NONLINEARLABS

C15

Parameter Reference

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Contents

Comment

This document contains a parameter reference that is not up to date with the parameter extensions of the 2020 Update. Still, we think it will be a useful source of information until the latest version will be integrated into the C15 documentation.

Here a list of new parameters and other changes which are not included in the reference part:

Monophonic Modes
The voice allocation now supports monophonic playing with Lowest, Highest and Last Key priority, four different Legato modes and an adjustable Glide time. (Up to 24 unison voices can be layered.)

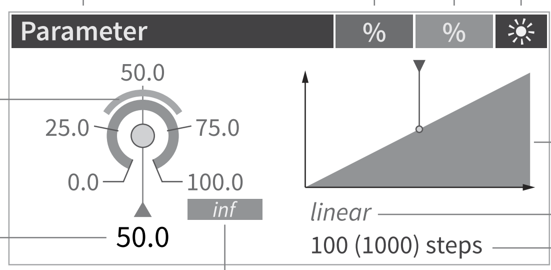
Six Macro Controls
The four existing MacroControls (A, B, C, D) are extended by E and F.
All six Macros are also available in the MCView, a 2-D control surface for touch screens.

More Modulation Targets
Additional parameters (e.g. the Oscillator Phases) can be assigned to the MacroControls.

New Parameters
- Envelope A/B: Velocity amounts for the Decay 1 and Decay 2 times
- Envelope A/B: Elevate can raise the Breakpoint and Sustain levels for the timbre or the amplitude of an oscillator.
- Envelope C: Retrigger Hardness can control the starting point of mono voices
- Oscillator A/B: Reset can be disabled for free-running mode
- Tremolo effect as an extension of the Flanger
- Dual mode: Volume and Tune for Part I and II
- Layer mode: Fade From (key), Fade Range
- Feedback Mixer: more inputs for cross routing in LayerMode
- Output Mixer: signal split to both Dual mode effect chains
- Individual smoothing times for the six MacroControls
- Setting: Adjustable tuning reference: 440 +/-40 Hz

Extended Parameter Ranges and Resolutions
- Unison with up to 24 voices (before: 12)
- Bipolar Level Velocity amounts (for velocity crossfades)

Legend to signs and symbols



Parameter Name
The background color indicates if a parameter is directly selectable on the Hardware User Interface, being on top of the corresponding parameter stack (dark grey), or if the selection of this parameter takes more than one push of a button (light grey).

Modulation Indicator
A modulation segment is shown, if a parameter can be modulated.

Factory Default Value

“inf” Indicator
For some parameters at the lower or upper end of their range the value will get infinite and will be replaced by “-inf” or “inf”.

Parameter Unit (see table below)

Modulation Unit
If a parameter is a modulation target for Macro Controls, the unit of the modulation amount will be indicated.

Active Indicator
This symbol indicates if a parameter is influencing the signal flow of the synth, as indicated by its LED.

Value Graph, min to max

Scaling Type, see table below

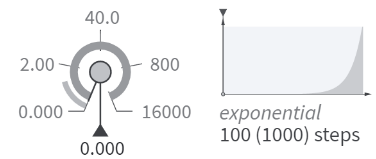
Resolution, coarse (fine)

Unit Reference	
%	Amount-like parameters often use a normalized value range in percent (%), spanning from zero (or -100, when the parameter is bipolar) to 100 percent.
ms	Time-relevant parameters indicate their values in milliseconds (ms), meaning that 1000 ms equal one second.
st	Pitch-relevant parameters indicate their values in semitones (st). The interval of one semitone corresponds to two consecutive keys (at default key tracking). 12 semitones equal one octave.
ct	The Scale Offset parameters are also pitch-relevant, but show their values in cents (ct), offering more precision. 100 cents correspond to one semitone.
dB	Gain-relevant parameters show their values in decibel (dB), the common format of representing signal levels. Zero decibel correspond to 100 % signal, and a difference of 6 dB approaches a doubling of the signal.
dB_T	Attack and Release Velocity parameters come with a custom time-related format in decibel (dB_T). A full velocity will decrease the corresponding Envelope segment time by the indicated value in dB (6 dB approaching 50 % of the given time).
dB/st	Envelope Level Key Track parameters come with a custom gain-related format in decibel per semitone (dB/st). The corresponding gain will change according to the played key by the given amount of decibel per semitone.
Hz	The Flanger Rate parameter indicates its values in Hertz (Hz), the number of oscillations per second.
deg	Phase-related parameters indicate their values in degrees (deg), meaning that 360 degrees correspond to a full circle.

Scaling Types	
linear	Most parameters have a continuous, linear scaling type. This type is suitable when the displayed value is directly proportional to the control position and precision remains constant for the whole value range.
exponential	Envelope times and the Comb Filter Decay time have an exponential scaling type, covering a wide value range with decreasing precision. The displayed value doesn’t rise by a constant value, but rather by a factor (20 per quarter).
parabolic	Some parameters (effect times for example) have a parabolic scaling type instead of being linear. The displayed value is proportional to the square of the control position in this case. The resulting behaviour of the parameter feels more realistic as if it would use linear scaling.
parabolic (gain)	The Mixer and Main Output levels come with a parabolic gain scaling type and show their value in decibels (dB). At minimum, they will mute the signal, at the center position, they will not affect the signal at all and at maximum, they will amplify the signal by 12 dB (~400%).
integer	Non-continuous parameters with discrete values (such as Unison Voices and Scale Base Key) come with the integer scaling type. This is suitable for sufficiently low value ranges and results in a switch-like behaviour. The fine mode is not effective in this case.

Envelope A

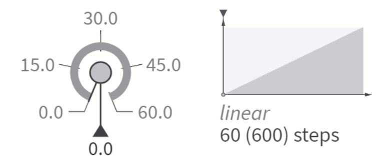
Attack Time | ms | %



exponential
100 (1000) steps

Time of the (polynomial) Attack segment in milliseconds.

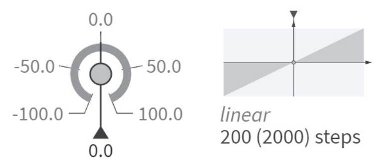
Attack Velocity | dB_T



linear
60 (600) steps

Velocity influence on the Attack time. The value represents the logarithmic amount of the reduction of the Attack time by high Note-On velocities.

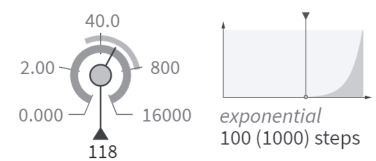
Attack Curve | %



linear
200 (2000) steps

Curvature of the (polynomial) Attack segment.
(negative: decelerating slope, zero: linear, positive: accelerating slope)

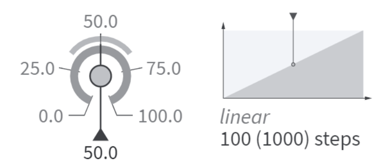
Decay 1 Time | ms | %



exponential
100 (1000) steps

Time of the first (linear) Decay segment in milliseconds.

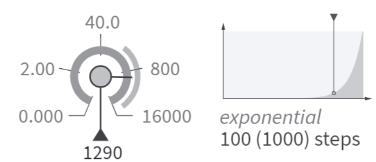
Breakpoint Level | % | %



linear
100 (1000) steps

Level of the Breakpoint between the two Decay segments.

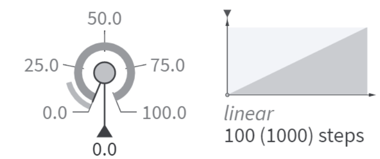
Decay 2 Time | ms | %



exponential
100 (1000) steps

Time of the second (exponential) Decay segment in milliseconds.

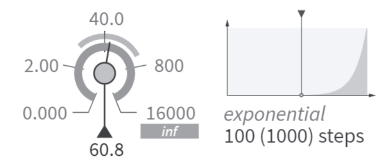
Sustain Level | % | % | ☀



linear
100 (1000) steps

Sustain level (target of the second Decay segment).

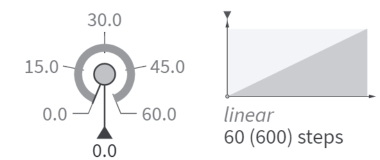
Release Time | ms | %



exponential
100 (1000) steps

Time of the (exponential) Release segment in milliseconds (infinite at maximum).

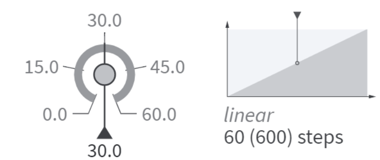
Release Velocity | dB_T



linear
60 (600) steps

Velocity influence on the Release time. The value represents the logarithmic amount of the reduction of the Release time by high Note-Off velocities.

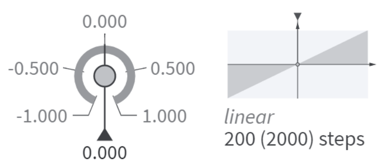
Level Velocity | dB



linear
60 (600) steps

Influence of the key velocity on the peak, breakpoint and sustain levels of the envelope [maximum dynamic range in dB].

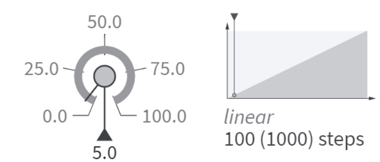
Level Key Trk | dB/st



linear
200 (2000) steps

Key tracking of the envelope's peak, breakpoint and sustain levels [dB per semitone].
Positive values: higher levels for higher notes (+1.0 = +12 dB per octave).
Negative values: lower levels for higher notes (-1.0 = -12 dB per octave). Origin at C3 = 60 semitones.

