

ALTER

Cutoff

2 Pole

Drive

Vel

Osc 1

Seq 2

Seq 1

LFO 2

LFO 1

Env 2

Env 1

FACTORY USER MANUAL

Cutoff

Osc1 A

Osc1 B

Osc1 A

Osc2 B

Pitch 1

Pitch 2

01 Lvl

02 Lvl

FX 1

MW

Pan

Vol

Env1



Tweak

Tweak



MW



Vol

Env1

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What is Factory?

Watch video teaser

Picture this: A modular synthesizer that provides totally unlimited connectivity between all its modules.

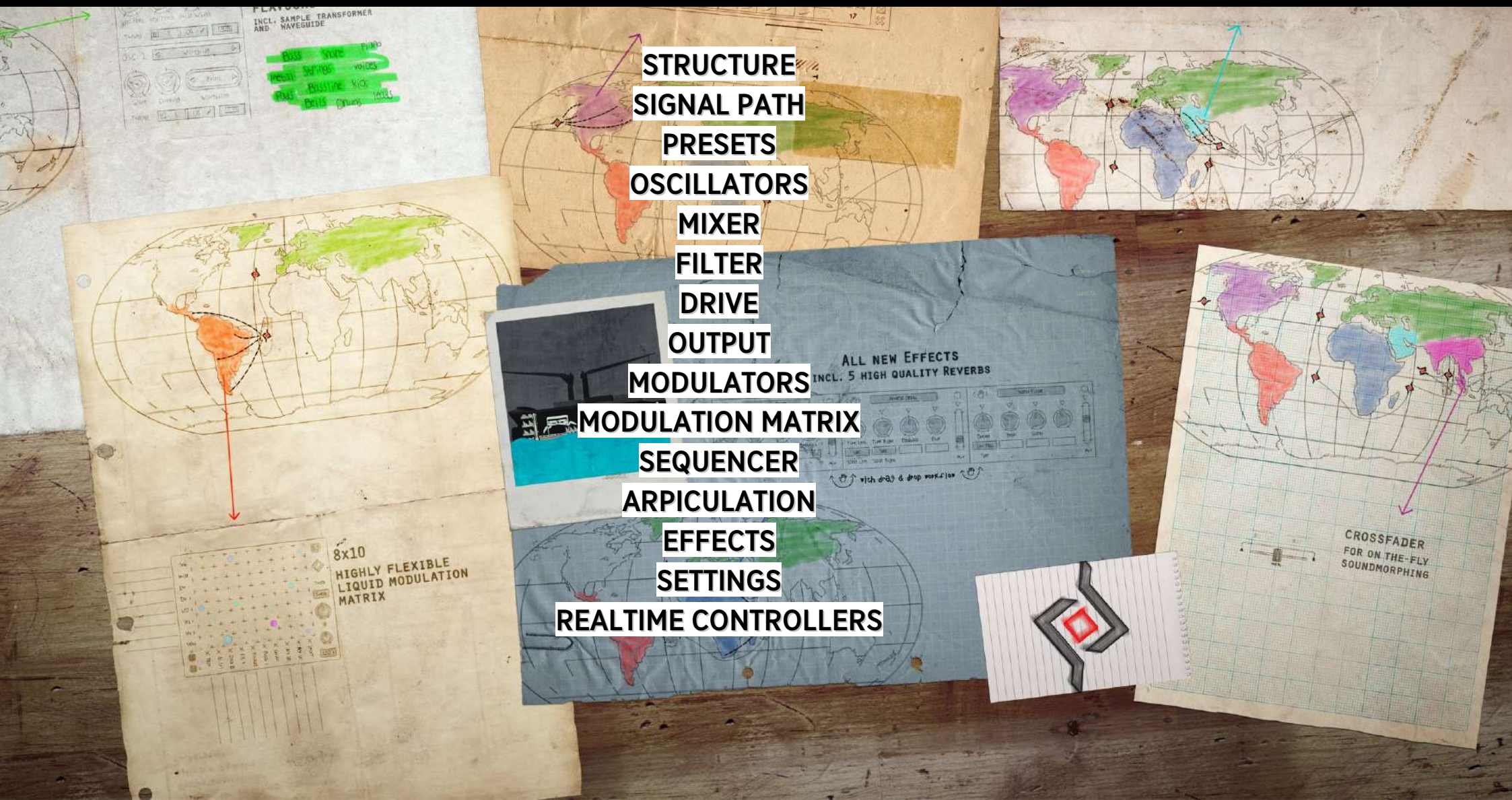
Now picture this: In addition to that, you could modulate all those modulation paths on their part – individually, or all at the same time, in very precise ways or at random. Finally imagine this synthesizer would be polyphonic and completely programmable – this is exactly what Factory is about!

Factory streamlines the well-known concept of a modulation matrix and employs an interconnection system as a key element that combines maximum routing flexibility with playful and intuitive access. As it happens to be the case, Factory is capable of generating sounds of a huge sonic spectrum using various oscillator, filter, and effects modules. From well-known and popular bread-and-butter sounds to highly bizarre effects and even entire drum loops, almost anything is possible. Extremely powerful modulation options can be routed to almost every parameter via the modulation matrix. This includes envelopes, LFOs, arpeggiator, and even a four-track step sequencer.

Finding the perfect sound for each genre is incredibly easily and efficiently executed by using the innovative and clearly structured preset browser. Factory works as a plug-in for all common hosts or as stand-alone application.

We would like to thank you for purchasing Factory. We appreciate your choice very much and hope you will have loads of fun with your new instrument.

The User Interface



STRUCTURE

SIGNAL PATH

PRESETS

OSCILLATORS

MIXER

FILTER

DRIVE

OUTPUT

MODULATORS

MODULATION MATRIX

SEQUENCER

ARPICULATION

EFFECTS

SETTINGS

REALTIME CONTROLLERS

ALL NEW EFFECTS
INCL. 5 HIGH QUALITY REVERBS

CROSSFADER
FOR ON THE-FLY
SOUND MORPHING

8x10
HIGHLY FLEXIBLE
LIQUID MODULATION
MATRIX

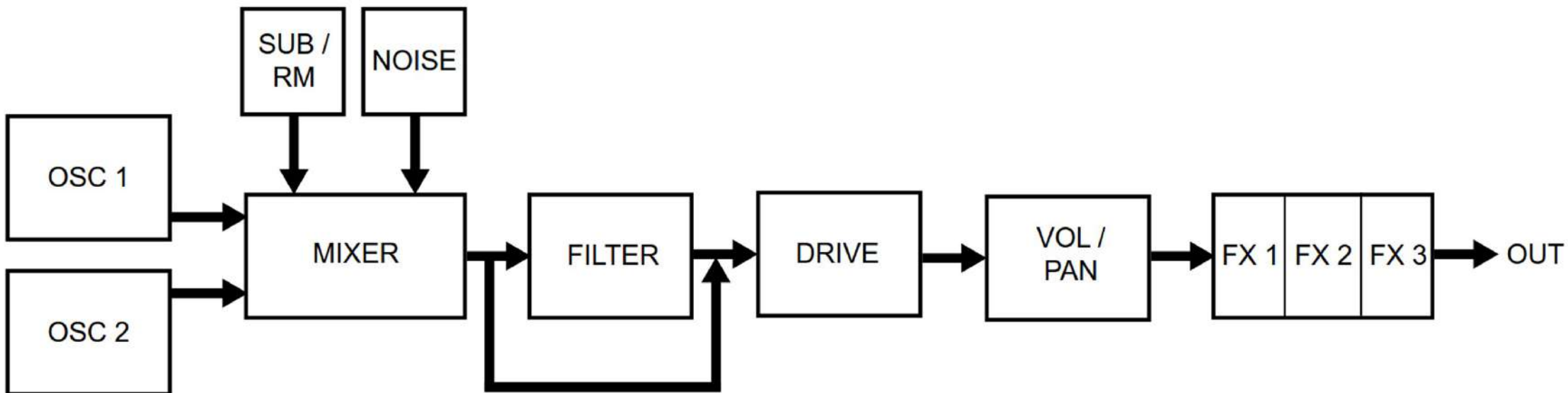
Structure

Factory' user interface is divided into four main sections:

- In the top menu bar you will find the current preset name as well as several buttons related to preset management and a undo/redo function.
- The modules of Factory' signal path, together with the mod matrix, can be found center-screen.
- Below the signal path window, five more windows with additional modules are located: Modulators (modulation sources), Sequencer (4-track step-sequencer), Arpication (arpeggiator as well as parameters to control articulation with), Effects (three multi-effects modules) and Settings (MIDI settings, global functions). These windows are accessed via tabs.
- At the very bottom you will find the realtime controllers such as keyboard with pitch and mod wheels as well as the Morph fader.



Signal path





Factory's sound generation

Factory employs a classic subtractive signal path but the modules in their own right, and the way they interact, are pretty innovative. Two audio oscillators with ten synthesis models each, one sub-oscillator, and a noise source provide the audio signals.

They are combined and ring-modulated if so desired, shaped further by a multimode filter and/or a drive section as well as a level modulation unit.

In addition to that, Factory features a powerful effects section with three multi-effects modules running in series.

As modulation sources you will find various audio signals (oscillators, noise) and modulators. The latter provide two envelopes and LFOs as well as a very powerful sample + hold module. The interconnection between modulation sources and destinations is executed using the central modulation matrix.

The four-track step sequencer and the arpeggiator do not only create melodies – they are entirely integrated into the sound generation via the matrix.

The Pitch Factory determines the tonal scaling of modulations and control the function of the pitch and mod wheels.

„Intonation“ creates a bit of animation and randomness in Factory's sound.

	Name	Author	Rating	Default
Hats Robot	174 DnB	DavidF	● ○ ○ ○ ○	103 DirtnBees2
ospheric Keys Bubbly Fast	174 DnB 2	DavidF	● ○ ○ ○ ○	104 Disharmony

Presets

- Preset Browser
- Searching Presets
- Preset Sorting Functions
- Tag Presets
- Save Presets
- Undo/Redo
- Preset Random Selection
- Program (PGM) List

CINEMATIC DARK	All Out War	Ryan Manning	● ○ ○ ○ ○	117 Dusk
Nature Flanging Church Gate	Allver Scrape	Mikael Adle	● ○ ○ ○ ○	118 Dying Planet
	Analog Strings	Sugar Bytes	● ○ ○ ○ ○	119 Easy Snare
	Angels Horns	DavidF	● ○ ○ ○ ○	120 Echo Panner
	Another World	Ryan Manning	● ○ ○ ○ ○	121 Elastic Monk
	Arcade Inferno	Saro Sahihi SoundBits	● ○ ○ ○ ○	122 Elephant DnB
▼ Rating ● ○ ○ ○ ○	Are There Any Waves	Solidtrax	● ○ ○ ○ ○	123 Empires Down
▼ Simple ▼	Arktis	Sugar Bytes	● ○ ○ ○ ○	124 Epic
▼ Synthetic ▼	Atmo State	Mikael Adle	● ○ ○ ○ ○	125 Evolution
	Atom Pop	Ryan Manning	● ○ ○ ○ ○	126 Evolver
	Aussiebass	Sugar Bytes	● ○ ○ ○ ○	127 FM Bass Juice

Pads Bassline Kick

Preset Browser

In stand-alone mode, right after booting Factory will load the last active setting, i.e. Factory will exactly reproduce the current state before the last shutdown. In plug-in mode, Factory will load a default preset. You can define any setting as your default preset.

All preset handling functions can be found in Factory's header.



Clicking on the preset name in the header will open up the preset browser.

The preset browser is used to sort and archive your presets by using specific keywords or tags.

The browser provides several search functions to retrieve presets which have specific properties, labelled accordingly using the corresponding tags. If you need e.g. a distorted synth bass, you can search the entire preset pool for this type of sound.

This will save you a lot of time.

Clicking on the **preset name** will **load** the preset. Have fun! Make use of the mod wheel and/or the morph fader while trying out the presets – numerous presets hide some nice surprises for you...

Clicking the X symbol (top right) or the preset name (in the header) will **close the preset browser**

Click on the short **arrow buttons** in the header to **load the next resp. previous preset** in the current results list.

This allows you to cycle through the presets of a search one by one even when the preset browser is closed.

Searching Presets



In the upper left you will find a large window labelled **TRACE**.

It provides several functions for tagging and searching presets described here:

The Cloud function

Click the **cloud button**. The trace window now shows all **tags** (keywords) that are currently being used in your entire preset library. The size of each tag represents how frequently this specific quality is used to classify presets in the library. In the figure below, „Sequenced“ presets are available in a large number while only a few e.g. „FM“ or „Morph“ presets can be found in the library.

The selection procedure is executed by clicking the desired tag. The chosen tag (e.g. „Sequenced“) is highlighted in blue. The Results list on the right of the preset browser now shows only presets that make use of the tag „Sequenced“. To further refine the search, you can click another tag (e.g. „Distorted“). The selection will now be narrowed down to presets that use these two tags. The tag selection in the cloud window will also

be updated. Since each preset is tagged with four keywords (or at least should be), you can refine the search four times by clicking more tags (e.g. „Bright“). Clicking a blue high-lighted tag, resets the last selection.

A click on the desired preset name in the **RESULTS** list will load it.

Clicking the **Backwards** symbol above the trace window will reset the current search.

Preset Sorting functions

In addition to the cloud ([please see above](#)), Factory features more sorting functions that make the task of retrieving specific presets easier.

Tag

When clicking on the **tag symbol**, the trace window will display all existing tags as a list. The digit shows the number of presets that use the respective tag. Here, too, you can refine your search by using up to four tags.

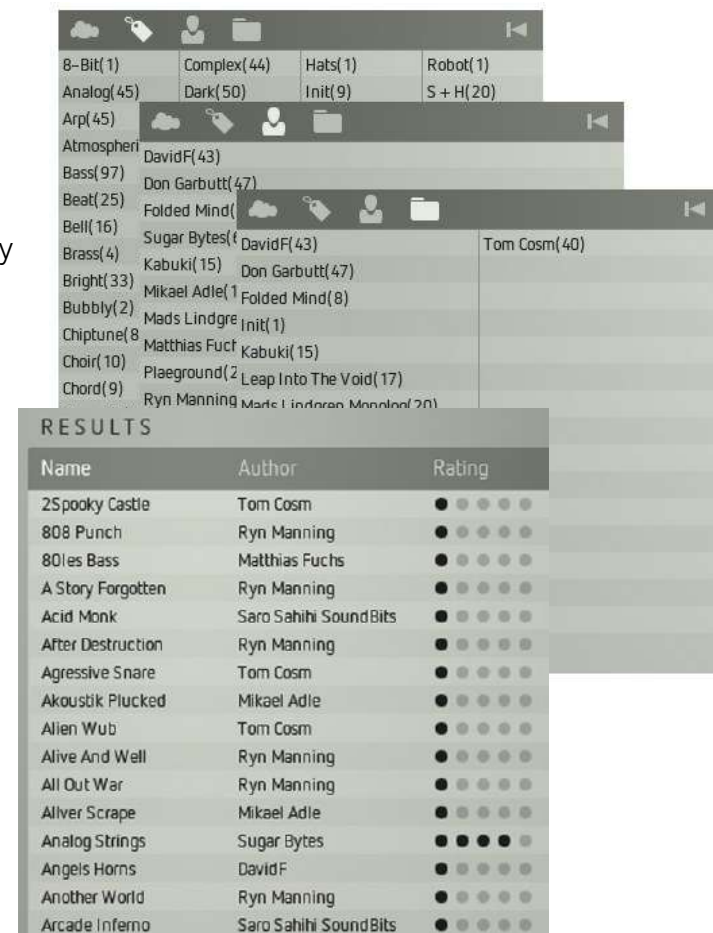
Author

By clicking on the **author symbol**, the trace window will present a list of all existing preset authors. Clicking on the desired author name will further refine the search.

Folder

By clicking on the **folder symbol**, the trace window will display a list of all folders on your hard drive that contain Factory presets. Clicking on the desired folder name will further refine your search.

The **results list** displays the results yielded by the search, performed in the trace window. You can change the order of the presets by Name, Author or Rating.



