**, the scanlines can be considered trajectories, and the wavetable a wave terrain. So is **KONTRAST** a wave terrain synth? Yes. Is it a wavetable synth? Also yes. Simply put, **KONTRAST** is both. It inherits the strengths of both traditions: the familiar act of scanning a wavetable, expanded into the richer sonic possibilities unlocked by trajectories of any shape.



Terrain is a free and open source Wave Terrain Synthesiser. Instead of wavetables stored in memory, Terrain generates these on the fly via various mathematical equations. This allows for audio-rate morphing of Terrain shapes. Terrain is not capable of classic wavetable synth techniques, making it squarely and exclusively a Wave Terrain Synthesiser.

For further reading:

Stuart James, “Developing a Flexible and Expressive Realtime Polyphonic Wave Terrain Synthesis Instrument Based On a Visual and Multidimensional Methodology”
Bischoff, James, and Horton, “A Microcomputer-based Network for Live Performance”
Yasuhiro Mitsuhashi, “Audio Signal Synthesis by Functions of Two Variables”
Curtis Roads, “The Computer Music Tutorial”

CREDITS - THANK YOU!

- **KONTRAST** is implemented in C++ using the Juce Framework. I am grateful for its existence and for the community of JUCE developers.
- Valdemar Erlingsson is the creator of the gorgeous free reverb plugin called Cloud Seed. I took inspiration from his work for the CLOUDS FX
- Nigel Redmon has published an intriguing series about analog ADSRs. I took inspiration and design choices from his series.
- **KONTRAST** uses the awesome AVIR image resizing algorithm designed by Aleksey Vaneev of Voxengo
- Sample rate converter designed by Aleksey Vaneev of Voxengo
- Yuli Yolo / Expressive E tested and provided feedback
- Oli Cash from OddSound provided the lib for MTS-ESP
- Jacky Ligon and Andreya provided the Microtuning and MTS-ESP explanation in this user guide
- Jacky Ligon validated the MTS-ESP implementation
- Milisonics has created some of the LFO shapes
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Sound For Affect

DATABROTH
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Andreya
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Milisonics
TORLEY

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Saf Ro
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Sound Author
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David Lilja (PaleSkinnySwede)
Sabastian Weaver aka Azure Eyes
Trajectoire aka philippe
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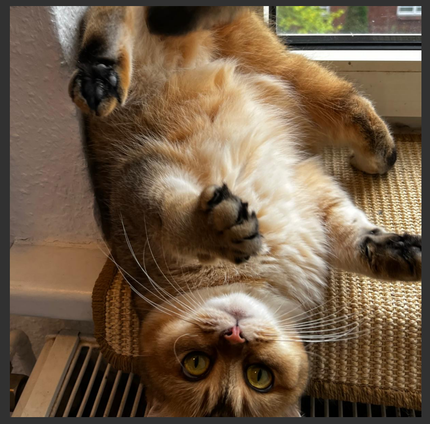
ABOUT DAWESOME

We're a tiny but mighty team - think of us as the indie band of the plugin world: small, passionate and way too invested in all the details.

Peter

Karsten

Aaron



Mizu

Thanks for being part of the Dawesome journey!

Peter V

TIP

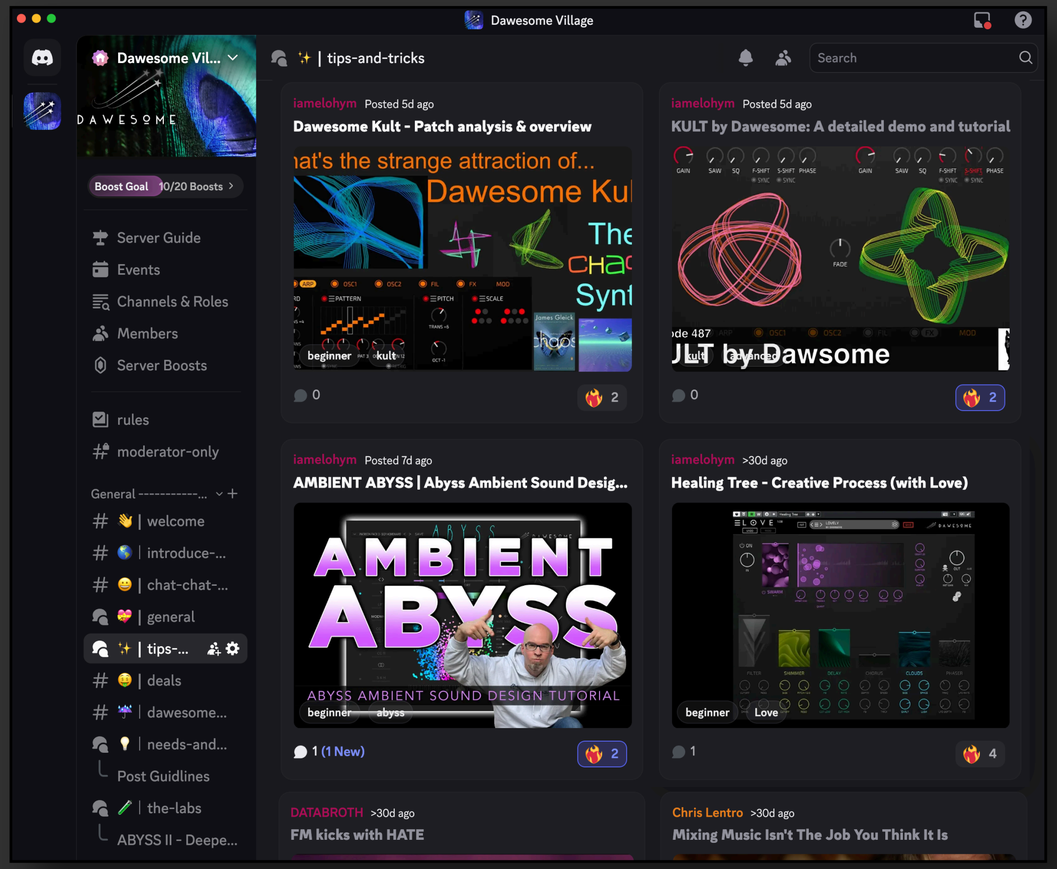
You want to support us?
Spread the word - the biggest help we can think of!

Mizu, the quiet Yoda of Dawesome:

- Playful, creation shall be.
- Clarity in simplicity you find.
- Exploration, the noble path it is.

DAWESOME Village

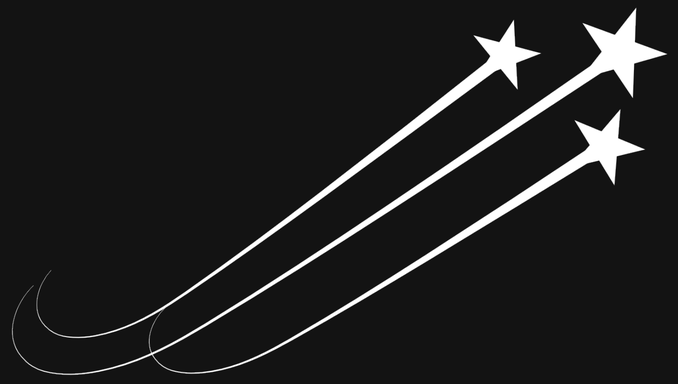
... is the friendly community for sound lovers on Discord!



TIP

The village is not the normal company discord: its a place to connect with sound lovers, share the lastest news and simply be in company with others who share your passion!

Click the invitation link: Dawesome Village



DAWESOME