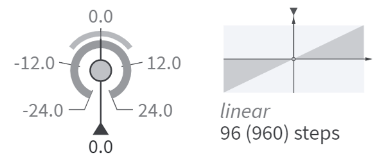
Time Key Trk | %



linear
100 (1000) steps

Key tracking of the attack, decay and release times. The value determines how much shorter the times get for higher notes.

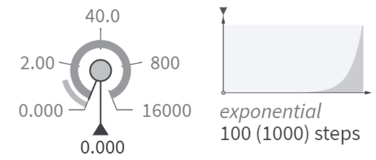
Gain | dB | dB



Gain [in dB] of the envelope signal. As this signal modulates the Oscillator and Shaper A, the Gain influences the level and the amount of phase modulation and distortion.

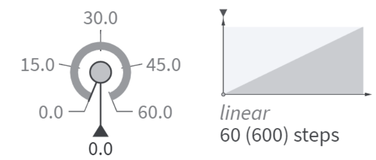
Envelope B

Attack Time | ms | %



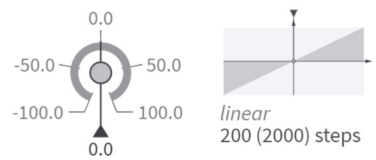
Time of the (polynomial) Attack segment in milliseconds.

Attack Velocity | dB_T



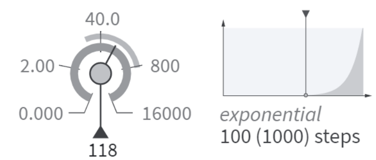
Velocity influence on the Attack time. The value represents the logarithmic amount of the reduction of the Attack time by high Note-On velocities.

Attack Curve | %



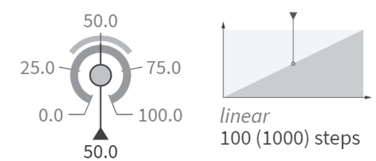
Curvature of the (polynomial) Attack segment.
(negative: decelerating slope, zero: linear, positive: accelerating slope)

Decay 1 Time | ms | %



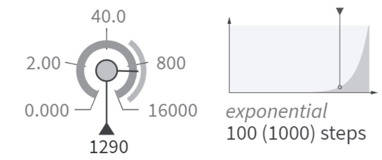
Time of the first (linear) Decay segment in milliseconds.

Breakpoint Level | % | %



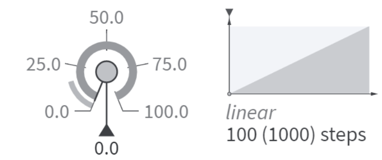
Level of the Breakpoint between the two Decay segments.

Decay 2 Time | ms | %



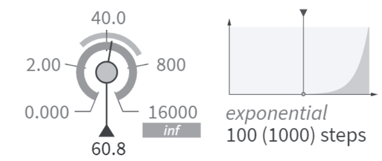
Time of the second (exponential) Decay segment in milliseconds.

Sustain Level | % | %



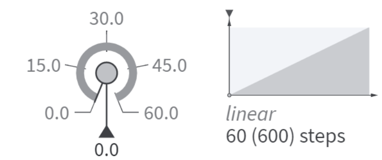
Sustain level (target of the second Decay segment).

Release Time | ms | %



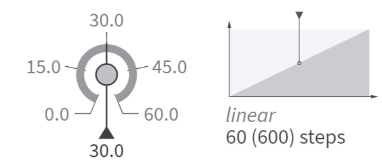
Time of the (exponential) Release segment in milliseconds (infinite at maximum).

Release Velocity | dB_T



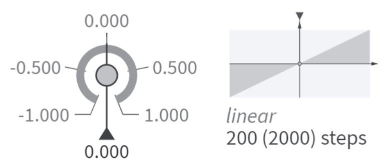
Velocity influence on the Release time. The value represents the logarithmic amount of the reduction of the Release time by high Note-Off velocities.

Level Velocity | dB



Influence of the key velocity on the peak, breakpoint and sustain levels of the envelope [maximum dynamic range in dB].

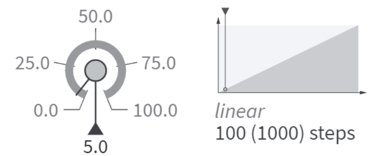
Level Key Trk | dB/st



Key tracking of the envelope's peak, breakpoint and sustain levels [dB per semitone].
Positive values: higher levels for higher notes (+1.0 = +12 dB per octave). Negative values: lower levels for higher notes (-1.0 = -12 dB per octave).
Origin at C3 = 60 semitones.

Time Key Trk

%

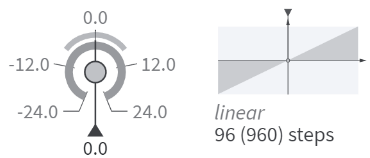


linear
100 (1000) steps

Key tracking of the attack, decay and release times. The value determines how much shorter the times get for higher notes.

Gain

dB | dB | ☀



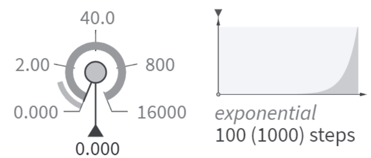
linear
96 (960) steps

Gain [in dB] of the envelope signal. As this signal modulates the Oscillator and Shaper B, the Gain influences the level and the amount of phase modulation and distortion.

Envelope C

Attack Time

ms | %

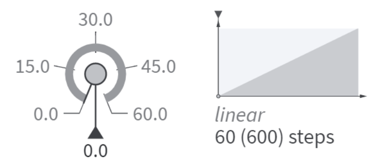


exponential
100 (1000) steps

Time of the (polynomial) Attack segment in milliseconds.

Attack Velocity

dB_T



linear
60 (600) steps

Velocity influence on the Attack time. The value represents the logarithmic amount of the reduction of the Attack time by high Note-On velocities.

Attack Curve

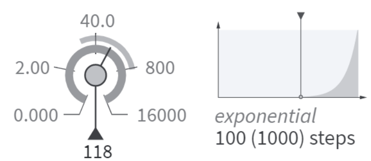
%

linear
200 (2000) steps

Curvature of the (polynomial) Attack segment.
(negative: decelerating slope, zero: linear, positive: accelerating slope)

Decay 1 Time

ms | %

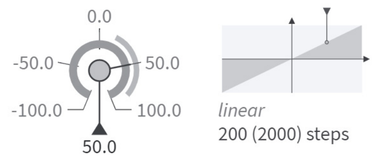


exponential
100 (1000) steps

Time of the first (linear) Decay segment in milliseconds.

Breakpoint Level

% | %

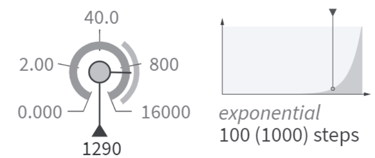


linear
200 (2000) steps

Level of the Breakpoint between the two Decay segments.

Decay 2 Time

ms | %

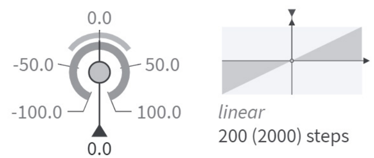


exponential
100 (1000) steps

Time of the second (exponential) Decay segment in milliseconds.

Sustain Level

% | % | ☀

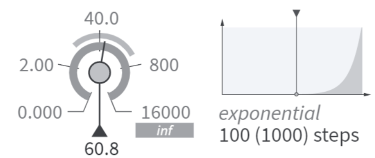


linear
200 (2000) steps

Sustain level (target of the second Decay segment).

Release Time

ms | %

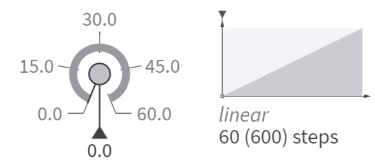


exponential
100 (1000) steps

Time of the (exponential) Release segment in milliseconds (infinite at maximum).

Release Velocity

dB_T

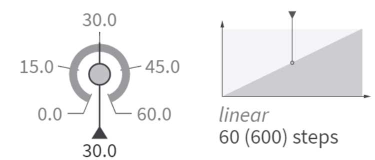


linear
60 (600) steps

Velocity influence on the Release time. The value represents the logarithmic amount of the reduction of the Release time by high Note-Off velocities.

Level Velocity

dB



linear
60 (600) steps

Influence of the key velocity on the peak, breakpoint and sustain levels of the envelope [maximum dynamic range in dB].

Level Key Trk | dB/st

0.000
-0.500 | 0.500
-1.000 | 1.000
0.000

linear
200 (2000) steps

Key tracking of the envelope's peak, breakpoint and sustain levels [dB per semitone].
Positive values: higher levels for higher notes (+1.0 = +12 dB per octave).
Negative values: lower levels for higher notes (-1.0 = -12 dB per octave).
Origin at C3 = 60 semitones.

Time Key Trk | %

50.0
25.0 | 75.0
0.0 | 100.0
5.0

linear
100 (1000) steps

Key tracking of the attack, decay and release times. The value determines how much shorter the times get for higher notes.

Oscillator A

Pitch | st | st

55.00
17.50 | 92.50
-20.00 | 130.00
60.00

linear
150 (15000) steps

Pitch (logarithmic frequency) of Oscillator A at C3 (MIDI note 60) [in semitones, based on MIDI note numbers].
The range below zero is shaped in the way that -20 corresponds to 0 Hz.

Pitch - Env C | st

0.00
-40.00 | 40.00
-80.00 | 80.00
0.00

linear
160 (16000) steps

Amount of pitch modulation by Envelope C [in semitones].