Pads Bassline Kick

Tag Presets

You can always tag presets or change existings tags by using the functions in the **EDIT** window.

Simply click the **arrow** symbol of the tag. A selection window will pop up. Click the desired tag – done.



This change will immediately be stored in the preset – no extra preset saving required. You can create new tags. Click into the name of a tag field and enter a new and meaningful tag name (“mind- blowing” is not always a good starting point...). Each new tag will be added to the cloud (and list). Again – please bear in mind that the cloud window might become a bit confusing when a large amount of tags is in use. For simplicity’s sake, we advise you to stick to the given tags as often as you can.

Please note: You cannot erase existing tags directly. But tags that are not connected to a preset anymore – e.g. because all the presets that used them have been erased – are erased from the preset browser after Factorys next launch.

Author

Here, you can select the preset author’s name, enter a new name or change the existing one. The preset browser can sort the presets by author.

Rating

Here, you can rate the presets’ qualities from one to five. The preset browser can sort the presets by rating. This way it is pretty easy to retrieve your favourite presets quickly.

Pads Bassline Kick

Save Preset, Undo/Redo & Random selection

You can save your current settings at every time as a preset. Click the disk symbol right in Factorys header.



A window with preset name and tags will pop up.

As described in the section „[tag presets](#)“, you can name, tag and rate the preset here.

Next click on the **disk symbol** to save the current preset.

To cancel the preset save procedure, simply click somewhere onto Factorys main window. the preset save windows will close and the **save function** is aborted.



These buttons (in the header) **set back** or **redo** your last operating step.



Clicking the blue colored gear of the Factory logo loads a **randomly selected preset**.

Pads Bassline Kick

Program (PGM) List

A Program list can e.g. be used to prepare a preset selection/sequence for a live gig.



Click the arrow symbol right beside „Pgm List“. (Click on the arrow symbol again to close the program list.)
A list with 128 positions will open up (in its default state, it is empty).

RESULTS	
Name	Author
2Spooky Castle	Tom Cosm
808 Punch	Ryn Manning
80ies Bass	Matthias Fuchs
A Story Forgotten	Ryn Manning
Acid Monk	Saro Sahihi SoundBits
After Destruction	Ryn Manning
Aggressive Snare	Tom Cosm
Akoustik Plucked	Mikael Adle
Alien Wub	Tom Cosm
Alive And Well	Ryn Manning
All Out War	Ryn Manning



PROGRAM LIST	
	Nothing.sbrmp
1	empty
2	empty
3	empty
4	empty
5	empty
6	empty
7	empty
8	empty
9	empty
10	empty

You can now **drag'n'drop** presets from the results list into the program list.

Depending on its position there (1 – 128), each preset will respond to the respective MIDI program change command.

If e.g. the preset „Bells“ is on position 58, an incoming MIDI program change command #58 will load the preset „Bells“. You can change the order of the presets within the program list simply by using drag'n'drop.



Clicking this symbol, **automatically fills the program list** with the presets currently contained by the results list (of course this works only for the first 128 presets).



When clicking the disk symbol (right), the file browser will open up. Now you can **save** the current program list.



When clicking on the folder symbol (left), the file browser will open up again.
Now you can **load** a previously saved program list.

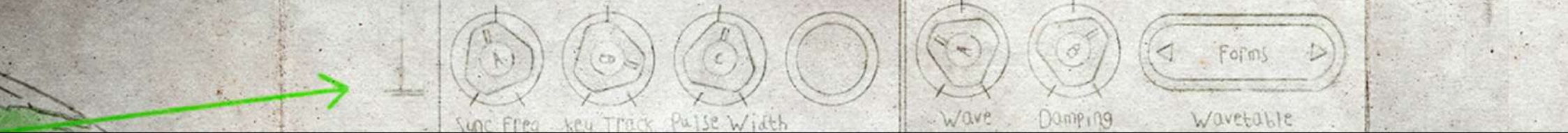
Oscillators

The oscillators OSC 1 and OSC 2 are Factory's main signal sources. They are identical with each other and provide ten different oscillator models each, with very different sonic capabilities. The Oscillator models are:

PULSE SYNC
SAW SYNC
SAW FRACTAL
FM FORMANT
TRANSFORMER
WAVETABLE PWM
WAVETABLE SYNC
WAVETABLE FORMANT
WAVETABLE DRONE
WAVEGUIDE

[Watch Video](#)





Global Oscillator parameters & controls

The parameters/controls of the oscillator models are a little different here and there.

However, two identical functions appear on all oscillator models:



Tuning

The left number controls the pitch of the oscillator by +/- 36 semitones (+/-3 octaves).

The right number detunes the oscillator by cents (0 to 99 cent)

Pitch Track

(keyboard symbol) connects / disconnects the pitch control to/from the keyboard.

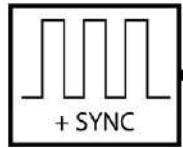
The latter is useful for e.g. drum sounds.

Clicking on the name of the oscillator model will open up a selection window.

Load the desired model by clicking on it. You can cycle through the different models using the arrow buttons.



Pulse Sync



Pulse Sync

Produces a signal made up of several pulsewaves synced with each other. The sound is dense and vivid. By and large, this is the equivalent of a classic, fat-sounding analog pulsewave.

Sync Freq

Controls the sync frequency and thus the fundamental timbral character.

Key Track

Controls to what extent the sync frequency – and thus the sound – will change, depending on the pitch played.

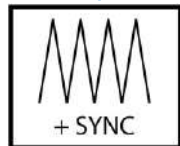
Pulse Width

Controls the pulsewidth of the pulsewave. A symmetrical squarewave is generated at center setting. By turning the knob clockwise (or back), the ratio between peaks and troughs will change increasingly.



Saw Sync & Saw Fractal

Saw Sync



Produces a signal made up of several sawtooth waves, synced with each other.

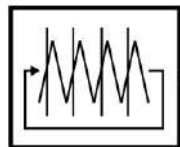
The sound is very bright and warm. It largely resembles a classic, analog sawtooth wave (and fat-sounding it is, too. We thought we should point this out).

Sync Freq

Controls the sync frequency and thus its fundamental timbral character.

Key Track

Controls to what extent the sync frequency – and thus the sound – will change depending on the pitch played.



Saw Fractal

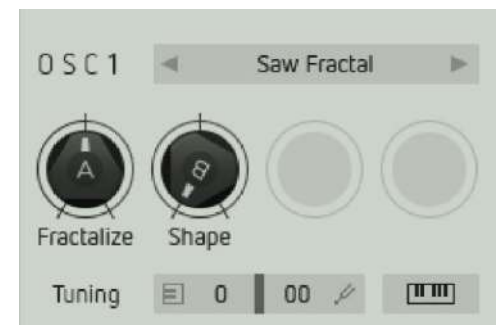
Produces a sawtooth wave that gets chopped up into tiny fragments at a set rate, which is then fed back into the oscillator. Depending on the setting of these controls, the sound can range somewhere between thin and static and dense and shimmering.

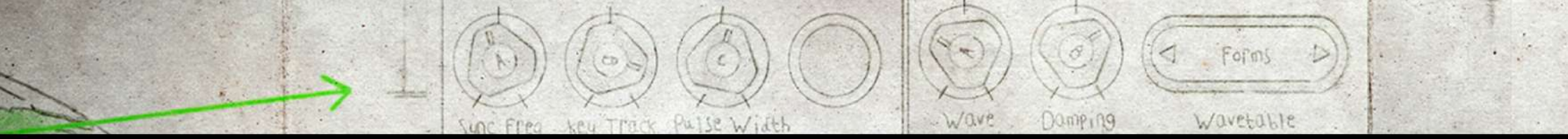
Fractalize

Controls the frequency of the „fragmentation“ of the signals or, in other words, the size of the chopped-up segments.

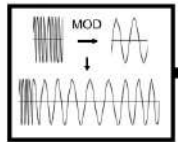
Shape

Controls feedback level and polarity. The waveform shape vaguely resembles a sawtooth wave („clockwise“) or a pulsewave („counter clockwise“).





FM Formant



FM Formant

This oscillator model features Phase Modulation (much more popular under the not quite correct term „frequency modulation / FM“, but we mustn't use this nomenclature here...). A sinewave, modulated by a second one, resulting in a very versatile and rich sound. The frequency ratio of both sinewaves is scaled – thus all sounds can be played harmonically tuned across the whole note range. But that is not all there is: The result of the phase modulation model will be processed further, using formant shift.



FM Index

Controls the amount of phase modulation. Turning Amount clockwise increasingly generates more overtones.

Feedback

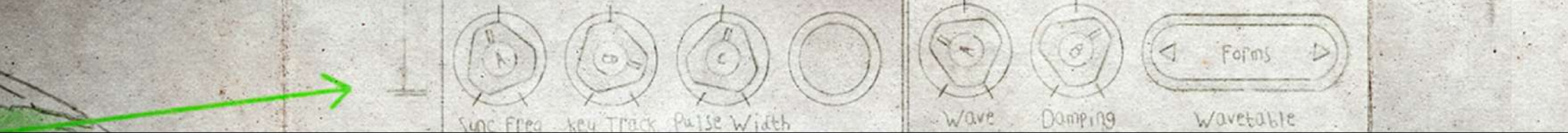
Distorts the resulting waveshape from sine-like (Amount and Feedback fully counter-clockwise) to sawtooth-like (Feedback fully clockwise).

Shift

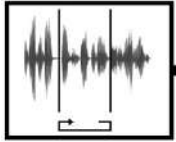
Shifts the formants of the resulting PM waveform and thus alters its fundamental timbral character.

Ratio

Controls a scaled frequency ratio between both basic waveforms.



Transformer



Transformer

A granular oscillator. Here, you can import a sample of your choice. The sample will be automatically analysed and transformed into a wavetable which is then played back in segments as a looped waveform. By applying this process, it is possible to play the sample across a theoretically unlimited note range. Feel free to try out any kind of sound material for more Metal Machine Music. Even unusual sounds, e.g. vocal samples of you singing under the shower, may yield interesting results. Or not.



Formant

Shifts the formants of the sample and thus alters its fundamental timbre.

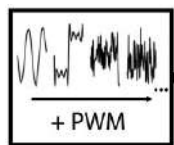
Position

Shifts the section of the sample that will be looped and played back.

To load an audiofile, click the small waveform display. Your file browser will open up. Select an audiofile of your choice and load it into Factory's oscillator by another click. Factory will accept the audio file formats wav, aif, and mp3.

By clicking on the sample name under the sample display, you will directly open up Factory's sample content, organised in groups. Using the arrow symbols, you can step through the samples.

Wavetable PWM



Wavetable PWM

This oscillator model uses wavetable synthesis, i.e. a series of different waveforms that is played back sequentially. In addition to that, the resulting sound will get a pulsewidth-modulation treatment.

Wave

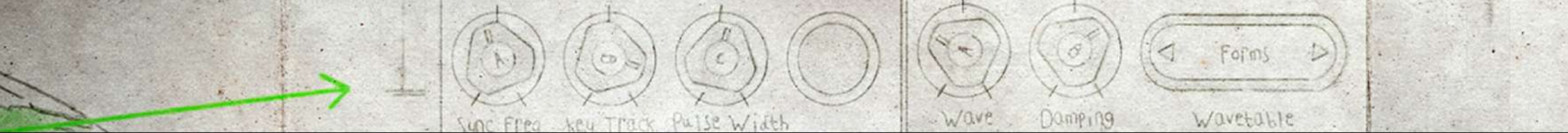
Defines the playback position within the selected wavetable and thus changes its timbral character.

Pulse Width

Controls the pulsewidth of the waveform. A symmetrical wave is generated at the center setting. By turning the knob clockwise (or back), the ratio between peaks and troughs will change increasingly.

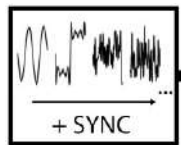


By clicking on the wavetable name, a selection window will open up. It shows Factory's wavetable content, organised in groups. You can select and load a wavetable into the oscillator or click on the short arrow symbols to step through the wavetables.



Wavetable Sync & Wavetable Formant

Wavetable Sync



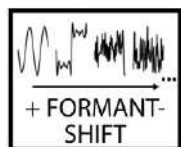
This oscillator model also uses wavetable synthesis. In addition to that, the resulting wave is synced to another wave running at a higher frequency. This yields a completely new waveshape.

Wave

Defines the playback position within the selected wavetable and thus determines its timbral character.

Sync Freq

Controls the sync frequency and thus the timbral character, i.e. the sound grows increasingly brighter.



Wavetable Formant

Yet another wavetable oscillator. This one adds formant shifting to the produced waveform. The sound is quite different from the other wavetable models. It can be useful for the creation of e.g. vocal-like sounds.

Wave

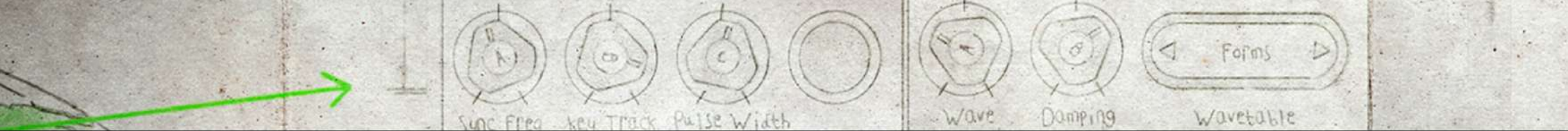
Defines the playback position within the selected wavetable and thus determines its timbral character.

Formant

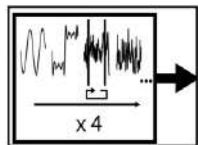
Shifts the formants of the produced waveform and thus determines its timbral character.

By clicking on the wavetable name you can select and load a wavetable into the oscillator or click on the short arrow symbols to step through the wavetables.





Wavetable Drone



Wavetable Drone

Here comes yet another and quite unique wavetable synthesis application: A cluster of four processed wavetables using the capabilities of a granular synthesizer. With just one parameter (Jitter) you can create a very wide sonic scope from „pure“ and „clean“ waveforms to harsh and complex noise.

The resulting signals are quite useful as raw material for lush strings or choirs as well

as for drum sounds and noise effects.



Wave

Again, defines the playback position within the selected wavetable.

Jitter

Controls the timbral character of the resulting signal.

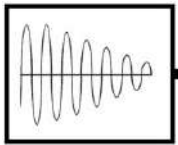
Turning the control counterclockwise will result in more tonal sound. Turning it clockwise, will provide increasingly harsh and noisy effects.

Modulating this parameter can be very interesting.

By clicking on the wavetable name, a selection window will open up. It shows Factory's wavetable content, organised in groups. You can select and load a wavetable into the oscillator or click on the short arrow symbols to step through the wavetables.

Waveguide

Waveguide



Uses the wavetables discussed earlier and combines them with a resonator-algorithm. This results in percussive sounds that generally resemble plucked strings.



Wave

Defines the playback position within the selected wavetable and thus alters its timbral character.

Color

Increasingly damps the generated waveform, which corresponds to the acoustic properties of a plucked string.

Please note when modulating the Wave parameter: Modulation will only affect the first wave cycle that is stimulating the resonator. Modulating the Wave parameter while the previous sound is still resonating will have no audible effect.

By clicking on the wavetable name, a selection window will open up. It shows Factory's wavetable content, organised in groups. You can select and load a wavetable into the oscillator or click on the short arrow symbols to step through the wavetables.

Mixer

In this module, Factory's sound sources are combined and routed into the subsequent modules for further treatment.

In addition, two of these signals can be ring-modulated with each other.

The section also provides a sub oscillator and a noise source.