Pitch - Key Trk | %

52.50
26.25 | 78.75
0.00 | 105.00
100.00

linear
105 (10500) steps

Key tracking of the oscillator pitch. It's the scaling factor between the key position (relative to C3 = 60 semitones) and the pitch of the oscillator. At 100.0 %, the pitch follows the equal-tempered scale. At values slightly larger than 100.0 %, the tuning will be stretched. At 50.0 %, a quartertone scale emerges and at 0.0 %, the pitch is constant for all keys.

Fluctuation | % | % | ☀

50.0
25.0 | 75.0
0.0 | 100.0
0.0

linear
100 (1000) steps

Fluctuation of the oscillator frequency.
If the parameter is set larger than 0.0 %, the frequency is changed at the beginning of each oscillation period by a random amount. At 100.0 %, the maximum frequency variation is +/- 95 %.

Fluct - Env C | %

50.0
25.0 | 75.0
0.0 | 100.0
0.0

linear
100 (1000) steps

Amount of modulation of the frequency fluctuation by Envelope C. At zero, the modulation stays constant, at higher values, the envelope applies a time-variant attenuation.

Phase | deg | ☀

0.0
-90.0 | 90.0
-180.0 | 180.0
0.0

linear
180 (3600) steps

Start phase [in degrees]. The Oscillator will be set to this phase position with each Note-On.

PM Self | % | % | ☀

0.0
-50.0 | 50.0
-100.0 | 100.0
0.0

linear
200 (2000) steps

Amount of phase modulation by Oscillator & Shaper A (local feedback).

PM Self - Env A | %

50.0
25.0 | 75.0
0.0 | 100.0
0.0

linear
100 (1000) steps

Envelope (A) amount for the phase modulation by Oscillator & Shaper A (local feedback).
At zero, the modulation stays constant, at higher values, the envelope applies a time-variant attenuation.

PM Self - Shaper | %

0.0
-50.0 | 50.0
-100.0 | 100.0
0.0

linear
200 (2000) steps

Mix amount of Shaper A in the signal being used for phase modulation (self). At zero, the output signal of Oscillator A is used. At negative values, the signal from the Shaper is inverted.

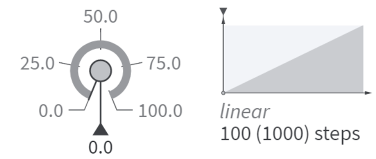
PM B | % | % | ☀

0.0
-50.0 | 50.0
-100.0 | 100.0
0.0

linear
200 (2000) steps

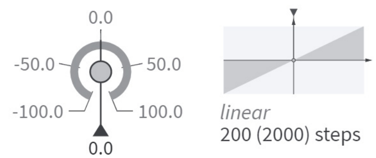
Amount of phase modulation by Oscillator & Shaper B (cross feedback).

PM B - Env B
%



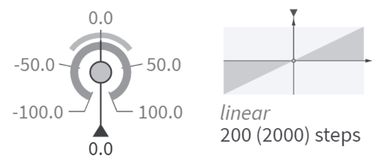
Envelope (B) amount for the phase modulation by Oscillator & Shaper B (cross feedback).
At zero, the modulation stays constant, at higher values, the envelope applies a time-variant attenuation.

PM B - Shaper
%



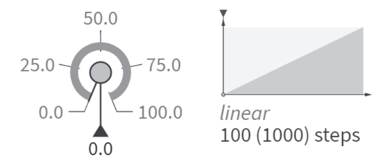
Mix amount of Shaper B in the signal being used for phase modulation (B -> A). At zero, the output signal of Oscillator B is used. At negative values, the signal from the Shaper is inverted.

PM FB
% | % | ☀



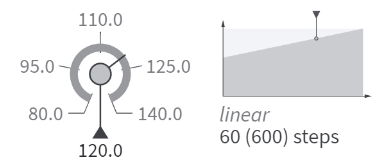
Amount of phase modulation by the Feedback signal.

PM FB - Env C
%



Envelope (C) amount for the phase modulation by the Feedback signal.
At zero, the modulation stays constant, at higher values, the envelope applies a time-variant attenuation.

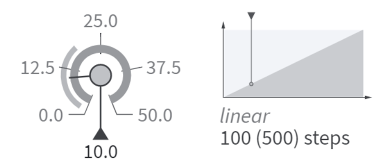
Chirp
st



Cutoff [in semitones] of the lowpass in the phase modulation signal path that can be applied to reduce the level and frequency of "chirping" appearing at higher amounts of self modulation, cross-feedback through the other oscillator, or global feedback.

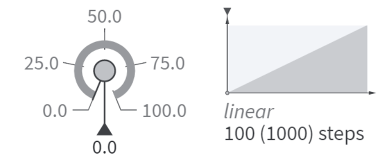
Shaper A

Drive
dB | dB



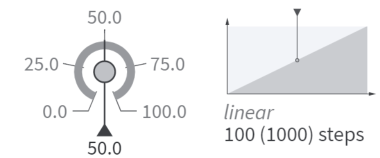
Input gain [in dB] of the sine shaper stage. Higher gains will create more distortion and harmonics.

Drive - Env A
%



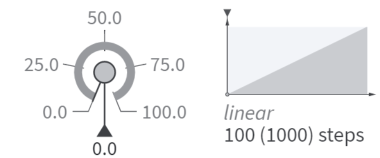
Envelope (A) amount for the Drive factor.
At zero, the gain stays constant, at higher values, the envelope applies a time-variant attenuation.

Fold
%



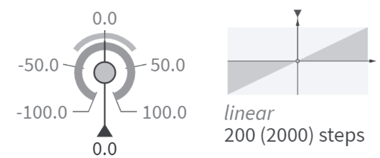
Amount of folding back of the shaper curve for high input amplitudes.
0.0 %: flat saturation, no folding
100 %: fully folded back (periodic sine curve)
A higher amount of folding leads to a softer but more nasal sound.

Asymetry
%



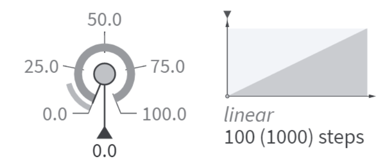
Asymmetry of the shaper curve, generating even (2nd, 4th, ...) harmonics. At higher values it becomes a parabolic curve that shifts the frequency of the fundamental to its double.

Mix
% | % | ☀



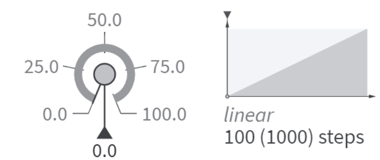
Mix amount of Shaper A in the signal sent to the Filters and to the Output Mixer. At zero, it is the input signal of the Shaper - behind FB Mix. At negative values, the signal from the Shaper is inverted.

FB Mix
% | % | ☀



Crossfades between Oscillator & Shaper A (at zero) and the Feedback signal for the signal A.

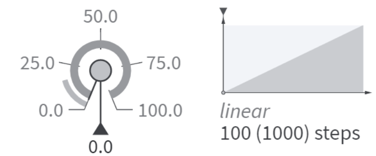
FB - Env C
%



Envelope (C) amount for the Feedback Mix. At zero, only a Gate signal is applied, at higher values, Envelope C is faded in.

Ring Mod

% | %



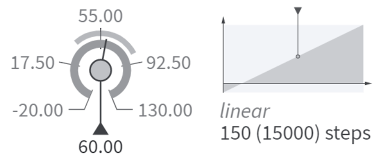
linear
100 (1000) steps

Mix amount of the ring modulation between both Oscillators & Shapers.

Oscillator B

Pitch

st | st

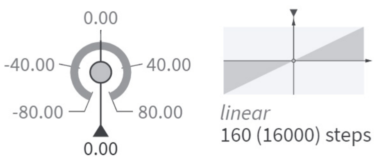


linear
150 (15000) steps

Pitch (logarithmic frequency) of Oscillator B at C3 (MIDI note 60) [in semitones, based on MIDI note numbers].
The range below zero is shaped in the way that -20 corresponds to 0 Hz.

Pitch - Env C

st

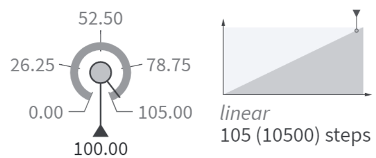


linear
160 (16000) steps

Amount of pitch modulation by Envelope C [in semitones].

Pitch - Key Trk

%

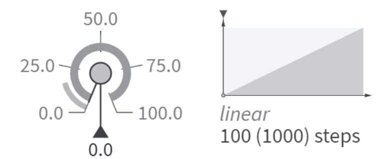


linear
105 (10500) steps

Key tracking of the oscillator pitch. It's the scaling factor between the key position (relative to C3 = 60 semitones) and the pitch of the oscillator. At 100.0 %, the pitch follows the equal-tempered scale. At values slightly larger than 100.0 %, the tuning will be stretched. At 50.0 %, a quartertone scale emerges and at 0.0 %, the pitch is constant for all keys.

Fluctuation

% | %

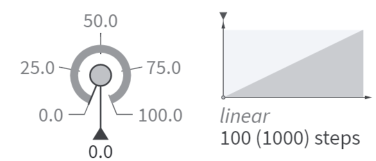


linear
100 (1000) steps

Fluctuation of the oscillator frequency.
If the parameter is set larger than 0.0 %, the frequency is changed at the beginning of each oscillation period by a random amount. At 100.0 %, the maximum frequency variation is +/- 95 %.

Fluct - Env C

%

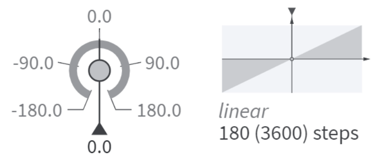


linear
100 (1000) steps

Amount of modulation of the frequency fluctuation by Envelope C. At zero, the modulation stays constant, at higher values, the envelope applies a time-variant attenuation.

Phase

deg

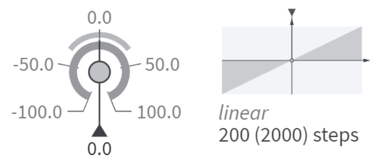


linear
180 (3600) steps

Start phase [in degrees]. The Oscillator will be set to this phase position with each Note-On.

PM Self

% | %

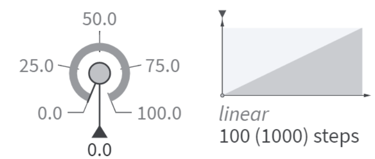


linear
200 (2000) steps

Amount of phase modulation by Oscillator & Shaper B (local feedback).

PM Self - Env B

%

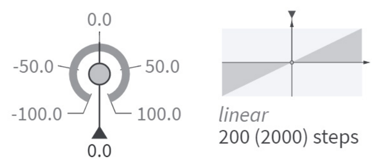


linear
100 (1000) steps

Envelope (B) amount for the phase modulation by Oscillator & Shaper B (local feedback).
At zero, the modulation stays constant, at higher values, the envelope applies a time-variant attenuation.

PM Self - Shaper

%

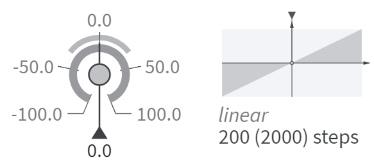


linear
200 (2000) steps

Mix amount of Shaper B in the signal being used for phase modulation (self). At zero, the output signal of Oscillator B is used. At negative values, the signal from the Shaper is inverted.

PM A

% | %

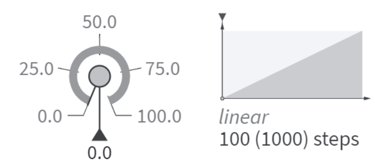


linear
200 (2000) steps

Amount of phase modulation by Oscillator & Shaper A (cross feedback).

PM A - Env A

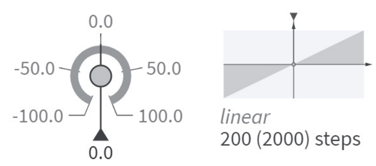
%



linear
100 (1000) steps

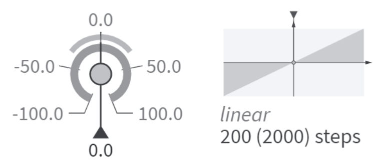
Envelope (A) amount for the phase modulation by Oscillator & Shaper A (cross feedback).
At zero, the modulation stays constant, at higher values, the envelope applies a time-variant attenuation.

PM A - Shaper
%



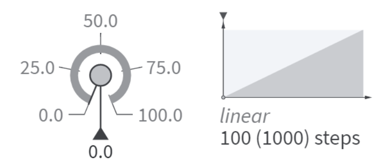
Mix amount of Shaper A in the signal being used for phase modulation (A -> B). At zero, the output signal of Oscillator A is used. At negative values, the signal from the Shaper is inverted.

PM FB
% %



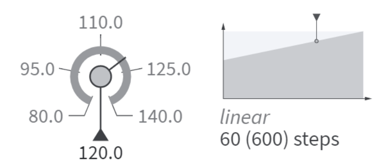
Amount of phase modulation by the Feedback signal.

PM FB - Env C
%



Envelope (C) amount for the phase modulation by the Feedback signal.
At zero, the modulation stays constant, at higher values, the envelope applies a time-variant attenuation.

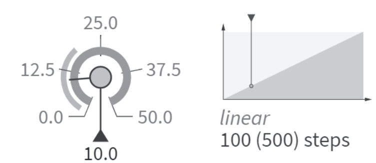
Chirp
st



Cutoff [in semitones] of the lowpass in the phase modulation signal path that can be applied to reduce the level and frequency of “chirping” appearing at higher amounts of self modulation, cross-feedback through the other oscillator, or global feedback.

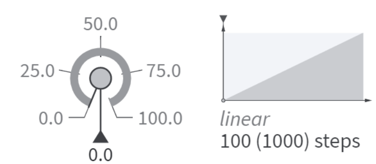
Shaper B

Drive
dB dB



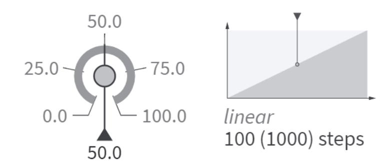
Input gain [in dB] of the sine shaper stage. Higher gains will create more distortion and harmonics.

Drive - Env B
%



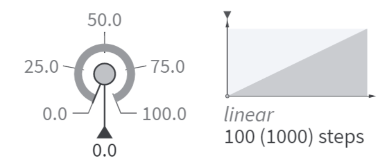
Envelope (B) amount for the Drive factor.
At zero, the gain stays constant, at higher values, the envelope applies a time-variant attenuation.

Fold
%



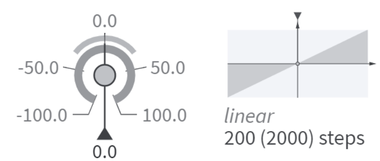
Amount of folding back of the shaper curve for high input amplitudes.
0.0 %: flat saturation, no folding
100 %: fully folded back (periodic sine curve)
A higher amount of folding leads to a softer but more nasal sound.

Asymetry
%



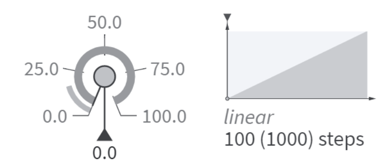
Asymmetry of the shaper curve, generating even (2nd, 4th, ...) harmonics. At higher values it becomes a parabolic curve that shifts the frequency of the fundamental to its double.

Mix
% %



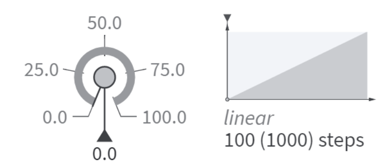
Mix amount of Shaper B in the signal sent to the Filters and to the Output Mixer. At zero, it is the input signal of the Shaper - behind FB Mix. At negative values, the signal from the Shaper is inverted.

FB Mix
% %



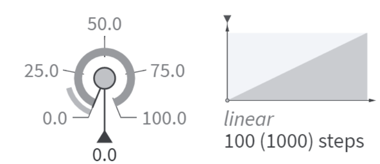
Crossfades between Oscillator & Shaper B (at zero) and the Feedback signal for the signal B.

FB - Env C
%



Envelope (C) amount for the Feedback Mix. At zero, only a Gate signal is applied, at higher values, Envelope C is faded in.

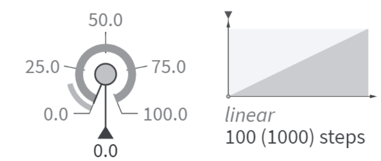
Ring Mod
% %



Mix amount of the ring modulation between both Oscillators & Shapers.

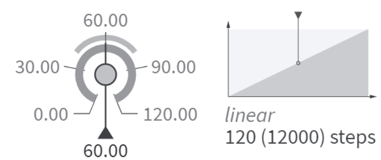
Comb Filter

A - B
% | %



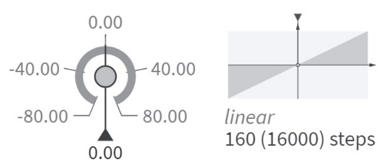
The signal for the Comb Filter as a crossfade between the outputs of Oscillator & Shaper A and Oscillator & Shaper B.

Pitch
st | st



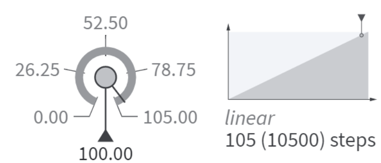
Coarse pitch of the Comb Filter (delay) at C3 (MIDI note 60) [in semitones, based on MIDI note numbers].

Pitch - Env C
st



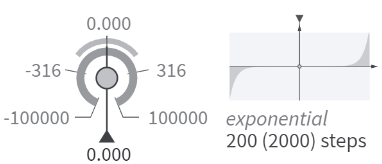
Amount of modulation of the Comb Filter pitch by Envelope C [in semitones].

Pitch - Key Trk
%



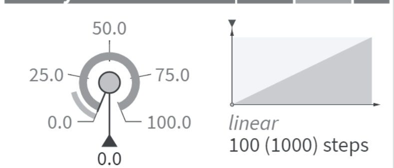
Key scaling of the tuning of the Comb Filter (delay).
0.0 %: same tuning for all keys
100.0 %: full tracking with keys, origin at C3 = 60 semitones

Decay
ms | % | ☀



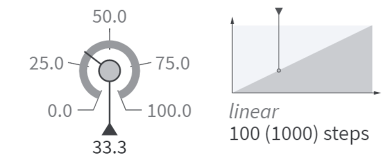
Amount of the internal feedback noticeable as the decay time of the impulse response [logarithmic scaling]. At negative values, the feedback signal is inverted, which shifts the fundamental resonance down by one octave.