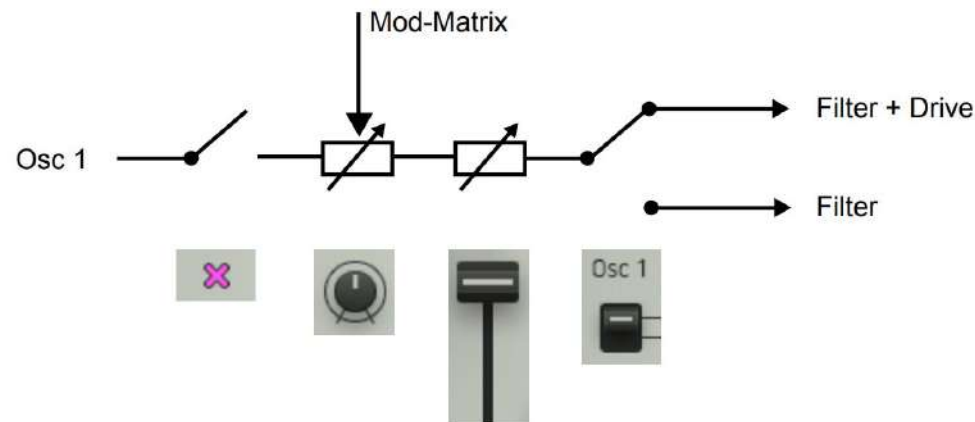
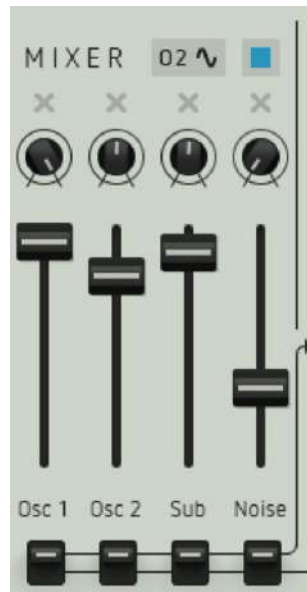
Why knobs and faders?

Operating principle of a channel strip:

On each mixer channel, you will find two daisy-chained level controls, a knob and a fader – why is that?

The knobs can be controlled via the modulation matrix (more about this later on). They are used for level modulation.

With the subsequent faders, you can control the level ratios between the different signals according to the faders of a mixing desk.



An example: Let's suppose you want to create a drum pattern made up of kick and snare, using the internal sequencer.

To generate individual hits, the sequencer's gate signals will open and close (modulate) two of the level knobs.

To control the level ratios of these two sounds additionally, you are using the (unmodulated) faders.

OSC 1, OSC 2 & Sub

Osc 1 & 2

Control the levels of both oscillator signals.

Sub

Controls the level of the suboscillator signal. Its pitch is one octave below the master oscillator.

Clicking on the button above the fader will make a window pop up where you can select several **sub oscillator modes**:



O1 Sine

A sinewave. Pitch follows oscillator 1.

O1 Square

A squarewave. Pitch follows oscillator 1.

O2 Sine

A sinewave. Pitch follows oscillator 2.

O2 Square

A squarewave. Pitch follows oscillator 2.

Osc1xOsc2 Ring Modulation

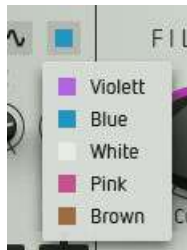
This setting will ringmodulate the signals of oscillator 1 and oscillator 2.

The level of the ringmodulated signal is also controlled by the Sub fader. The timbral character of the ringmodulated signal depends greatly on the oscillator settings used and can be described as ranging from „singing“ to „metallic“.

Please note: when selected as a modulation destination, the sub oscillator only gets a quantised modulation.



Noise, Mute & Routing switches



Noise

Sets the level of the noise signal. By clicking on the Color symbol, you can choose between five different noise types with different sonic characters.



Mute function

Clicking on these symbols will mute the respective mixer signal input.



Routing switches

These switches determine which signal is routed into the filter and drive sections (up) or just into the drive section (down).

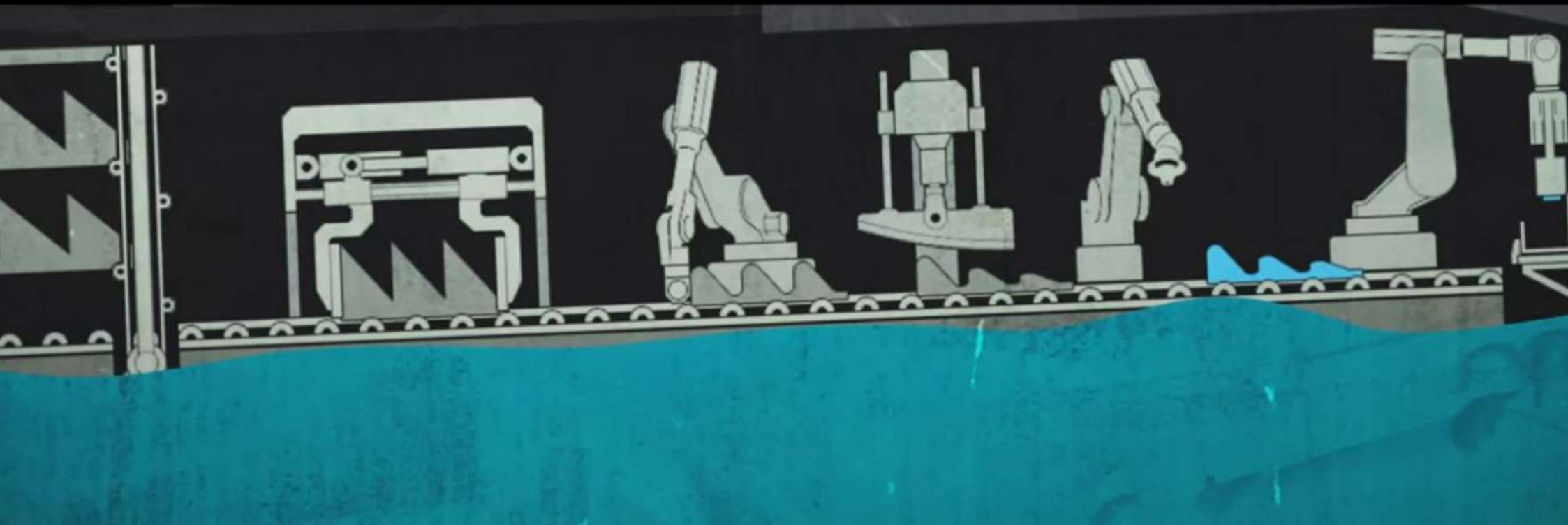


Filter & Drive

As soon as the routing switches of the mixer are set to their upper position, the corresponding signal will be sent through the filter and the subsequent drive section.

Factory's filter is a multimode filter with resonance and lots of sound-shaping potential. Drive provides a wide range of distortion effects from soft saturation up to heavy fuzz.

In conjunction with the different filter models and their settings, Drive can generate very intense and dynamic sounds.



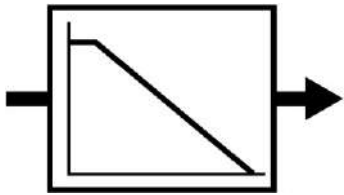
Filter Models

By clicking on the dark shadowed display, a window will pop up.

Here, you can select between eleven different filter types.

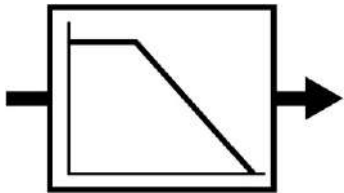
You can also step through the filter types by using the arrow buttons. The following filter models are available:

LP 2 Pole



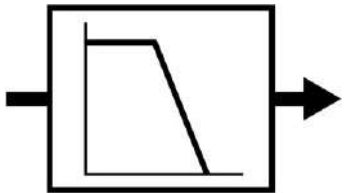
Lowpass with a 12dB slope. When the filter is closed (turning Cutoff counter-clockwise), high frequencies will be increasingly attenuated – the sound will grow more and more dull. Reso boosts the frequencies around the cutoff which will lead to a more and more pronounced sound up to self-oscillation.

LP 4 Pole



Lowpass with a 24dB slope. It is corresponding to the LP 2 Pole but with even more impact on the sound.

LP 8 Pole

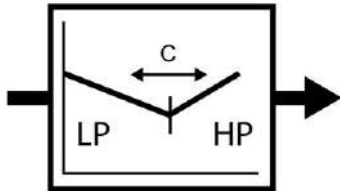


Lowpass with a 48dB slope. Another lowpass option with even ballsier results.



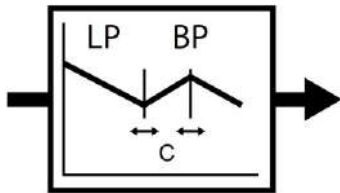
Filter Models

X Fade



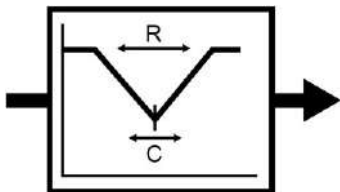
Blends between a lowpass and a highpass filter. When the Cutoff knob is at its central position, the filter will provide a neutral effect. By turning counter-clockwise, the filter will become a lowpass, by turning clockwise a highpass. In both cases, Reso boosts the frequencies around the cutoff/mid frequency which will lead to an increasingly sharper and more pronounced sound.

Mid Boost



A combination of lowpass and bandpass, useful for boosting mid-frequency content of a signal. Cutoff controls cutoff resp. center frequency of the filters at a certain ratio. Reso boosts the frequencies around the cutoff/mid frequency which leads to an increasingly sharper and more pronounced sound.

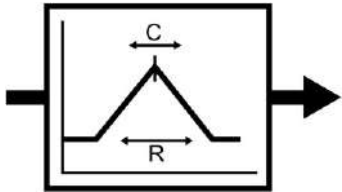
Bandreject



Attenuates a specific frequency band. Cutoff controls its center frequency, Reso its width. Cutoff modulation results in phaser-like sounds.

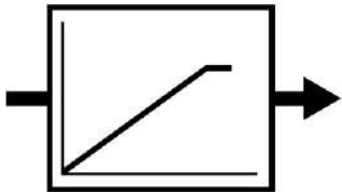
Filter Models

Bandpass



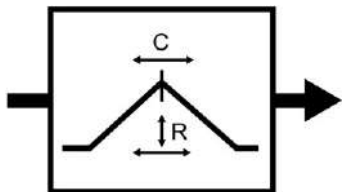
Only a specific frequency band will be passed. Again, Cutoff controls its center frequency, Reso its width. Useful to thin out sounds around a specific frequency band.

Highpass



Highpass with a 12dB slope. When the Cutoff control is turned counter-clockwise, high frequencies will be increasingly passed through – the sound gradually becomes brighter. It works exactly the opposite way of a lowpass. Reso again boosts the frequencies around the cutoff frequency which will lead to an increasingly sharper and more pronounced sound.

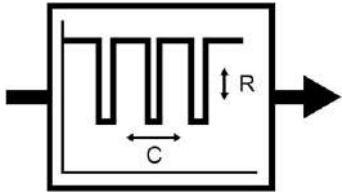
Peak



Boosts a specific frequency range. Cutoff determines this range (its center frequency), Reso controls the amount of boost/attenuation. The higher the boost, the narrower the range boosted. This behaviour corresponds to a semi-parametric EQ which can be found with many mixing desks. The sonic result differs from the Mid Boost type.

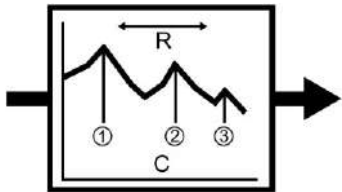
Filter Models

Comb



Generates a so-called comb filter effect. It generates evenly spaced peaks and notches in the frequency band (quite similar to the teeth of a comb). Cutoff shifts their position, Reso determines the intensity of the effect. Cutoff modulation can result in flanger-type sounds.

Vowel



Generates vocal-like sounds by shifting certain formants of a signal. Cutoff selects three out of sixteen formants, Reso shifts them up/down. The zero-position of the reso control is at 12:00. Great in combination with e.g. vocal-like oscillator wavetables.

Drive

The Drive knob controls the intensity of the effect.

Set fully counter-clockwise, the effect will be disabled (off).

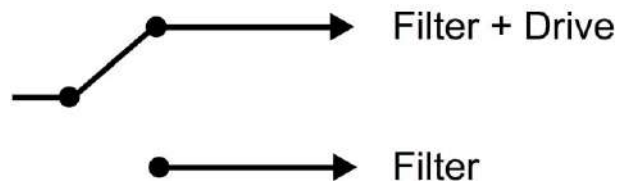
When clicking on the dark shadowed display, a window will pop up.

Here, you can select between three different **drive types** (Tube, Diode, and Sine).

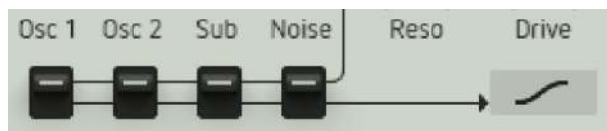
They all sound very different.



Try using different routings and settings as the placement of a filter before a distortion in the signal chain can produce results which are significantly different from a signal that is routed into the fuzz directly.



With the **routing switches** of the mixer in the low position, the signal is sent directly into the Drive section.



In up position, the signal first passes the filter and is then sent to the Drive section (please refer to the [mixer section](#)).

Sound Settings

In the Setting Tab you will find some parameters related to the sound of the filter and drive section.



Filter Smooth

Here you can tailor the sound character of the filter section to your personal taste. The differences are quite subtle and best audible at high resonance settings.



Output

Control and modulate the overall output level (Vol) as well as the panorama position (Pan).



Volume Modulation & Pan

To the very right of Factorys panel, the output section is located. It's usually modulated by the volume envelope (ENV 1 default setting).

By clicking on the dark shadowed display, you can select between four alternative types of [volume level modulation](#):

Off

No volume modulation. The sound will sustain infinitely at full level, even when there is no key played (resp. no MIDI note received). Useful for all styles of Dark Ambient Music – we call it the brick-on-keyboard generator.

Gate

The sound will sustain at full level as long as a key is hold (resp. when a MIDI note-on command is received). The level will not be modulated. This is basically an organ envelope.

Env 1

Envelope 1 modulates the volume level (default setting).

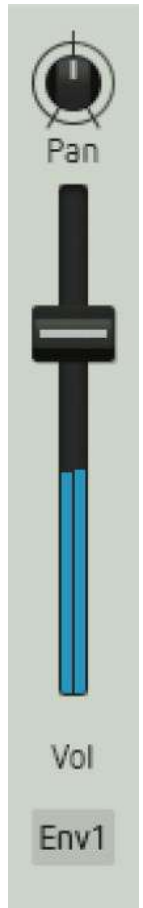
Env 2

Envelope 2 modulates the volume level.

[Pan](#) controls the position of the output signal within the stereo panorama.

This knob can be modulated via the [modulation matrix](#) which will generate an auto-panning effect.

This is especially interesting with the polyphonic feature of the [LFOs](#): Each voice can be shifted separately within the stereo panorama for some really head-spinning effects – without using psychotropic substances.





Modulators

To bring its sound to life, Factory provides several modulation sources.

You will find two identical envelopes (ENV 1 and ENV 2), two LFOs that are also identical, and a sample + hold module.

All modulators can be found as modulation sources in the modulation matrix which will be covered in the next chapter.

[Watch video](#)



ENV 1 & ENV 2

Click the tab labelled MODULATORS to open the respective window.

Envelope generators usually provide a one-off modulation. Shape and duration can be controlled by various parameters.

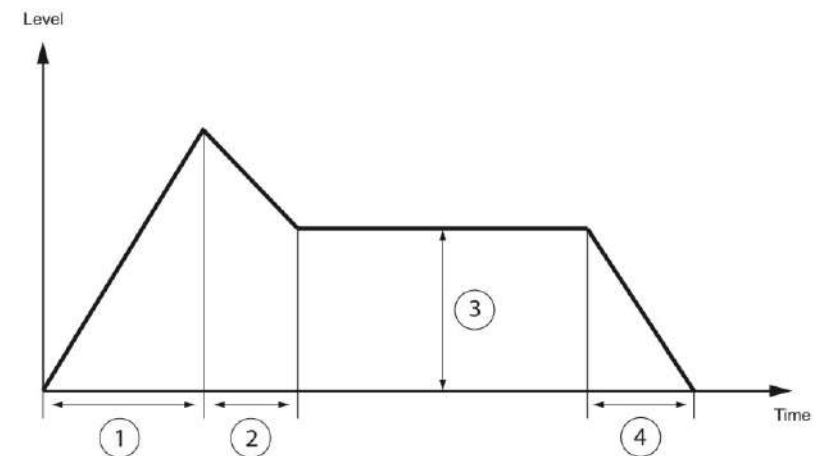
Factory's envelope generators work exactly like this but provide a loop function to generate complex periodic modulation shapes.