Decay - Gate
% | %



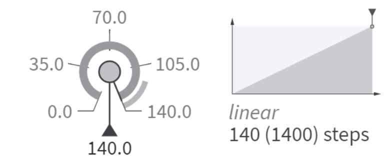
Amount of gating applied to the decay time. It reduces the decay time when the key is released (Note-off).
0.0 % same decay time in the release phase
100.0 %: the decay time is set to zero at the release of the key

Decay - Key Trk
%



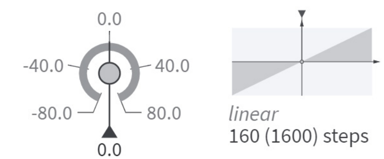
Key scaling of the decay time.
0.0 %: equal time for all keys
100.0 %: shortening to half time per octave, origin at C3 = 60 semitones

Allpass - Tune
st | st



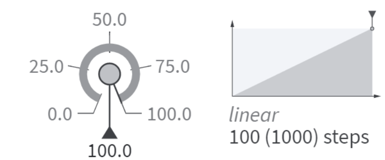
Center frequency of the 2-pole allpass filter [in semitones]. It is the frequency where the phase is shifted by 180 degrees. The allpass is in series with the delay. At the maximum position (140 semitones), the allpass has no effect.

Allpass - Env C
st



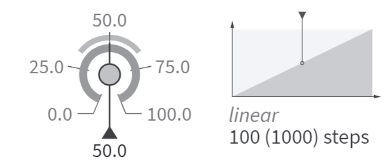
Amount of modulation of the allpass center frequency by Envelope C [in semitones].

Allpass - Key Trk
%



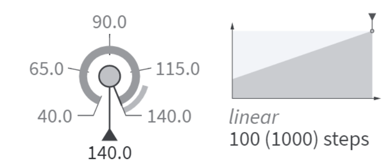
Key scaling of the allpass filter frequency.
0.0 %: same tuning for all keys
100.0 %: full tracking with the keys, origin at C3 = 60 semitones

Allpass - Reson
% | %



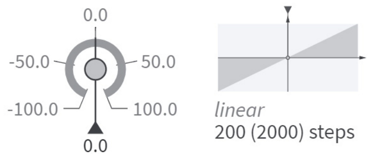
Resonance of the 2-pole allpass. Determines how much the phase shift increases around the center frequency.

Hi Cut
st | st



Cutoff frequency [in semitones] of the lowpass filter that damps the higher frequencies in the comb filter's signal path.

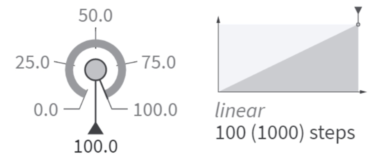
Hi Cut - Env C — st



linear
200 (2000) steps

Amount of modulation of the cutoff frequency of the lowpass filter by Envelope C [in semitones].

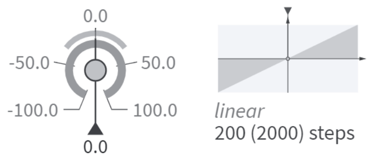
Hi Cut - Key Trk — %



linear
100 (1000) steps

Key scaling of the lowpass cutoff frequency.
0.0 %: same cutoff for all keys
100.0 %: full tracking with the keys, origin at C3 = 60 semitones

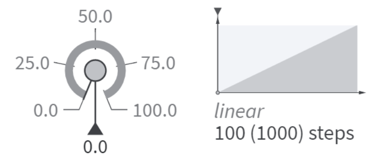
PM — % | % | ☼



linear
200 (2000) steps

Amount of (phase) modulation of the comb filter pitch (delay time) by the output signals of Oscillator & Shaper A and B, with the PM A-B knob determining their mix.

PM - A-B — %

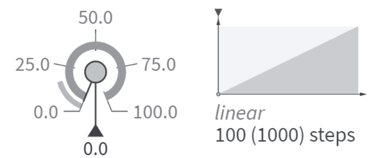


linear
100 (1000) steps

The (phase) modulation signal for the Comb Filter as a crossfade between the outputs of Oscillator & Shaper A and Oscillator & Shaper B.

State Variable Filter

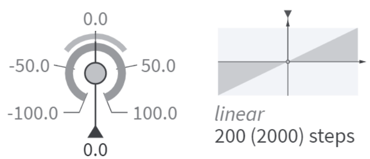
A - B — % | %



linear
100 (1000) steps

The signal for the State Variable Filter as a crossfade between the outputs of Oscillator & Shaper A and Oscillator & Shaper B.

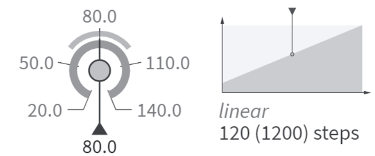
Comb Mix — % | % | ☼



linear
200 (2000) steps

The input signal for the State Variable Filter as mix of the signals from the A-B mixer and from the Comb Filter. Negative mix amounts will create different Comb Filter (cancellation) effects.

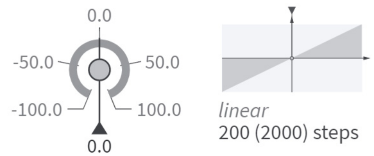
Cutoff — st | st



linear
120 (1200) steps

Static value of the filter cutoff frequency at C3 [in semitones], applies to both stages of the filter. The offsets between their individual cutoffs is controlled by "Spread".

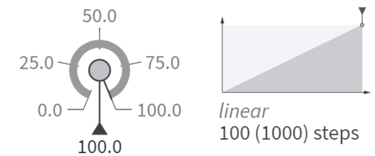
Cutoff - Env C — st



linear
200 (2000) steps

Amount of cutoff modulation by Envelope C [in semitones].

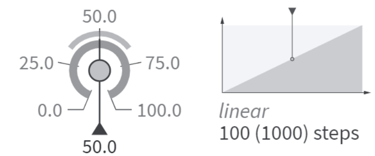
Cutoff - Key Trk — %



linear
100 (1000) steps

Key scaling of the filter cutoffs.
0.0 %: no influence
100.0 %: full tracking with the keys, origin at C3 = 60 semitones

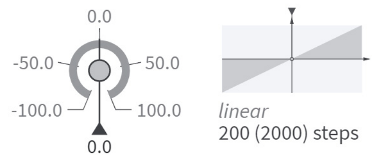
Resonance — % | %



linear
100 (1000) steps

Amount of filter resonance, creating peaks at the cutoff frequencies.

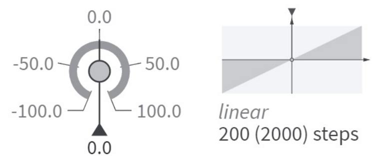
Reson - Env C — %



linear
200 (2000) steps

Amount of resonance modulation by Envelope C.

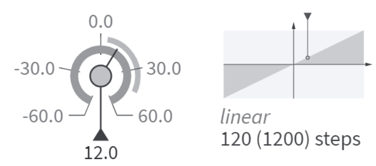
Reson - Key Trk — st



linear
200 (2000) steps

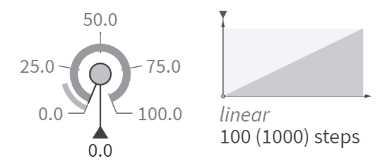
Key scaling of the filter resonance.
0.0 %: no influence
100.0 %: full tracking with the keys, origin at C3 = 60 semitones

Spread | st | st



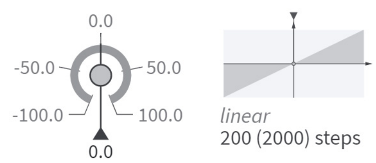
Amount of splitting of the cutoffs of the two 2-pole filters. Half of the value is applied as a positive offset to the adjusted cutoff for the first stage and as a negative offset for the second stage [in semitones].
The split reduces the strong resonance peak in the 4-pole mode and allows filter curves with two formants. In band-pass/bandreject mode it controls the width of the band.

L - B - H | % | %



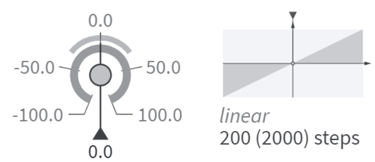
Crossfades between the lowpass, bandpass and highpass outputs of the two filter stages.
(first stage -> second stage: LP -> LP, BP -> LP, HP -> LP, HP -> BP, HP -> HP)

Parallel | %



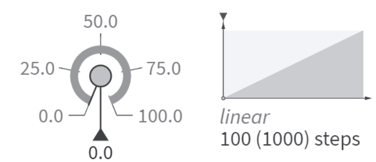
At zero, the two 2-pole filter stages are in series forming a 4-pole filter. Positive values crossfade to a parallel structure where the filter outputs are added. In bandpass mode (L-B-H = 50.0%), the parallel structure with a negative Spread works as a band-reject filter. Negative values also crossfade to a parallel structure, but here the lower filter is subtracted, which leads to phase cancellations.

FM | % | % | ☀



Amount of modulation of the cutoff frequencies by the output signals of Oscillator & Shaper A and B, with the FM A-B knob determining their mix. The amount is relative to the cutoff frequency.

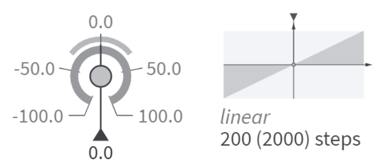
FM - A-B | %



The signal for the FM (cutoff frequency modulation) of the State Variable Filter as a crossfade between the outputs of Oscillator & Shaper A and Oscillator & Shaper B.

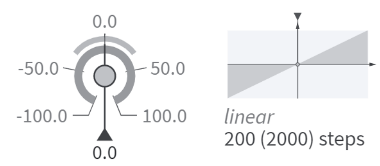
Feedback Mixer

Comb Filter | % | % | ☀



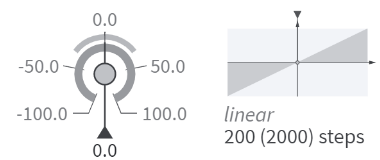
Feedback mix factor for the output of the Comb Filter.

SV Filter | % | % | ☀



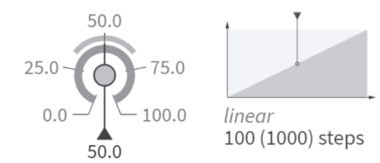
Feedback mix factor for the output of the State Variable Filter.

Effects | % | % | ☀



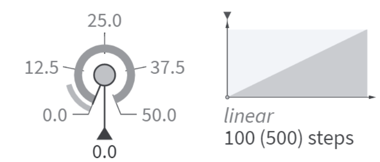
Feedback mix factor for the output of the Effects chain. The reverb amount in the feedback can be set by the “Reverb Amount” fader independandly. Since the signal is mono-phonic, such feedback will cause intermodulation between the voices.

Reverb Amount | % | %



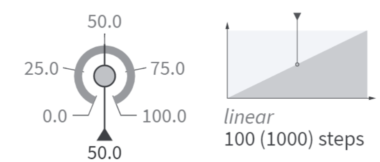
Controls the amount of reverb in the feedback indepen-dantly from the Mix in the Reverb section.
0.0 %: dry, no reverb signal
50.0 %: mix of 50 % dry and 50 % wet signal
100.0 %: wet, 100 % reverb signal

Drive | dB | dB



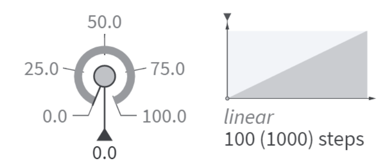
Input gain [in dB] of the sine shaper stage. Higher gains will create more distortion and harmonics.

Fold | %



Amount of folding back of the shaper curve for high input amplitudes.
0.0 %: flat saturation, no folding
100.0 %: fully folded back (periodic sine curve)
A higher amount of folding leads to a softer but more nasal sound.

Asymetry | %



Asymmetry of the shaper curve, generating even (2nd, 4th, ...) harmonics. At higher values, it becomes a parabolic curve that shifts the frequency of the fundamental to its double.

Level | dB | %

0.000
-12.0 7.04
-108 12.0
-inf
-4.77

(parabolic) gain
100 (1000) steps

Level of the (global) Feedback mix [in dB].

Level - Key Trk | dB/st

0.000
-0.500 0.500
-1.000 1.000
0.000

linear
200 (2000) steps

Key scaling of the feedback level [in dB per semitone].
positive values: higher level for higher notes (+ 1.0 = + 12 dB per octave)
negative values: lower level for higher notes (- 1.0 = - 12 dB per octave)
origin at C3 = 60 semitones

Output Mixer

A - Level | % | %

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Output mix factor for the signal from Oscillator & Shaper A.

A - Pan | %

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Output mix factor for the signal from Oscillator & Shaper A.

B - Level | % | %

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Output mix factor for the signal from Oscillator & Shaper B.

B - Pan | %

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Output mix factor for the signal from Oscillator & Shaper B.

Comb - Level | % | %

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Output mix factor for the signal from the Comb Filter.

Comb - Pan | %

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Pan position of the signal from the Comb Filter in the output mix.

SV Filter - Level | % | %

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Output mix factor for the signal from the State Variable Filter.

SV Filter - Pan | %

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Pan position of the signal from the State Variable Filter in the output mix.

Drive | dB | dB

25.0
12.5 37.5
0.0 50.0
0.0

linear
100 (500) steps

Input gain [in dB] of the sine shaper stage. Higher gains will create more distortion and harmonics.

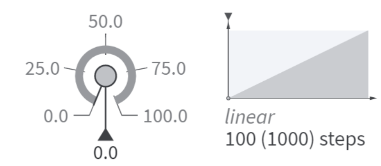
Fold | %

50.0
25.0 75.0
0.0 100.0
50.0

linear
100 (1000) steps

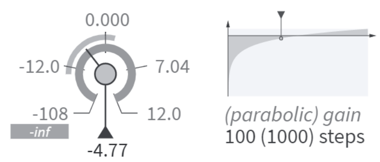
Amount of folding back of the shaper curve for high input amplitudes.
0.0 %: flat saturation, no folding
100.0 %: fully folded back (periodic sine curve)
A higher amount of folding leads to a softer but more nasal sound.

Asymetry | %



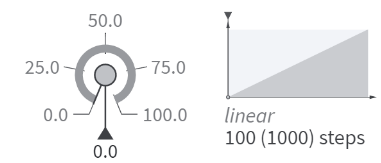
Asymmetry of the shaper curve, generating even (2nd, 4th, ...) harmonics. At higher values, it becomes a parabolic curve that shifts the frequency of the fundamental to its double.

Level | dB | %



Master output level [in dB] of the synth. The output signal will be processed by the (monophonic) chain of effects.

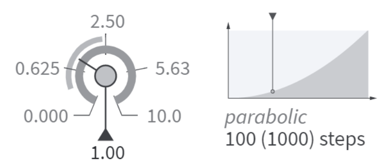
Key Pan | %



Amount of key panning for each note (referring to the key position relative to the center at C3 = 60 semitones).
At zero, each note is centered before being passed to the panning section in the mix.
At maximum, low notes will be panned to the left, high notes to the right.

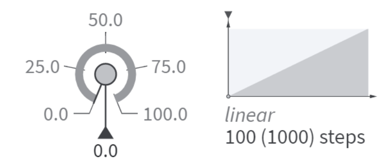
Flanger

Rate | Hz | %



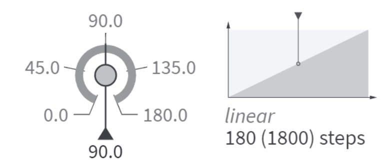
Frequency of the LFO and rate of the envelope. Both can be modulation sources for the delay times and the allpass center frequencies.

Envelope | %



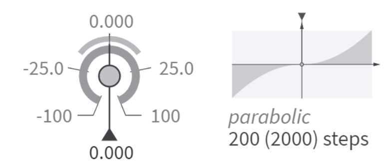
Crossfades between the signals of the LFO and the envelope as modulation sources for the delay times and the allpass center frequencies.

Phase | deg



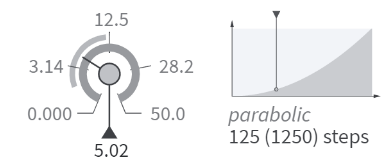
Phase offset between the LFO signals modulating the delay times in the left and the right channel.

Time Mod | % | %



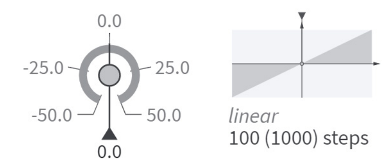
Relative amount of the modulation of the delay times by the LFO and/or the envelope.

Time | ms | %



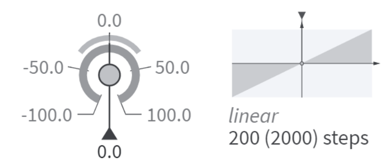
Mean value of the delay times in the left and right channel. The "Stereo" parameter allows to create a time offset between the channels.
When the time of the Flanger is set to zero, the overall effect is determined by the phase shifting of the allpass.

Stereo | %



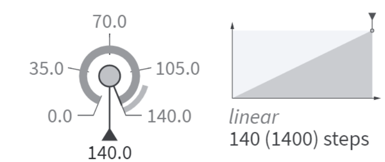
Sets the ratio between the delay times of the left and of the right channel [the value shows the offset to 100.0 %]. In the center position, the offset is zero and both delay times are equal.

Allpass Mod | % | %



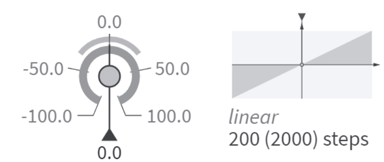
Relative amount of the modulation of the allpass center frequencies by the LFO and/or the envelope. The allpass creates the effect of a phaser.

Allpass Tune | st | st



Mean center frequency of the 4-pole allpass filters which are in series with the delays. Their frequency-dependant phase shifts can create a "Phaser" effect. The phase shift is minimized by setting this control to its maximum. When the time of the flanger is set to zero, the allpass becomes the dominant part.

Feedback | % | %



Amount of the internal feedback. At negative values, the feedback is inverted and will emphasize other frequencies than in the non-inverted mode.

Cross FB

Cross FB	%		

0.0
-50.0 50.0
-100.0 100.0
50.0

linear
200 (2000) steps

Amount of the cross feedback between the left and the right channel, increasing the complexity of the resulting signal. At negative values, the cross feedback is inverted and will emphasize other frequencies than in the non-inverted mode. 0.0 %: no cross feedback
+/- 100.0 %: all feedback is cross feedback

Hi Cut

Hi Cut	st		

100.0
80.0 120.0
60.0 140.0
120.0

linear
80 (800) steps

Cutoff frequency [in semitones] of the filter that damps the higher frequencies of the delayed signal.

Mix

Mix	%	%	☀

0.0
-50.0 50.0
-100.0 100.0
0.0

linear
200 (2000) steps

Crossfades between the dry signal and the delayed signal. At negative values, the delayed signal is inverted.

Cabinet

Drive

Drive	dB	dB	

25.0
12.5 37.5
0.0 50.0
20.0

linear
100 (500) steps

Gain [in dB] for the input signal. Higher gains will increase the amount of distortion/saturation.

Fold

Fold	%		

50.0
25.0 75.0
0.0 100.0
25.0

linear
100 (1000) steps

Amount of folding back of the shaper curve for high input amplitudes.
0.0 %: flat saturation, no folding
100.0 %: fully folded back (periodic sine curve)
A higher amount of folding leads to a softer but more nasal sound.

Asymetry

Asymetry	%		

50.0
25.0 75.0
0.0 100.0
25.0

linear
100 (1000) steps

Asymmetry of the shaper curve, generating even (2nd, 4th, ...) harmonics. At higher values, it becomes a parabolic curve that shifts the frequency of the fundamental to its double.