Both envelopes are identical.

Envelope shape

The envelope shape is controlled by four faders:

- (1) The first fader (**Attack**) adjusts the rise time from zero to maximum level.
- (2) The second fader (**Decay**) adjusts the fall time from maximum to Sustain level.
- (3) The third fader adjusts the **Sustain** level. Its value is maintained as long as the envelope is receiving a MIDI note-on command, i. e. until the key is released.
- (4) The fourth fader (**Release**) adjusts the fall time from Sustain level after receiving a note-off message.
- The knob alters the **envelope shape** in its entirety. You can watch the result in the envelope display.



ENV 1 & ENV 2

Modulating envelope parameters

The five parameters mentioned above can be modulated as well.

To do so, please select Env 1 or Env 2 as a modulation target in the mod matrix (more on this later).

By clicking on the arrow symbols right beneath the envelope faders/knobs, you can determine which of these five parameters will be modulated by the mod matrix.



More envelope functions

Loop

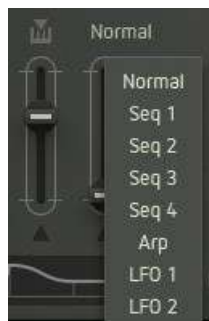
The circular arrow symbol will loop the attack- and decay phase of the envelope. This produces periodic modulation shapes.

Velocity

When clicking the keyboard symbol, the maximum envelope level will be determined by velocity.

Trigger source

By clicking on this parameter, you can select the trigger source of the envelope. By doing so, the envelope can be triggered by a MIDI note-on command (default) or by other events. This produces rhythmically accurate modulation. Please select between the following options:



- Normal:** The envelope will be triggered by the keyboard resp. a MIDI note-on command.
- Seq 1 – 4:** The envelope will be triggered by the active steps of the selected sequencer track.
- Arp:** The envelope will be triggered by the steps of the arpeggiator.
- LFO 1 / 2:** The envelope will be triggered as soon as the respective LFO is entering a new wave cycle.

LFO 1 & LFO 2

The LFOs usually provide periodic modulation.

A one-shot function is also present. That way, the LFOs can work as mini envelopes. Both LFOs are identical.

Rate

Controls the LFO speed in a range between 0.05 Hz and 500 Hz.

When the Clock symbol is active, the LFO will be in sync with the song tempo. In this case, the Rate values will be translated into note values (eight whole notes to 1/32 note). The lower right knob determines the waveshape according to the graphic display.

Phase

Shifts the phase of the LFO waveform. This function is especially useful in combination with retrigger.



Modulating LFO parameters

The three parameters mentioned above can be modulated individually. To do so, please select LFO 1 or LFO 2 as a modulation target in the mod matrix (more on this later).

By clicking the arrows beneath the faders/knobs, you can determine which of these three parameters will be modulated by the mod matrix.

More LFO functions

Retrigger Source

Every retrigger will restart the LFO. This allows for rhythmically correct modulation that is perfectly in sync with the beat.

Please select between the following options:

MIDI Gate

The LFO will be restarted with every new note played.

Free

No retriggering but the LFO will still be synced to the song tempo as long as the **Clock** symbol is enabled.

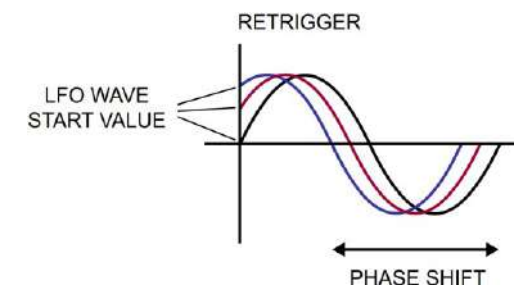
Seq 1 – 4

The LFO will be retriggered by the active steps of the respective sequencer track.

MIDI Pitch

The LFO will be restarted as soon as you are playing a new pitch. When you are repeatedly playing, say, a „G“ key three times, the LFO will not be retriggered. When you are playing e.g. a „D“ instead, the LFO will be retriggered.

The retrigger function is very useful in combination with the phase parameter: By shifting the phase, the LFO will not start at zero crossing but with a certain amount of offset. In other words – the starting point of the LFO waveform can be defined and shifted back and forth which can be useful for extra-rich vibrato, complex modulation bursts etc.





More LFO functions

One shot



When the arrow symbol is active, the LFO will work in one-shot mode and stop after completing one full cycle. This function is especially useful with the retrigger and Phase parameters (please see above).

Mono/Poly LFO



All voices will use the same LFO (Mono LFO).



Each voice will use its individual LFO (Poly LFO). This can result in more organic or more chaotic (i. e. life-like) sounds. It is also interesting in combination with the retrigger function. For drum and percussion sounds, it can be more useful to use the Mono LFO mode.

MIDI clock sync



When active, the LFO will be in sync with the song tempo. In this case, the Rate values will be translated from „Hz“ into note values (eight whole notes to 1/32 note).

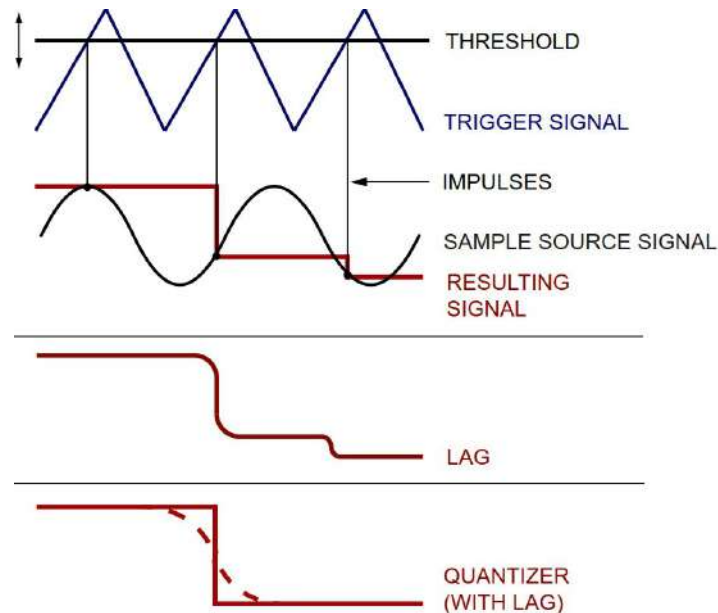
Sample + Hold

Factory's sample + hold module is far more powerful and advanced than most S&H functions commonly implemented.

By using Factory's sample + hold module you can create almost any kind of modulation waveshape – even rhythmically accurate and in sync with other modulation sources. [Watch Video](#)

Function principle

The module uses two signal inputs – one for the **trigger signal** that scans the input signal and another one for the signal source to be sampled. Both input sources can be selected by using a drop-down menu. Every time the trigger signal exceeds the **threshold** level, an impulse will be generated. This impulse will measure (scan) the



current value of the **sample source signal** level which is held until the next trigger comes in, again sampling the current value and holding etc. ("sample" and "hold", geddit?). This will produce a stepped waveform („resulting signal“).

The example shows the basic function principle with very simple input waveforms used. Even here you can see how complex the resulting waveform might eventually become by simply altering the threshold setting and the frequencies of scan pulse and sampled signal. Triangle and sinewave can be replaced by audiosignals if so desired.

You might also want to use more complex LFO waveforms, or how about running the sequencer outputs into it? The resulting waveform will become more and more complex, odd, and interesting. Since the results will not always be totally predictable, we – as the manufacturer of your choice – advise you to indulge yourself unlimited experimentation, restricted only by your imagination. When using clocked input signals ([sequencer](#), synced LFOs, or [envelopes](#)), you will get rhythmic modulation effects.



Functions / controls

Here you will find all functions of the S + H module:



Input signals

Click to select a trigger signal (left) and a sample source signal (right).

Tresh

Sets the trigger threshold level.

Lag

Increasingly smoothes the edges of the resulting waveform.

Quant

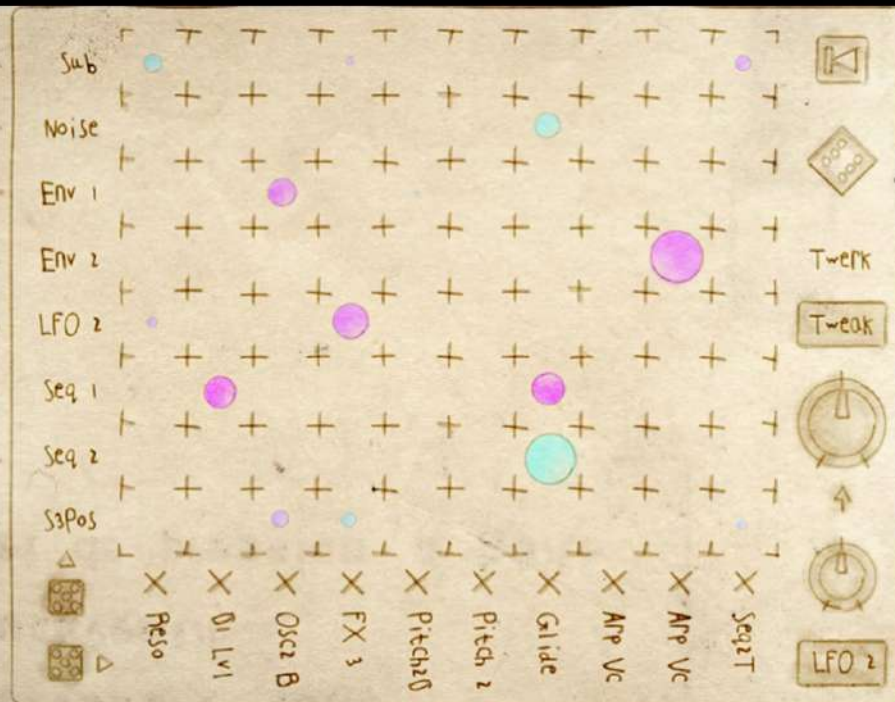
Quantizes the resulting waveform. The waveform will become increasingly coarse and more and more stepped. Lag and Quant can be used in conjunction in order to shape the wave depending on the setting of these parameter (please see example on previous page).

Modulation Matrix

The modulation matrix is Factory's central key element.
It is used to set up modulation paths in a very easy and flexible manner.

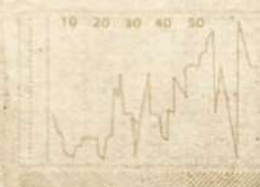
It provides you with the patching flexibility and timbral power of a really big modular synthesizer,
of course fully storable in memory, and polyphonic at that!

Using Factory's modulation matrix, you can patch up to eight modulation paths at a time.
That should be enough for the majority of really far out sounds.



8x10

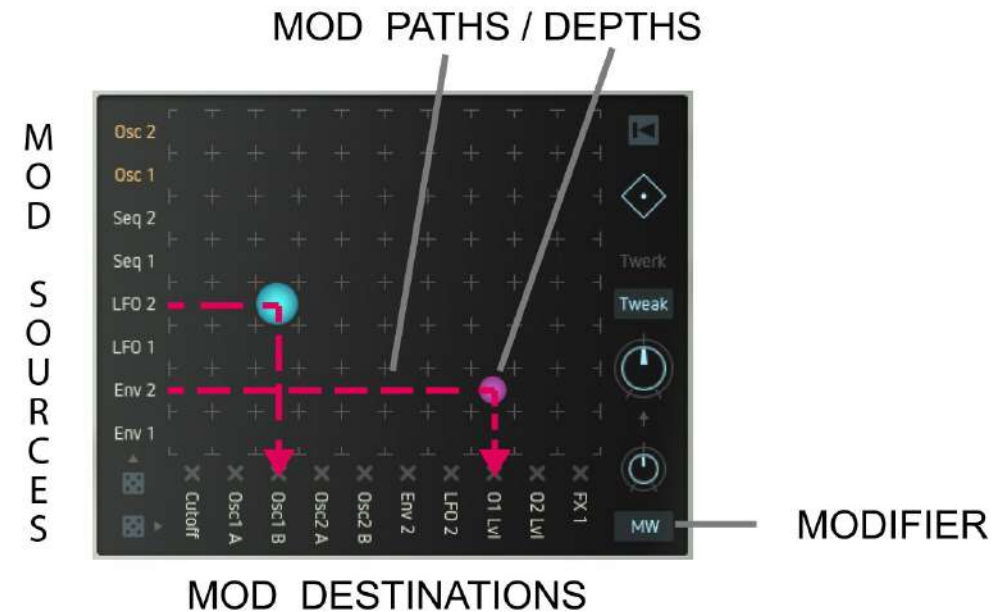
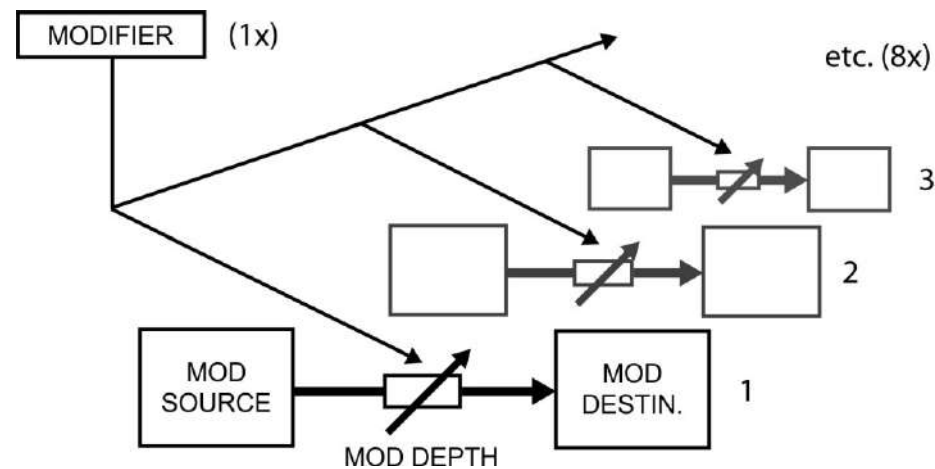
HIGHLY FLEXIBLE
LIQUID MODULATION
MATRIX





Function principle

A modulation path consists of a source and a destination parameter which is modulated at a specific level. The intensity – or modulation depth – can be manually controlled for each modulation path individually. An arbitrary modifier provides the global control and/or modulation of all modulation depths as well.

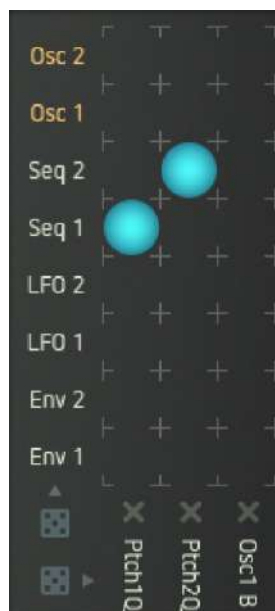


Since Factory is a polyphonic synthesizer from a technical point of view, each voice uses its own complete modulation matrix. Their parameter settings are of course identical (you define them on the user interface) but in the background, all active voices will be processed separately. The technical effort takes quite a bit of calculating work, and we are glad that Factory is not all too wasteful with the resources of your device, though. [Watch video](#)



Select modulation sources

Modulation sources are arranged vertically. As soon as you click an item, a small menu will pop up and show all sources available for this slot. A click on the desired item will allocate the source to the matrix.



The selection is the same for all slots, except 1 and 2 (labelled in orange): These additionally provide **audio signals as modulation sources** (output signals of oscillators 1 and 2, sub oscillator and noise generator as well as the summed up output signal of the mixer). These signal paths are processed in extra high resolution to ensure an extraordinarily high sound quality.

Most of the terminology used for the sources will speak for itself. Only the sources provided by the sequencer may require a brief introduction:

- Sequencer 1 to Sequencer 4: transmit the parameter values of the active sequencer steps, allocated to the respective sequencer track.
- Seq 1 Position to Seq 4 Position: the respective sequencer track transmits a value according to each step position (1 to 16). Depending on the playback direction of the sequencer, this setting creates a counter going upward or downward respectively.