Tilt

Tilt	%	%	

0.0
-50.0 50.0
-100.0 100.0
-20.0

linear
200 (2000) steps

Controls two inverted shelving EQs before and after the distortion stage.
negative: more distortions at high frequencies
positive: more distortions at low frequencies

Hi Cut

Hi Cut	st	st	

100.0
80.0 120.0
60.0 140.0
110.0

linear
80 (800) steps

Cutoff frequency [in semitones] of the lowpass filter at the output.

Lo Cut

Lo Cut	st		

60.0
40.0 80.0
20.0 100.0
30.0

linear
80 (800) steps

Cutoff frequency [in semitones] of the highpass filter at the input.

Mix

Mix	%	%	☀

50.0
25.0 75.0
0.0 100.0
0.0

linear
100 (1000) steps

Crossfades between the dry signal and the saturated signal.

Cab Level

Cab Level	dB	dB	

-25.0
-37.5 -12.5
-50.0 0.0
-14.0

linear
50 (500) steps

Output level [in dB] of the saturation effect before it is mixed with the dry signal.

Gap Filter

Center

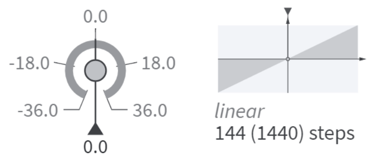
Center	st	st	

72.0
48.0 96.0
24.0 120.0
72.0

linear
96 (960) steps

Shifts the mean cutoff frequency of both 4-pole filters on both channels up or down [in semitones].

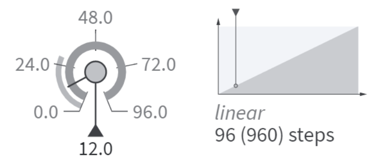
Stereo | st



linear
144 (1440) steps

Sets the difference between the center frequencies of the left and of the right channel [in semitones].

Gap | st | st



linear
96 (960) steps

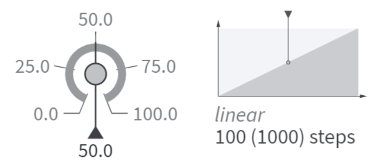
Offset between the cutoffs of the lowpass and the highpass [in semitones]. Since the two filters are running in parallel and their output signals are mixed, the result of a positive gap is a band rejection. With a negative gap, the pass bands are overlapping so that all frequencies can pass and the resonances emphasize the cutoff frequencies.

Balance | % | %

linear
200 (2000) steps

Balance between the levels of the ranges above and below the gap.
In the center position both ranges are equally weighted. Negative values boost the lower range and attenuate the higher range, positive values have the opposite effect.

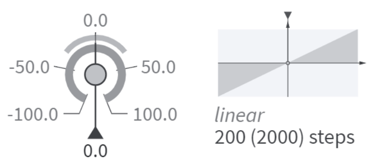
Resonance | %



linear
100 (1000) steps

Resonance of both filters. Higher values create two resonance peaks at the upper and lower end of the gap.

Mix | % | % | ☀

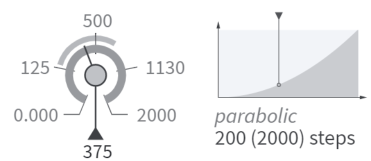


linear
200 (2000) steps

Crossfades between the dry signal and the filtered signal. At positive values, the filter runs in parallel (band reject) mode, at negative values, it is a bandpass filter (in serial mode).

Echo

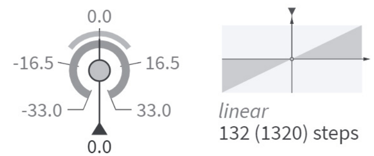
Time | ms | %



parabolic
200 (2000) steps

Mean delay time [in milliseconds]. (As there can be an offset between the left and right channel, this control shows the mean time.)

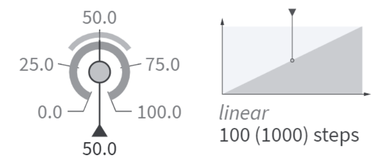
Stereo | % | %



linear
132 (1320) steps

Sets the ratio between the delay times of the left and of the right channel [the value shows the offset to 100.0 %]. In the center position, the offset is zero and both delay times are equal.

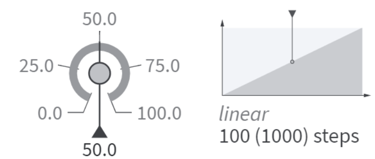
Feedback | % | %



linear
100 (1000) steps

Amount of internal feedback.

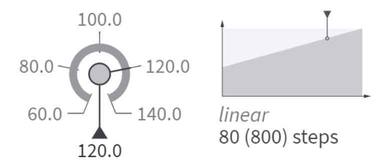
Cross FB | %



linear
100 (1000) steps

Amount of the cross feedback between the left and right channel.
0.0 %: no cross feedback
100.0 %: all feedback is cross feedback

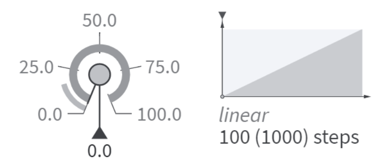
Hi Cut | st



linear
80 (800) steps

Cutoff frequency [in semitones] of the filter that damps the higher frequencies of the delayed signal.

Mix | % | % | ☀

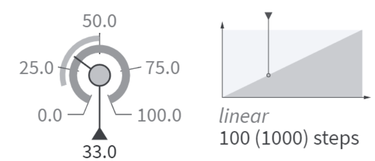


linear
100 (1000) steps

Crossfades between the dry signal and the delayed signal.

Reverb

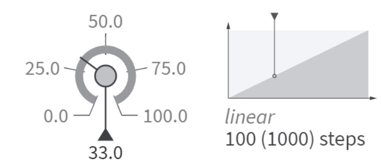
Size | % | %



linear
100 (1000) steps

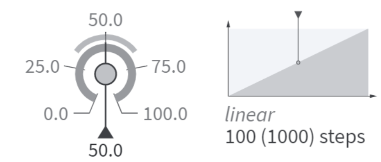
The room size and reverb time are set here.

Pre Delay | %



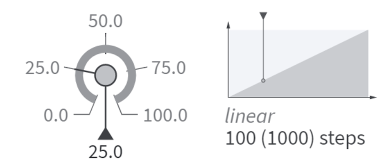
Pre delay time, shifting the late reflections. This has a profound effect on the perceived room size.

Color | % | %



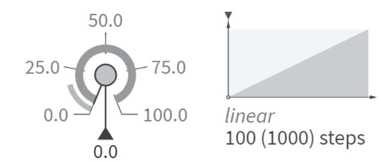
Cutoff of the filter that damps the lower frequencies of the reverberation signal.

Chorus | %



This controls the internal modulation of the reverberation delays. At higher amounts, there is more movement and the diffusion is smoother. At lower amounts, the reverb becomes more static and metallic.

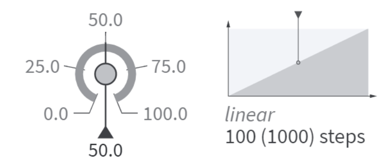
Mix | % | %



Crossfades between the dry signal and the reverberation signal.

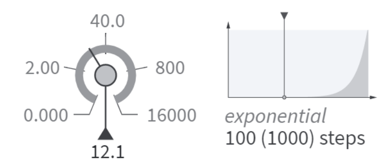
Macros

(A) | %



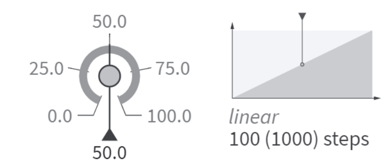
The info text of Macro Control A is user-definable and defaults to an empty string.

(A) Smoothing | ms



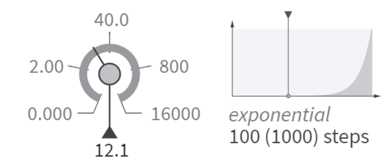
Sets the smoothing time [in milliseconds] for modulations on target parameters assigned to Macro Control A. At zero, assigned target parameters will follow the Macro Control immediately.

(B) | %



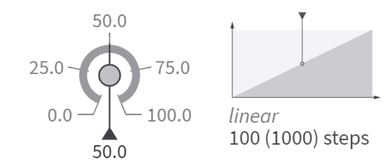
The info text of Macro Control B is user-definable and defaults to an empty string.

(B) Smoothing | ms



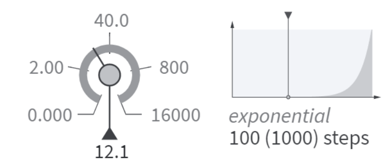
Sets the smoothing time [in milliseconds] for modulations on target parameters assigned to Macro Control B. At zero, assigned target parameters will follow the Macro Control immediately.

(C) | %



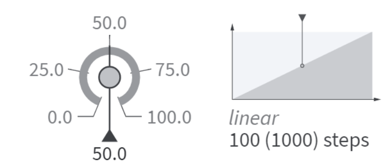
The info text of Macro Control C is user-definable and defaults to an empty string.

(C) Smoothing | ms



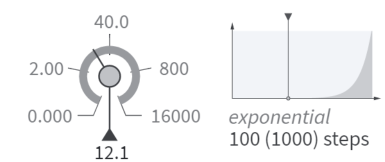
Sets the smoothing time [in milliseconds] for modulations on target parameters assigned to Macro Control C. At zero, assigned target parameters will follow the Macro Control immediately.

(D) | %



The info text of Macro Control D is user-definable and defaults to an empty string.