Clicking on the **dice** symbol right underneath the sources will allocate a random selection of modulation sources to the matrix. Even though the results may differ from a standard synthesizer patch quite a bit, we are sure you will be a winner in most cases.

At least, these random settings can be a spring-board for exploring uncharted timbral territories.



Select modulation destinations

Modulation destinations are arranged horizontally. Here, too, clicking on an item will open up a drop-down menu that displays all destinations available for this slot. A click on the desired item will allocate the destination to the matrix.

The selection is the same for all slots without exceptions. Some of the labellings are self-explanatory, others are explained here:

Osc 1/2 A - D

Selects one of the four oscillator models to modulate.

Envelope 1/2

Selects an envelope module as a mod destination. Select the desired parameter directly in the envelope window (click arrow symbol).

LFO 1/2

Selects an LFO module as a mod destination. Select the desired parameter directly in the LFO window (click arrow symbol).

FX 1 - 3

Selects an effect slot as a mod destination. Select the desired effect parameter directly in the effect slot (click arrow symbol).

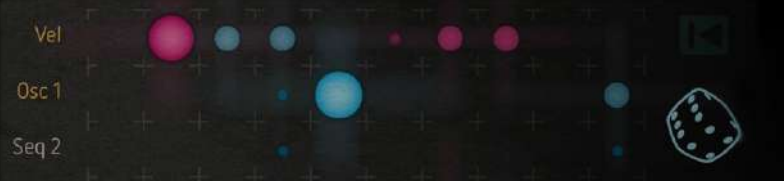
Pitch 1/2 Quant

Oscillator pitch. The modulation is quantized in semitones. A continuous mod source (e.g. LFO sinewave) will generate pitched sequences that resemble little tunes.

Pitch 1/2

Oscillator pitch – no quantization. Continuous pitch alterations will be generated this way (e.g. beat frequencies, pitch sweeps).





Select modulation destinations

Pitch Sub

Suboscillator pitch. Normally, the suboscillator follows the pitch of its master oscillator, quantized in semitones. To modulate the suboscillators pitch independently from its master oscillator, please use this setting as modulation destination. Please note that this modulation is also quantised.

Arp Voice

This one is for the voice/note allocation of the arpeggiator. This way, the order in which notes will be played back can be controlled/modulated by a modulation source.

Seq 1 – 4 Tempo

Modulates the tempo of a selected sequencer track. The tempo changes are quantized to note values in order to keep timing intact.

Dice



Clicking on the lower dice will allocate a **random selection of modulation destinations** to the matrix. Take a gamble.

Mod path mute



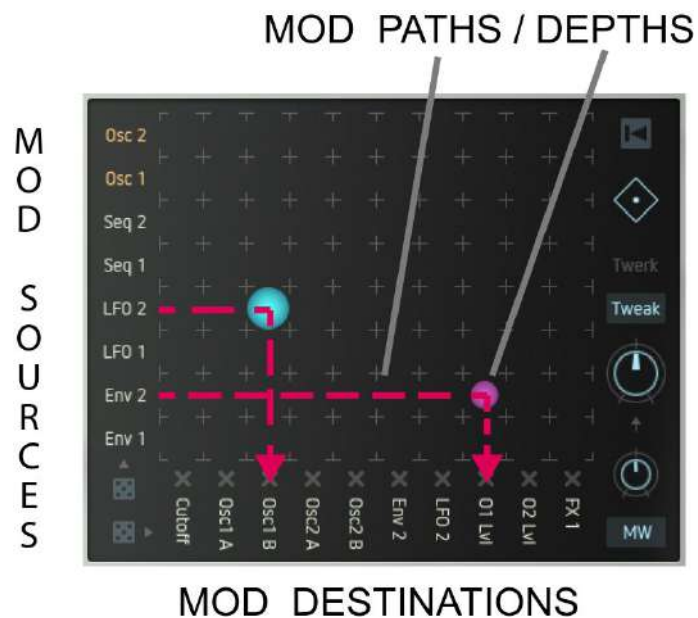
Clicking on a purple-colored „X“ will **mute the corresponding modulation path**.

This function is quite useful if you wish to tidy up the matrix temporarily or to isolate single modulation paths within a complex setting and check their respective effect on the sound or patch.



Create modulation connections / define modulation depth

To connect a source to a destination, simply place your cursor at their point of intersection in the matrix grid and move up or down while keeping your mouse depressed. This will create a coloured circle at the intersection.



The size of the circle symbolizes the modulation depth. Blue means a positive value, purple a negative value. A double-click on the circle will reset the modulation depth to zero resp. disable the modulation path. **Modulation depth and direction** is also displayed by colored bars or rings respectively, visible on the control of the destination parameter. This allows you to see at a glance which source modulates which destination at what depth.

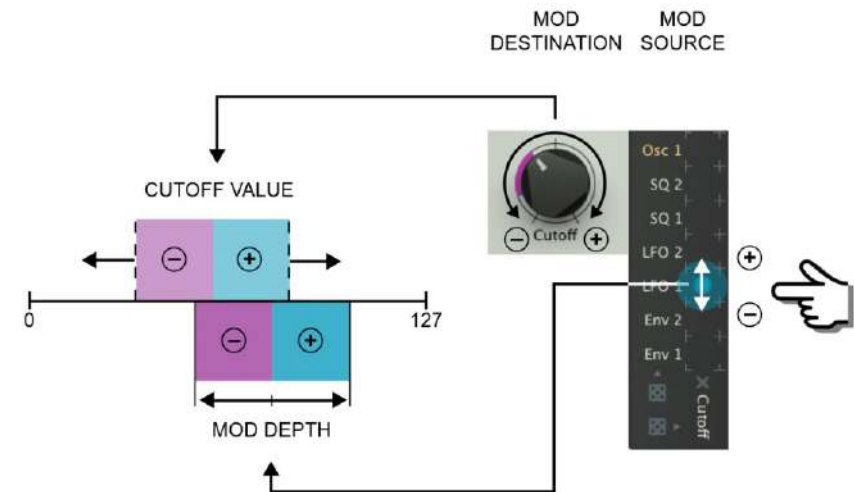
MODULATION DEPTH



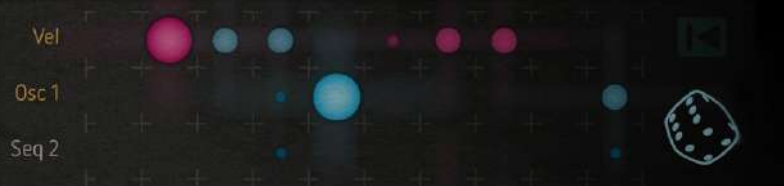
POSITIVE
VALUE



NEGATIVE
VALUE



The figure to the right explains the relation between a parameter value (here cutoff) and modulation depth. The parameter value defines the position of the modulation range. The amount of the modulation depth defines the width of the modulation range. Sounds weird, we know, but just toy around with it and you will see.

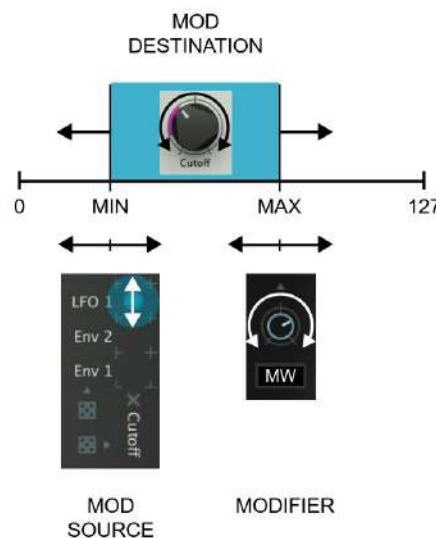
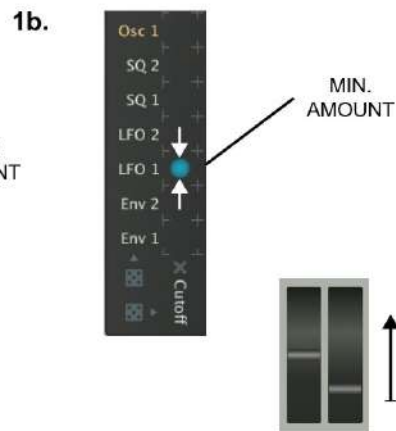
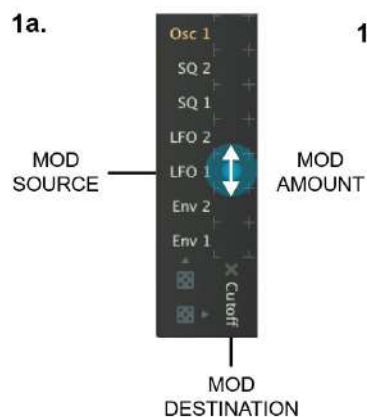


The modifier or matrix modulation

Watch video

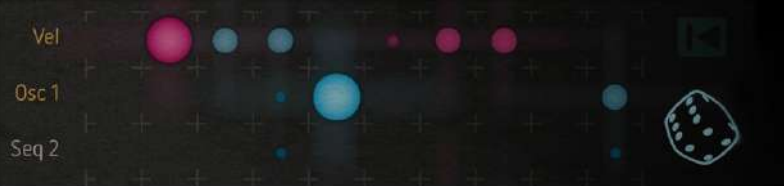
Now it is about time to introduce you to another layer of complexity inherent to the modulation path. Picture this: You want to fade in and out a timbre variation (LFO 1 → Cutoff), using the mod wheel.

First, initialize the matrix by clicking on the rewind symbol. Then proceed like this:



1a. Create a modulation path by defining a source (LFO 1), a destination (Cutoff) and a positive modulation depth (a blue circle at the intersection point). Now, a cutoff modulation should be audible (something like “wah-wah-wah” or “boink-boink-boink”, depending on the waveshape used for modulation... you get an idea).

1b. Decrease the modulation depth by reducing the circle width until the filter modulation becomes almost in-audible. This setting defines the minimal value of the modulation depth. It will be reached when the modwheel is fully turned down. But now, please turn up the modwheel fully.



The modifier or matrix modulation

2. Select the setting „Target“ from the upper popup menu.

Then select the modifier (here MW – modwheel) using the lower pop-up menu and turn up the intensity knob fully. In the matrix, a second (blue) circle with variable size will appear. This setting defines the maximum value of the modulation depth. It will be reached when the modwheel has been turned up fully.

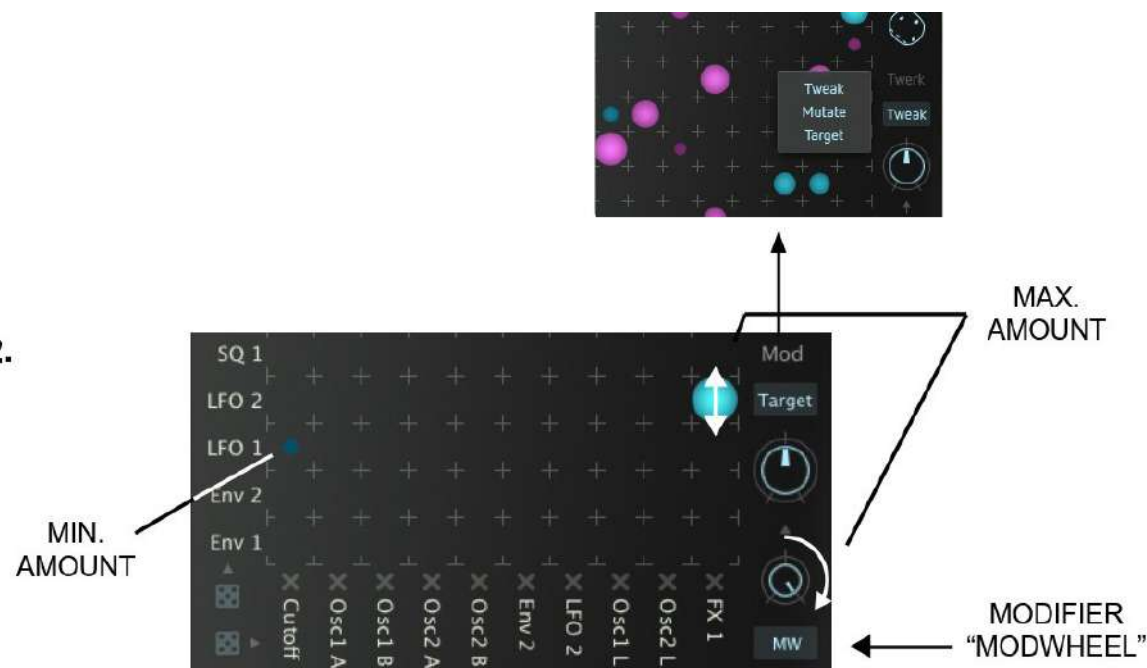
3. Turn the Target knob slowly. By doing so, you can shift the new circle to the modulation path previously created (circle at the intersection point between LFO 1 and Cutoff). Minimum and maximum modulation depths will be combined automatically.

Now turn the modwheel back and forth – the modulation depth will change within the previously defined range. By turning the Cutoff control, you can shift the position of this range.

3.



2.

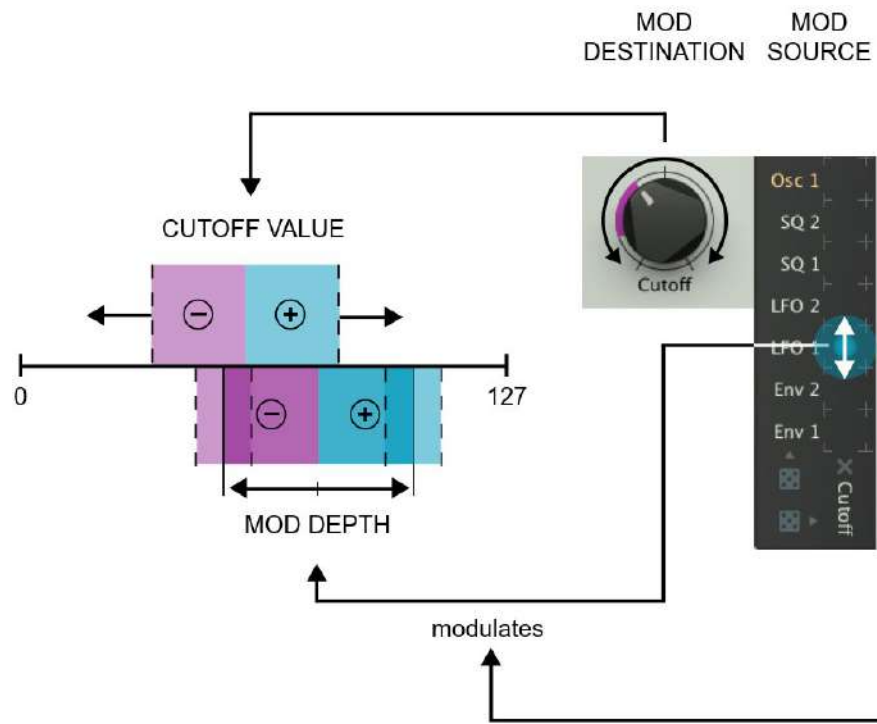


The movement of the coloured ring around the cutoff control exactly shows the resulting modulation depth/range.



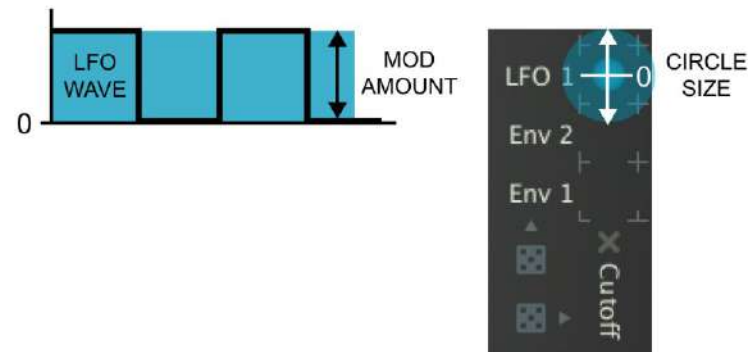
The modifier or matrix modulation

The following figure will make the relationship between the different parameters and their value settings easily understandable.



To keep things simple, we limited our example to positive modulation depths. Of course, all these values work in a bi-polar fashion. You can alter the example e.g. by using a negative modulation depth for the target. That way, the timbre variation would be increased by turning down the modwheel and vice versa. You can address one modifier at a time, e.g. mod wheel for the entire matrix.

To make sure that a circle appears in the mod matrix when setting a modifier, the corresponding modifier has to put out a positive or negative value with an amount other than zero (the example below shows LFO 1). When e.g. the modwheel is fully turned down (no output), the circle will be minimized resp. invisible. This is also why we asked you to turn up the modwheel in step 1b.





Mod Tweak and Mutate functions



In the section above, you have modulated the modulation depth of one modulation path with a modifier (e.g. modwheel). But there is more: The matrix provides an interesting function that enables the chosen modifier to **alter the modulation depths** of all active mod paths at a time. The ratio between the amounts will be retained.

Mod Tweak

Load an appropriate preset with many mod paths (e.g. „Choirbeast“).

Set the Mod parameter to Tweak.

Turn the knob below the selection window to alter all modulation depths manually.



Check, if „LFO 2“ is chosen as modifier. Turn the knob above the modifier and watch the pulsing circles in the matrix – nice, eh?

This will wipe the floor with most arcade games.

Now all modulation depths are changing simultaneously by the selected modifier (here LFO 2) – in accordance with their original ratios. When a value is exceeding its available maximum range, it will be „mirrored“.

Mod Mutate

This function works in a very similar fashion to Mod Tweak but it varies the modulation depths randomly – still in accordance with their original ratios.

By returning the knob to its original position, the initial values will be retrieved, including all stages in between.

View it as a random function with undo-option, if you wish.

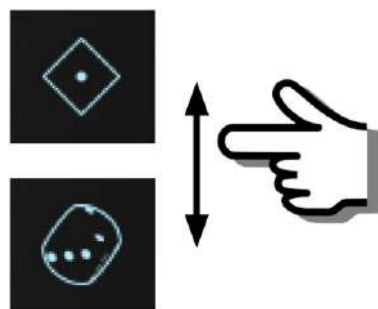
Probably unique in the known universe, and so incredibly useful (at least sometimes).



Random & Initialize

Random function (dice symbol on end)

This function automatically creates new modulation paths. Keep your mouse pressed and drag vertically across the dice symbol. The matrix will be increasingly randomised.



Again, this is the trick: By moving the mouse cursor backwards, the initial state of the matrix will be completely recreated, including all in-between stages. By moving the cursor again, exactly the same process will be repeated. By moving the cursor up and down (resp. „rolling the dice“) you can control an unlimited undo/redo function that will cover all the settings / parameters of the matrix.

The matrix will be initialised and the settings / mod paths previously active are deleted only after clicking on the backwards symbol (top right). When you are now rolling the dice again, a completely new configuration of the matrix will be generated.

Since the results are reproducible, the practical use of this system is much higher than a conventional „random“-function.

All settings that have been generated by the Mod Tweak, Mutate, and Random functions will be stored in a preset, along with all other patch data.

Initializing the matrix



Simply click the backwards symbol to erase all existing modulation paths (please see also „random function“).

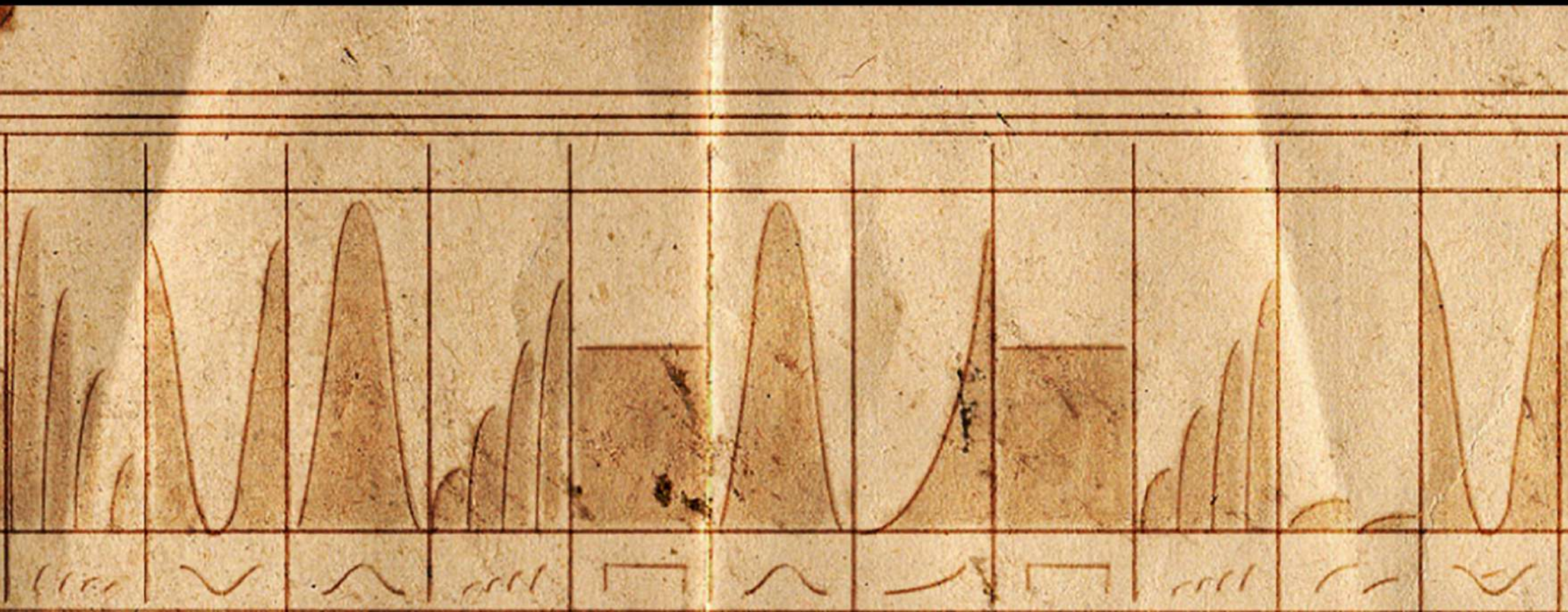
The mod depth of single modulation paths can be set to zero resp. disabled by double-clicking on the desired circle in the matrix.

Sequencer

Factory features an internal step sequencer with four tracks of up to 16 steps each.

It can control pitch and – via the mod matrix – lots of sound parameters (35 parameters, to be exact...).

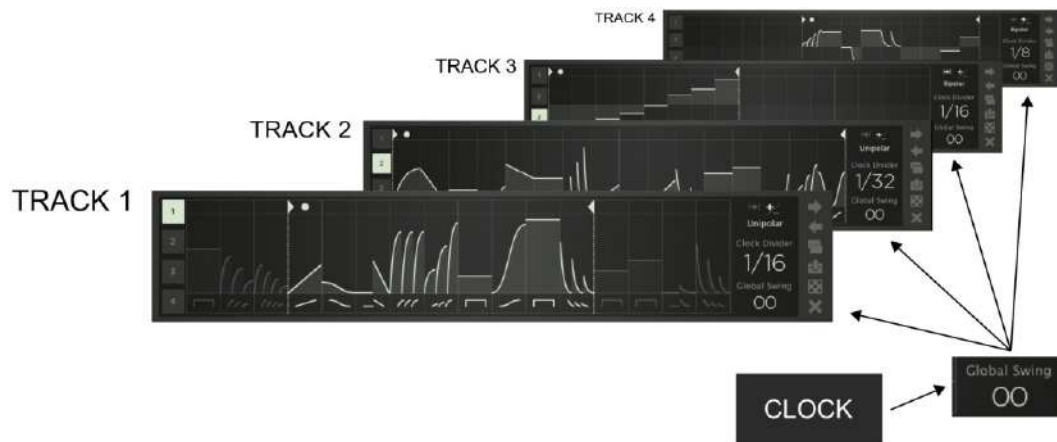
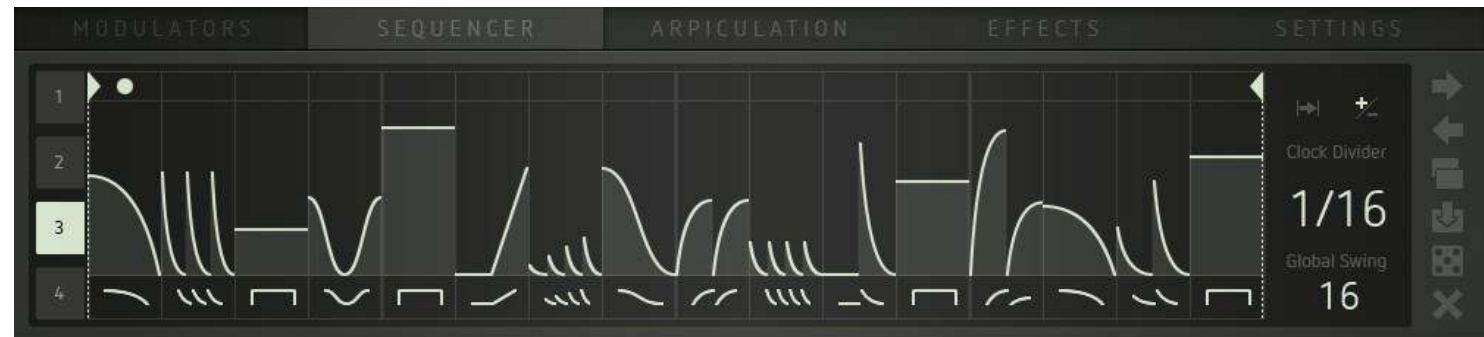
[Watch video](#)



Drawing parameter values / using Step envelopes

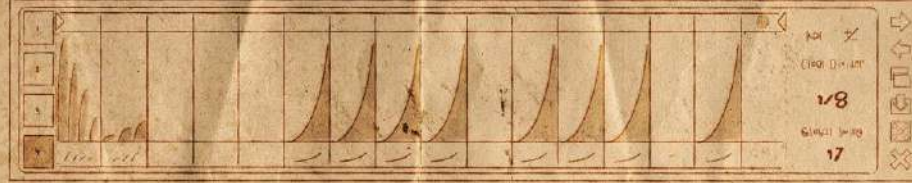
The sequencer window will always display one of the four tracks. All functions (except Global Swing) can be edited individually for each track.

When Factory is running in stand-alone mode or as plug-in with internal clock source, the sequencer will start playing when receiving a note-on command (click key on the keyboard to verify). In plug-in mode using an external clock, Factory's sequencer will be controlled by the start/stop commands of the host sequencer.



You can draw pitches resp. parameter values directly into the track window. You can select one out of 36 step envelopes per step. These will provide different envelope shapes as well as multi-triggers with steady, increasing, or decreasing levels/velocity. This will make programming pretty complex and interesting sequences as easy as eating cake (German saying... Germans love cake, among other things). It is also fairly easy to create the illusion of a sequence that contains more than 16 steps: Using e.g. step envelopes with double triggers and running the sequence at half speed will create the illusion of a sequence that is made up of 32 steps.

When using the quantized oscillator inputs (OSC1/2 Pitch Quantized) as mod destinations, ramp-shaped step envelopes will generate note sequences. Their harmonics will depend on the setting of the scale parameter in the Pitch Factory window.



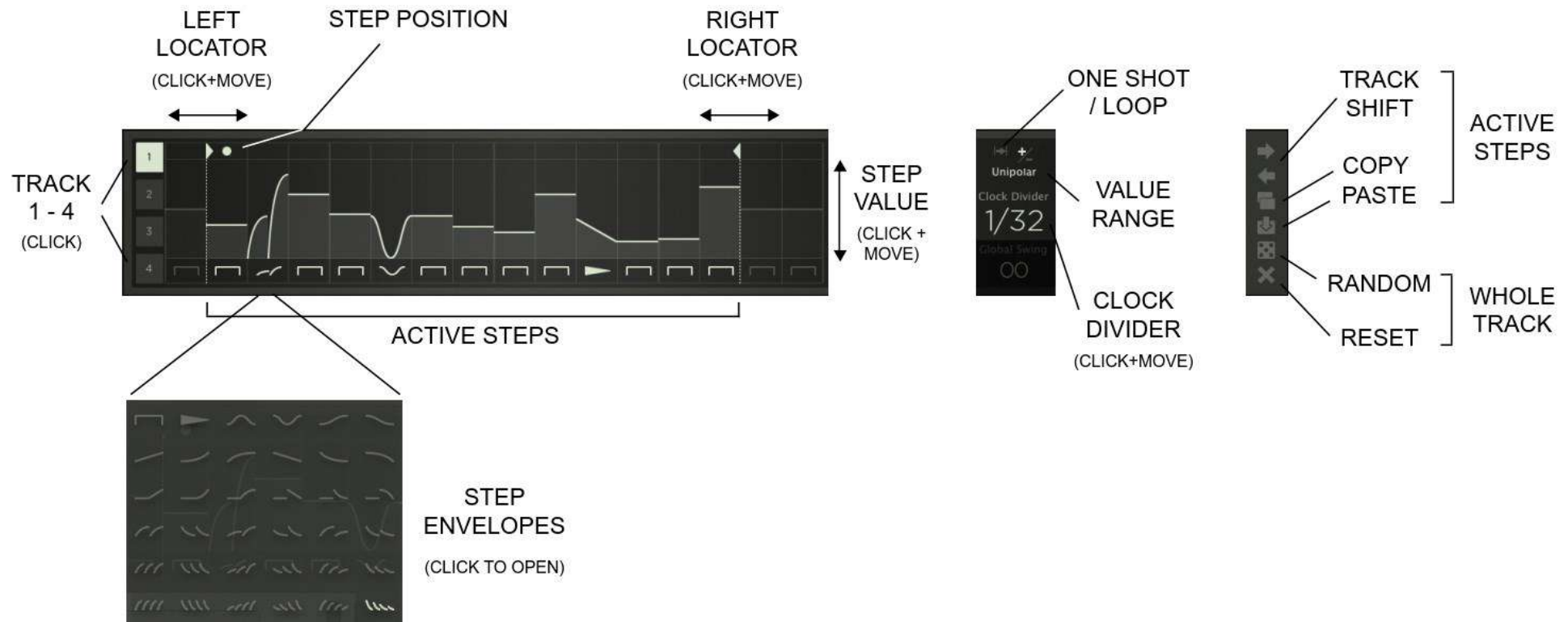
Parameters & functions

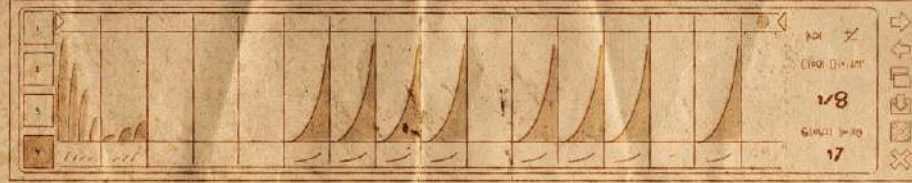
The swing function (Global Swing)

It is used to shift the offbeat steps of all tracks by the same factor. This is a global parameter. The multi-triggers are also affected by the swing function. We advise to try out the sequencer using a slow tempo first.

Track parameters and functions

The following figure shows all the available track parameters and functions:





Parameters & functions



Select a track by clicking on its number button.



By shifting the left and right locator bars, you can define the range of the track that will be played back.

Each track can have its individual playback range.



Click on the lower field of any step to open a drop-down menu containing the available step envelopes. Select the desired envelope(s) for each step.



Draw parameter values for each step.

Per track, you can select between unipolar (positive values) or bi-polar (positive and negative values) step parameter

ranges.



Each track can run as a continuous loop or in one-shot mode.



Click and drag up/down to select a clock divider that determines the clock setting resp. tempo ratio between the individual tracks.



Track Shift will move the sequence back and forth stepwise.



Clicking on the dice symbol will create a random selection of step envelopes and values for all steps of the current track.



Clicking on the X-symbol will initialize the current track, i.e. all steps will be returned to their default settings/values.



Copy will copy the range between the locator bars (now, would you believe...?).



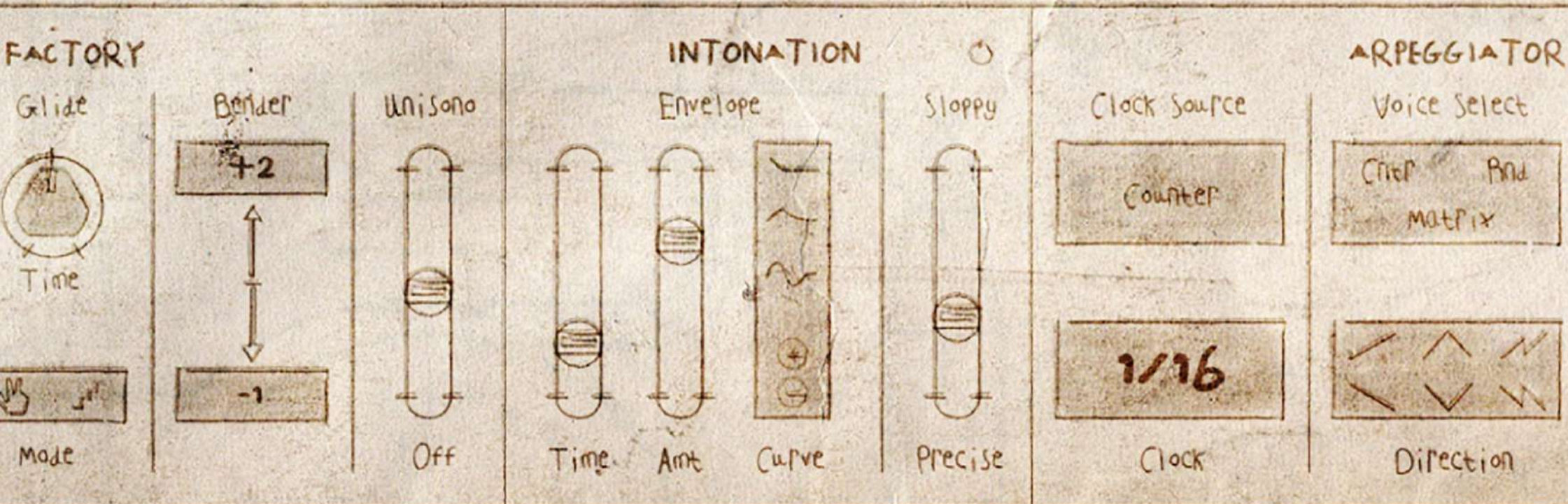
Paste will insert the copied range between the locator bars. This can be used for the same track or for a different one.

When the inserted range is smaller than the newly defined range, the inserted range will be multiplied accordingly. When the inserted range happens to be larger than the newly defined range, the redundant steps will not be inserted.

Articulation

This section provides an arpeggiator, several functions to control pitch with (Pitch Factory) as well as some parameters that produce a certain „animation“ or „vintage feel“ (... if this were a tape recorder, some would call it “wow and flutter”).

[Watch video](#)



Pitch Factory

Here you will find global functions related to pitch and polyphony.

Tune

Changes the global pitch cent-wise between 0 and +/-99 cent.

Transpose

Changes the global pitch by semitones between 0 and +/-36 semitones (3 octaves).

Quantize

Using the „Scale“ drop-down window, this will select one out of twelve musical scalings.

The „Quantize“ knob above is used to select the desired root note („C“ – „B“).

This function determines the scaling of the quantized oscillator inputs (Pitch 1/2 Quant). In combination with sequencer, arpeggiator or LFOs as modulation sources, note sequences with perfect pitch will be generated. No more odd or bum notes – unless you feel so inclined.

Glide

Time determines the duration of the glide-effect. Clicking on the staircase symbol will create a glissando (stepped) instead of a portamento (smooth) transition. When the hand symbol is active, the glide effect will be noticeable only when playing legato, i. e. not lifting your fingers between two key depressions.

Bender

Selects the intensity of the pitch bender individually for up/down movement by semitones (zero to 36 semitones / three octaves).

Unisono

Enables unison mode (voices will be stacked onto one single note for ultra-rich overkill sounds to melt worlds with... something along these lines, you know). By moving up the fader, the voices will be increasingly detuned against each other.



Intonation

These parameters sport a simple mini-envelope that will start with the note-on command coming in.

It controls pitch and Factory's intonation. Low values can create subtle inaccuracies that may result in a more „life-like“ or authentic tone you would also find with acoustic instruments or all synthesizers named „vintage“ (or in need of a service). High values will produce pitch-changes just like a sitar or slide guitar – instant Ravi or Stevie Ray.

On/Off

This button will enable the Intonation parameters.

Curve

Selects between three different envelope shapes and positive resp. negative modulation depth.

Speed

Determines the duration of the envelope.

Amt

Controls the intensity of the effect.

Sloppy/Precise

Creates a pitch imprecision at the beginning of a played note.



Arpeggiator

The arpeggiator breaks down the notes of a chord into a rising or falling sequence of pitches.
Enable / disable the arpeggiator using the on/off button.

Clock Source

This determines the clock source that drives the arpeggiator and controls its speed.
You will find the following options:

Counter

Factory's internal clock source.

Spawn

By leaving out clock pulses, a „stuttering effect“ is generated but the arpeggiator will still remain in sync with the clock source.

Seq Gate 1 – 4

The gate signals of the sequencer tracks shift on the arpeggiator.
It is synced to the sequencer.



Clock

Click and drag up/down to select a clock divider that determines the tempo.

Arpeggiator

Voice Select

This function determines the order in which the voices are played back resp. the note order.

Cntr (Counter):

The voices/notes are played back in subsequent order. The direction depends on setting of the Direction parameter.

Rnd (Random)

The voice/note allocation is controlled randomly. A random sequence will be created that way.

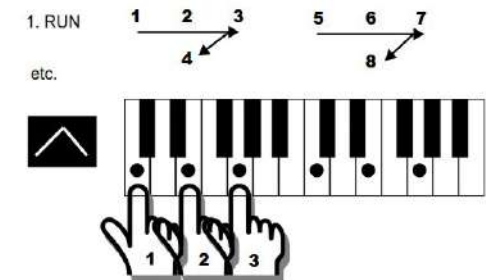
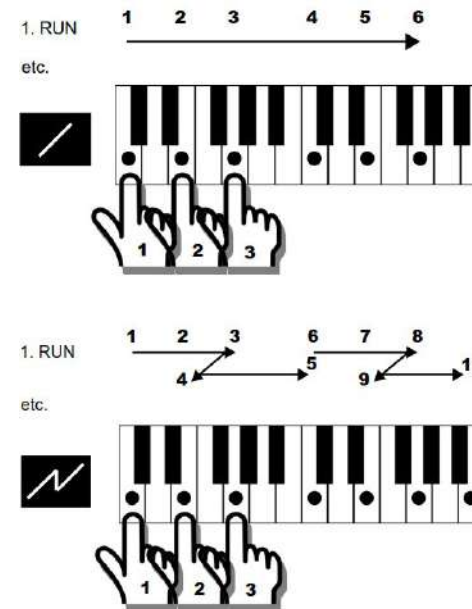
Matrix

The voice/note allocation is controlled by a modulation source through the mod matrix. Select Arp Voice as modulation destination in the matrix. This way, the note order can be controlled/modulated in various ways.

Direction

Determines the running direction resp. the melody pattern that is played by the arpeggiator within one octave.

The figures to the left explain the scheme: (Settings: Voice Select „Cntr“; Octave Range „2“):



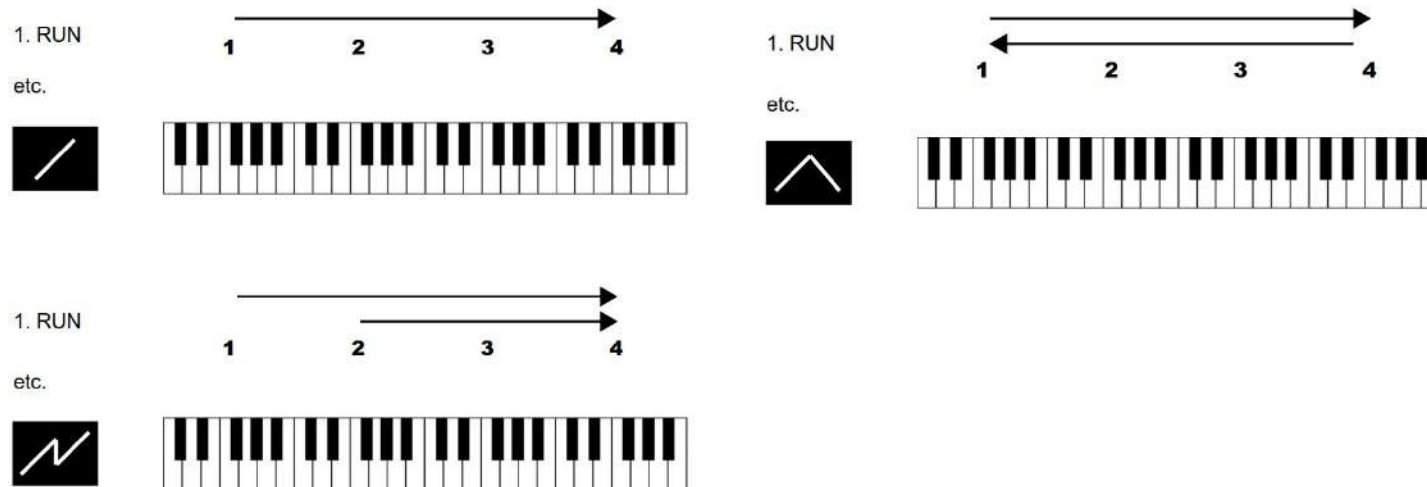
Arpeggiator

Octave Range

This function determines the number of octaves in which the arpeggio is played.

Direction

The Direction parameter (see above) will now be extended by the octaves order. The melodic motif selected by the direction parameter mentioned previously will now be repeated throughout the different octaves, according to the following scheme:
(Settings: Voice Select „Cntr“; Octave Range „4“):



The combination of both direction parameters as well as the voice select function offers countless options – from simple „oldschool” arpeggios to harp-style glissandi (or would that be glissandos?) up to weird sort-of-random sequences. To make yourself more familiar with the direction parameter, we advise you to try out the arpeggiator with a relatively simple sound preset (e.g. „Plucky Brit”) and the clock settings „Counter” and „1/4”, and go from there. The harmonic scale of the arpeggiator is determined by the parameters Scale and Root(-note, not beer) in the Pitch Factory section.

Gate

Velocity / Curve



Here you can control the velocity scaling resp. its response characteristics.

You can see the results in the graphic display.

Effects

Factory sports a powerful effect section that will help you to beef up your sounds even more. It provides three effect slots connected in series with an ample selection of 13 effects each.

You can switch their order as desired.

Modulation effects (Chorus, Phaser, Flanger) use their own internal modulation source.

In addition to this, you can modulate effect parameters using the mod matrix.



Common effect controls

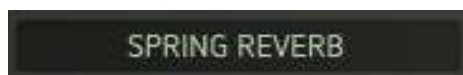
All effect slots are identical. In the upper line you will find three controls that are the same for all effect slots:



Enable/disable the effect slot with its on/off button. If you decide not to use an effect slot (Mix parameter = 0), you should disable the respective slot. This will save CPU processing power.



Click the hand symbol and drag the slot to another position.



Select an effect by clicking on the effects name. A selection window will pop up. Load the desired effect by clicking on its name.

Groove Delay

A stereo delay for rhythmic echo effects. It sports two delay clicks per channel. Their delay time can be shifted individually against each other.

Echoes

Number of repeats... repeats... repeats... re....

Rotate

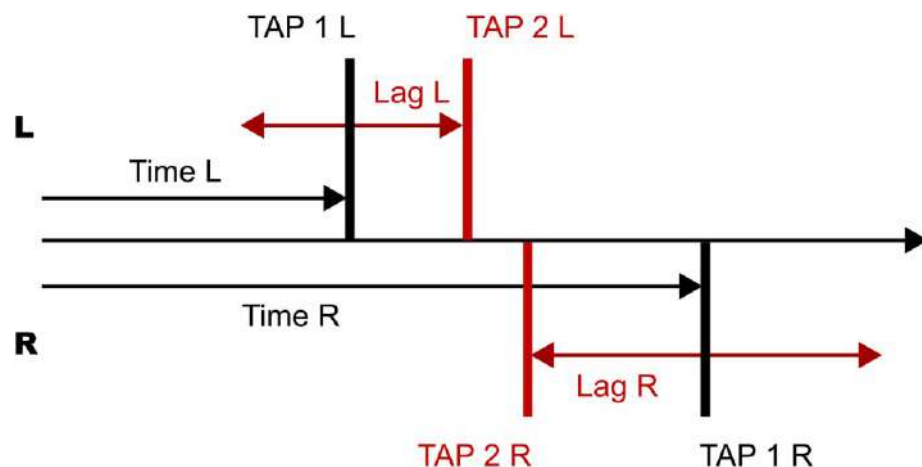
Intensity of stereo panorama movement.

Tone

Cuts the high frequencies of the echoes.

Stereo

Controls the stereo width.



Time L/R

Determines the delay time of left and right channel by 15 note values.

Lag R/L

Determines the offset of the second delay click. The value is a factor that is multiplied with the Time value. This is to make sure that the second delay click will also be synced accurately to the rhythm.

Mix

Controls the effect level within the output signal.

Pitch Delay

A stereo delay with pitch shifter and filter. Arpeggios are possible as well as tape-echo effects and weird flanger or comb filter sounds.

Time L/R

Determines the delay time of the left and right channels.
The values available depend on the Sync setting.

Sync L/R

- Sync: The Time control is scaled and selects only even note values.
- Sync TP: The Time control is scaled and selects even note values and triplets.
- Free: The delay time is controlled continuously by milliseconds.

Feedback

Number of repeats, up to self-oscillation.

Pitch

Amount of pitch shifting.

Mode

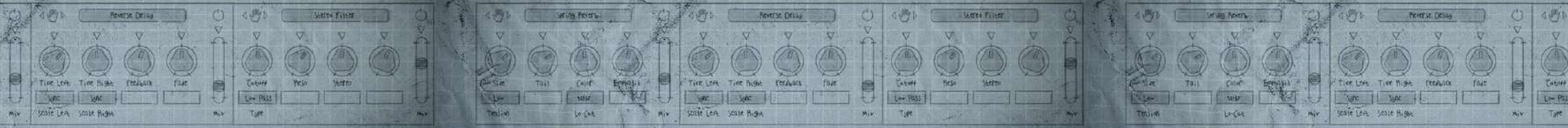
Determines the signal routing within the effect and thus the operation of the integrated filter:

- Pitch: No filter in the signal path. Turning the pitch control changes the pitch.
- + Fltr: The pitch shifter is combined with a filter (lowpass, combfilter, highpass each with or without a fixed resonance (Q)).
By turning the pitch control clockwise, the pitch is changed and the cutoff frequency will be increased and vice versa.
- Fltr: As above, but cutoff shift will be reversed.
- Fltr: The pitch control exclusively controls the cutoff frequency. No pitch shifting.

Mix

Controls the effect level within the output signal.





Reverse Delay

A stereo delay producing some kind of sdrawkcb, erm, backwards effect of a reversed tape. Great for rhythmical effects, or for summoning the Dark Lord (instant subliminal messages also work great... try klim emos teg or redrum or the like the next time round).

Time L/R

Determines the delay time of the left and right channels. The values available depend on the Scale setting.

Sync L/R

- Sync: The Time control is scaled and selects only even note values.
- Sync TP: The Time control is scaled and selects even note values and triplets.
- Free: The delay time is controlled continuously by milliseconds.

Feedback

Number of repeats.. repea... okay, we have already had a laugh here.

Fade

Controls the intensity of the backwards effect.

Mix

Controls the effect level within the output signal.



Corpus

Emulates the effect of a resonant body of definable shape and material.

Provides an ambience effect without audible reverb tail while colouring the sound at the same time – most interesting in combination with the „Waveguide“ oscillator model.

Size

Simulates the size of the resonant body.

Tail

Controls the decay time of the ambience effect.

Shape

Simulates the shape of the resonant body.

Material

Simulates the material of the resonant body.

Mix

Controls the effect level within the output signal.



Pianoverb

Combines a reverb with a resonator effect.

The sound characteristics of the reverb can be tweaked across a wide range and resemble the sonic properties inside a piano enclosure. By using the right parameter values, you can create stunning „impossible rooms“ effects.

Size

Simulates the size of the resonant body / room

Tail

Controls the decay time.

Color

Colours the reverb sound from dull to bright.

Reso

Simulates resonances and alters the reverb sound.

Mix

Controls the effect level within the output signal.



Shimmer

Combines a reverb with a pitch-shifter effect – cool...!

The reverb tail is pitch-shifted by an octave up/down.

Nice for the emulation of very large rooms / halls and the creation of weird ambient effects.

Size

Simulates the size of the room.

Tail

Controls the decay time of the reverb tail.

Tune

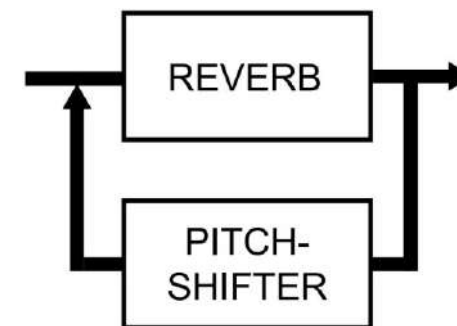
Amount of pitch-shifting (+/- 12 semitones).

Effect

Controls the level of the pitch-shifted signal portion.

Mix

Controls the effect level within the output signal.



Spring Reverb

Emulates the typical sound of a spring reverb (i. e. the “boink!” factor).

Size

Simulates the room size resp. the length of the spring.

Tail

Controls the decay time of the reverb tail.

Color

Cuts high frequencies.

Emphasis

Another filter to sculpt the sound with.

Tension

Simulates the tension of the spring in four discrete steps.

Lo-Cut

Cuts low frequencies from the reverb signal in four discrete steps – this is to avoid „booming“ noise.

Mix

Controls the effect level within the output signal.



Whiteverb

Another reverb effect with just a few but very effective parameters – very useful for many applications.

Can do a very good job when used only in small amounts.

Size

Simulates the room size resp. the size of the plate.

Tail

Controls the decay time of the reverb tail.

Hi-Cut

Cuts high frequencies from the reverb signal.

Mix

Controls the effect level within the output signal.



Equalizer

A fully parametric EQ with two bands that can be overlapping.

Freq 1

Center frequency of the first band.

Level 1

Cut/boost of the first band.

Q 1

Width of the first band in six discrete steps (1 – 6 octaves).

Freq 2

Center frequency of the second band.

Level 2

Cut/boost of the second band.

Q 2

Width of the second band in six discrete steps (1 – 6 octaves).

Mix

Controls the effect level within the output signal.



Stereo Filter

A multimode filter with resonance but no internal modulation.

By modulating it via the mod matrix, it can be used as a fully-fledged second filter in Factory's signal path.

With modulation also useful for creating stereo panning effects.

Type

Determines the filter characteristics (lowpass, bandpass, highpass).

Cutoff

Operating point of the filter (cutoff resp. center frequency).

Reso

Controls the intensity of the resonance. Emphasizes frequencies around the cutoff frequency point.

Stereo

Controls the cutoff-offset between left and right channel and thus the stereo position of the effect signal.

Mix

Controls the effect level within the output signal.



Dynamic Filter

A multimode filter with resonance and internal modulation by an envelope follower. Provides level-controlled wah-wah and flanger-like effects.

Type

Determines the filter characteristics (lowpass, bandpass, highpass).

Cutoff

Operating point of the filter (cutoff resp. center frequency).

Reso

Controls the intensity of the resonance. “Peaks” the sound around the cutoff frequency.

Amount

Sets the threshold level of the envelope follower and controls the cutoff resp. the intensity of the effect, depending on the level of the input signal.

Rate

Determines the duration of the envelope and thus the speed of the filter effect from slow (left) to fast (right).

Mix

Controls the effect level within the output signal.



Chorus

A classic stereo chorus, would you believe – simple but effective.
Great not only for pad sounds.

Rate

Controls the speed of the internal modulation.

Depth

Controls the internal modulation depth resp. the intensity of the effect.

Stereo

Controls the stereo width of the effect.

Mix

Controls the effect level within the output signal.



Phaser

Also a classic: the phaser effect.

Rate

Controls the speed of the internal modulation.

Color

Changes the sonic response of the effect.

Depth

Controls the internal modulation depth resp. the intensity of the effect.

Mix

Controls the effect level in the output signal.



Flanger

A flanger with flexible control and a wide palette of sounds.

Rate

Controls the speed of the internal modulation.

Amount

Controls the internal modulation depth.

Depth

Controls the delay time and produces either flanging, doubling, or combfilter effects.

Feedback

Determines the feedback intensity.

Mix

Controls the effect level within the output signal.



Shatter

Provides a combination of a tremolo effect (level vibrato) and a filter vibrato.
Very good response to dynamic input signals.

Rate

Controls the speed of the internal modulation.

Filter

Alters the effects sound from dull to bright colours.

Mix

Controls the effect level within the output signal.



Lofizer

A grinding lo-fi effect which will always be useful when you believe your nicest sound creations to be a tad too nice perhaps...

Reduce

Decreases the bit rate of the signal.

Crush

A really evil bit crusher. Depending on the settings of the other parameters, the signal might become inaudible. Tweak carefully.

Sinize

The signal is modulated by a sine wave which results in a sound a ringmodulator would produce. The control determines the frequency of the sinewave.

Turned fully counter-clockwise, this modulation effect will be disabled (off).

Distorsion

Provides a mild level boost with harmonic distortion – nice and nasty... Turned fully counter-clockwise, the distorsion effect will be disabled (off).

Mix

Controls the effect level within the output signal.



Compmax

A very handy tool for controlling volume levels and increasing overall loudness. You can boost sounds that appear a little weak – also very handy for e.g. drum- and percussion loops / rhythmic sounds. If necessary, reduce Factorys output level (Vol) a bit.

Compress

Controls operating point of the compressor and thus the intensity of the level compression.

Attack

Controls the attack response time of the compressor in five discrete steps.

Release

Controls the release response time of the compressor – synced to Factorys clock source. Makes the creation of rhythmically „pumping” effects easy.

Maximize

Determines the intensity of the gain maximization.

Release

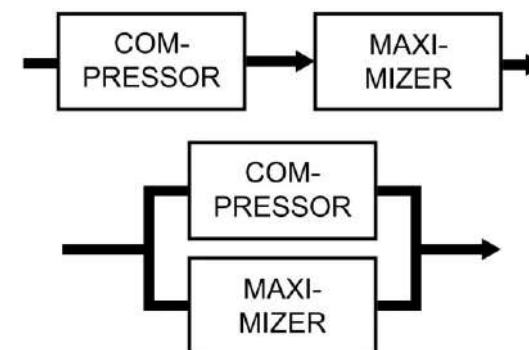
Controls the release response time of the maximizers – also synced to Factorys clock source.

Signal Flow

Determines whether compressor and maximizer work in series or in parallel. To obtain heavy pumping effects, please use serial routing and adjust all parameters carefully.

Mix

Controls the effect level within the output signal.



Modulating effect parameters

Most of the effect parameters can be controlled via the modulation matrix.

This is an easy way to create very interesting and catchy sounds.

Imagine delay patterns controlled by the sequencer, or a bit-reduction/distortion effect controlled by keyboard pressure... Here we go:



First, create a modulation path in the matrix with the desired effect slot as modulation destination (FX 1, FX 2 or FX 3).

Now click one (or more) of the arrow symbols, placed right above every effect parameter control.

The corresponding effect parameter(s) will now be modulated.

Range, Depth and rate of the modulation will again be displayed by a colored ring / bar on the corresponding control element.



Settings

The Settings Tab opens the About Screen where you find some global settings and functions...





Settings

Clock

Determines the clock source for Factory's timing-related parameters (sequencer and arpeggiator speed, LFO rate etc). Available settings are:

Internal

Factory's internal clock source is active.

External

Factory processes an external clock from the host sequencer. With „Host Start“ enabled, Factory will also require start/stop commands etc. from the host sequencer / DAW.

CC Map

This function provides load and save of MIDI controller mappings independent of a sound preset. Click the folder/disk symbols to open your computer's file browser and save resp. select and load the desired CC map.

CC Preset Isolate

MIDI Learn settings won't change when loading presets.

Monophonic/Legato

If the „Monophonic“ check mark is placed, Factory works monophonic. With the „Legato“ check mark placed, new legato played notes will not trigger the envelopes.

Sound

Here you can tailor the sound character of the filter / drive section to your personal taste. You will find a detailed description of these parameters in the filter / drive chapter.

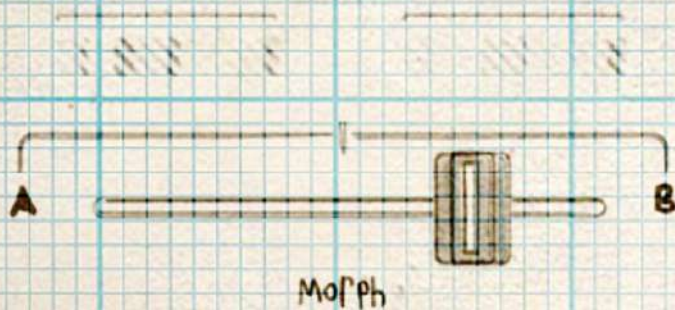
Extras

Here you can find your Factory's **version- and serial number**. Please make sure, that you are always running the latest version. By clicking „?“, you are directed to Factory's user manual.

Adjust the Factory GUI to your monitor screen size via the **Zoom** menu or click into an empty area in Factory, then hold down the Ctrl key and press „+“ to increase the size or „-“ to decrease the size.

Realtime Controllers

In addition to the keyboard, Factory also sports a pitch bender, a modwheel, and a Morph fader.



**CROSSFADER
FOR ON THE-FLY
SOUNDMORPHING**



Keyboard, Pitch Bender & Modwheel

Keyboard

Factory's keyboard generates velocity data: Depending on the contact point on a key, the velocity values will change.

All other keyboard-related parameters can be found in the Pitch Factory window.

Pitch Bender

Modulation depth and direction are also defined in the [Arpication](#) window.

Modwheel

The setup of the modwheel is performed with the assistance of the [modulation matrix](#).



Morph Fader

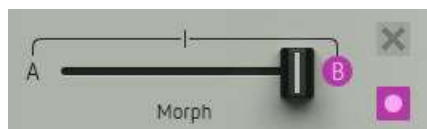
Watch video

The Morph fader enables you to perform complex timbre changes by just one single fader movement. You can blend between two settings „A“ and „B“. This simple example says more than a thousand words:

- Click the record button of the Morph fader. Depending on the faders current position, the „A“ or „B“ button „lights up“.



- Move some parameter knobs and faders.
- Now move the Morph fader and watch the control surface. All knob and fader movements performed after clicking the record button have been recorded and are now reproduced simultaneously by moving just the Morph fader. Each additional parameter movement will also be recorded and reproduced by the Morph fader.



- Again, click on the record button of the Morph fader. Its record function will now be disabled. All previously performed knob and fader movements will still be reproduced, but no new ones will be recorded.
- As soon as you enable the record function again, knob and fader movements will be recorded on top of the existing ones etc.
- By clicking on the X-symbol, all previously recorded knob and fader movements will be erased. The latest knob and fader settings can now become the starting point of further sound editing.



Morph Fader

The Morph fader itself can be remote-controlled from a MIDI controller.

It can be very cool to assign the mod wheels MIDI CC (# 1) to the morph fader (please see below „MIDI CC assignment“).

The Morph fader records all continuously variable parameters, i.e. knobs and faders. This includes the modulation depths defined in the mod matrix, as well as its knob settings and the random function (dice symbol).

The tuning parameters of the oscillators, clock divider settings of the master clock and sequencer tracks as well as the sequencers' global swing will also be recorded.

Switching functions or parameter values that are selected via a pop-up menu (e.g. Time-parameter of the Groove Delay) will not be recorded by the Morph fader.



MIDI CC Assignments

Factory can receive MIDI from any source (incl. virtual MIDI).

MIDI LEARN

Right-click any control and click the left MIDI socket symbol to assign incoming MIDI CCs.

Click the field labelled „number“ and key in the desired CC number.

Click somewhere into the GUI area to close the popup window.

To erase the assignment, open up the popup window and click the crossed out MIDI socket symbol.

Within a DAW Factory's MIDI Learn settings will be saved with the song.

When using the Standalone version of Factory:

If CC Preset Isolate is enabled in the MIDI Settings of Factory MIDI Learn settings won't change when loading presets.

If CC Preset Isolate is unchecked the CC Map will be recalled with the related preset.



Host Integration

Cubase

Perform a full rescan in the Cubase plugin manager. Make sure that the Factory.dll/Factory.vst3 (Win) or Factory.vst/ Factory.vst3 (macOS) file is contained in Cubase's assigned VST Plugins folder. Load Factory as Instrument into an Instrument track.

Ableton Live

When using macOS, we recommend using the VST version of Factory in Live. Please note: With Ableton Live, plugins sometimes will be marked as unloadable and not rescanned automatically. If this happens to be the case, force a rescan by unchecking and checking the, 'Use custom VST Folder' checkbox in Preferences/File Folder/Plug-In Sources. Set up a MIDI track and insert Factory as instrument.

Pro Tools

When installing Factory, select AAX plug-in format. (AAX 64 is supported by Pro Tools 11 and higher.) Use Factory as an instrument.

Studio One

Go to the Studio One menu and choose Options. Click Locations, then VST Plug-Ins. Click the Add... button and select your VST Plugins folder. Press OK. Create an instrument track and pick Factory up from the Instrument list.

Sonar

Make sure that Factory is installed in the VST Plugins folder. Insert Factory as a „soft synth“.

Logic

Select Factory as an AU-Instrument from the I/O dialogue of a Software Instrument track.

FL Studio

Go to Channels>Add one>More...There you should find Factory and perform a refresh. You can now open Factory in the Mixer Inserts.



Installation

Download (requires login) the latest version [here](#). Double-click the installer and follow the instructions provided by the installation process.

The standalone version and **manual** will be installed into:

Windows: C:\Program Files\Sugar Bytes\Factory

macOS: /Applications/Sugar Bytes/Factory

macOS

Default installation paths:

VST2 /Library/Audio/Plug-Ins/VST/

VST3 /Library/Audio/Plug-Ins/VST3/

AU /Library/Audio/Plug-Ins/Components/

AAX /Library/Application Support/Avid/Audio/Plug-Ins

Presets will be installed into

\Users\YOURLOGINNAME (your home folder)Documents\Sugar Bytes\Factory

Important: Do not relocate Factory presets after installation!

Windows

Default installation paths:

VST2 C:\Program Files\VSTPlugins

VST3 C:\Program Files\Common Files\VST3

AAX C:\Program Files\Common Files\Avid\Audio\Plug-Ins



Uninstallation

To uninstall Factory, please follow the instructions:

Windows

Uninstall Factory under Control Panel>Add/Remove Software.

macOS

Delete all the following files and folders:

/Applications/Sugar Bytes/Factory
/Library/Audio/Plug-Ins/VST/Factory.vst
/Library/Audio/Plug-Ins/VST3/Factory.vst3
/Library/Audio/Plug-Ins/Components/Factory.component
/Library/Application Support/Avid/Audio/Plug-Ins/Factory.aaxplugin

~/Documents/Sugar Bytes/Factory
~/Library/Preferences/com.sugar-bytes.Factory.plist



Authorization

The serial number is requested during installation. If the serial number is missing or incorrect, the product will not produce any sound. Check the top area of the Factory interface to verify whether your serial number is VALID. Manually entering the correct serial number there or performing a quick reinstall, should fix any issues. One License covers both the macOS and Windows version and can be activated for two computers at the same time. For use on more than two computers, please buy an additional license.

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