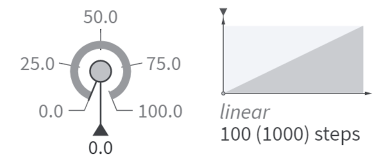
(D) Smoothing | ms



Sets the smoothing time [in milliseconds] for modulations on target parameters assigned to Macro Control D. At zero, assigned target parameters will follow the Macro Control immediately.

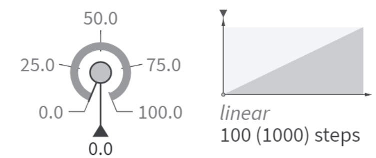
Hardware Sources

Pedal 1
%



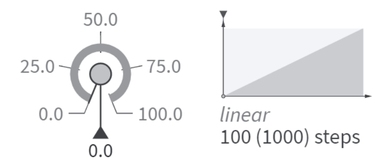
This control is the parameter representation of the “Pedal 1” Hardware Source. If a pedal is connected, it will directly follow the external control. If the source’s return behavior is set to “Center”, the parameter will be bipolar.

Pedal 2
%



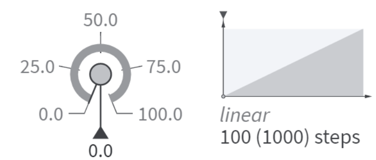
This control is the parameter representation of the “Pedal 2” Hardware Source. If a pedal is connected, it will directly follow the external control. If the source’s return behavior is set to “Center”, the parameter will be bipolar.

Pedal 3
%



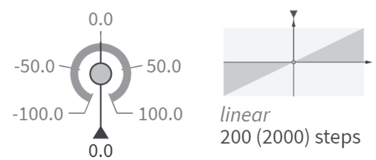
This control is the parameter representation of the “Pedal 3” Hardware Source. If a pedal is connected, it will directly follow the external control. If the source’s return behavior is set to “Center”, the parameter will be bipolar.

Pedal 4
%



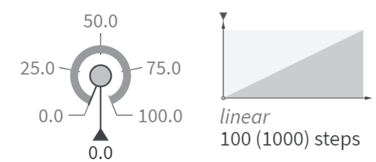
This control is the parameter representation of the “Pedal 4” Hardware Source. If a pedal is connected, it will directly follow the external control. If the source’s return behavior is set to “Center”, the parameter will be bipolar.

Bender
%



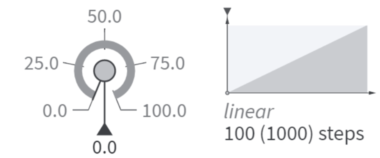
This control is the parameter representation of the “Bender” Hardware Source. It will directly follow the Bender.

Aftertouch
%



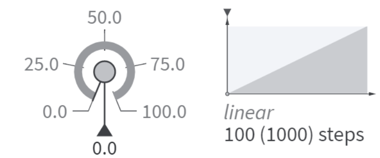
This control is the parameter representation of the “Aftertouch” Hardware Source. It will directly follow Aftertouch gestures.

Ribbon 1
%



This control is the parameter representation of the “Ribbon 1” Hardware Source. It will directly follow the Ribbon and vice versa. If the source’s return behavior is set to “Center”, the parameter will be bipolar.

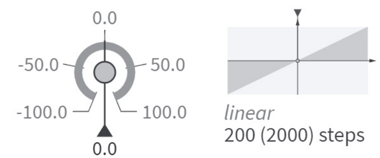
Ribbon 2
%



This control is the parameter representation of the “Ribbon 2” Hardware Source. It will directly follow the Ribbon and vice versa. If the source’s return behavior is set to “Center”, the parameter will be bipolar.

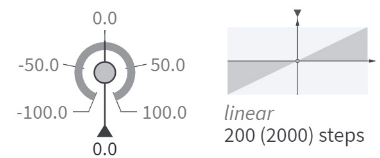
Hardware Amounts

Ped 1 to (A)
%



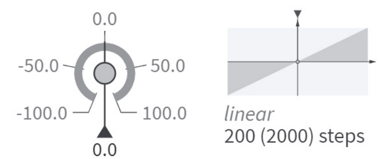
Determines the influence of the “Pedal 1” Hardware Source on Macro Control A.
If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 1 to (B)
%



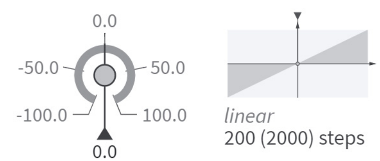
Determines the influence of the “Pedal 1” Hardware Source on Macro Control B. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 1 to (C)
%



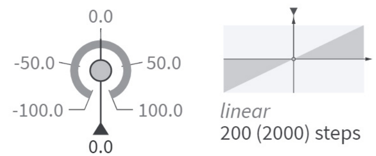
Determines the influence of the “Pedal 1” Hardware Source on Macro Control C. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % ... 100.0 %).

Ped 1 to (D)
%



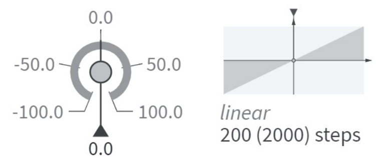
Determines the influence of the “Pedal 1” Hardware Source on Macro Control D. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 2 to (A) | %



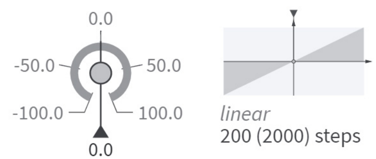
Determines the influence of the “Pedal 2” Hardware Source on Macro Control A. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 2 to (B) | %



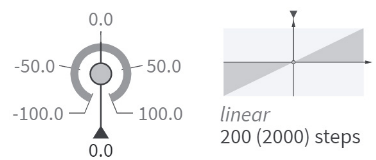
Determines the influence of the “Pedal 2” Hardware Source on Macro Control B. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 2 to (C) | %



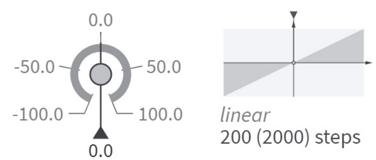
Determines the influence of the “Pedal 2” Hardware Source on Macro Control C. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 2 to (D) | %



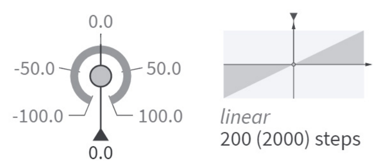
Determines the influence of the “Pedal 2” Hardware Source on Macro Control D. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 3 to (A) | %



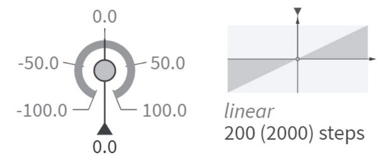
Determines the influence of the “Pedal 3” Hardware Source on Macro Control A. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 3 to (B) | %



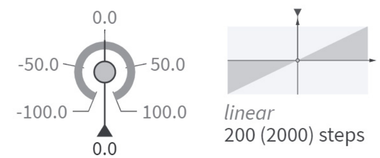
Determines the influence of the “Pedal 3” Hardware Source on Macro Control B. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 3 to (C) | %



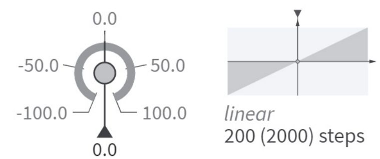
Determines the influence of the “Pedal 3” Hardware Source on Macro Control C. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 3 to (D) | %



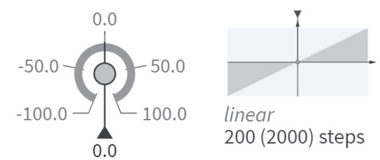
Determines the influence of the “Pedal 3” Hardware Source on Macro Control D. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 4 to (A) | %



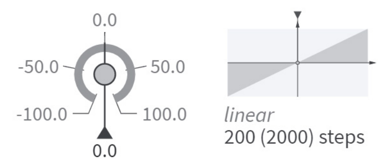
Determines the influence of the “Pedal 4” Hardware Source on Macro Control A. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 4 to (B) | %



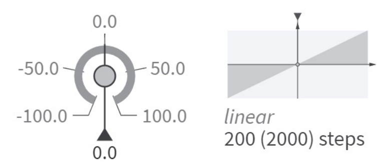
Determines the influence of the “Pedal 4” Hardware Source on Macro Control B. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 4 to (C) | %



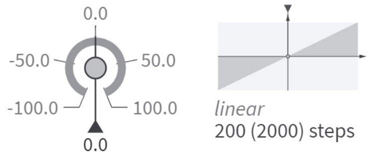
Determines the influence of the “Pedal 4” Hardware Source on Macro Control C. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Ped 4 to (D) | %



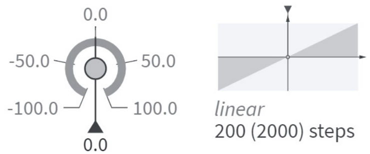
Determines the influence of the “Pedal 4” Hardware Source on Macro Control D. If the Pedal is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Bend to (A) | %



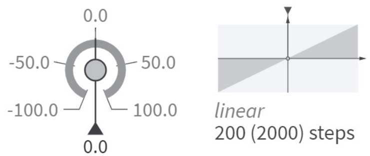
Determines the influence of the "Bender" Hardware Source on Macro Control A.
The amount can be adjusted continuously [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Bend to (B) | %



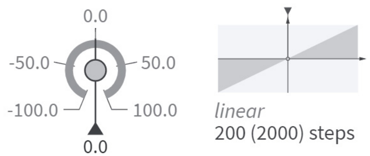
Determines the influence of the "Bender" Hardware Source on Macro Control B.
The amount can be adjusted continuously [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Bend to (C) | %



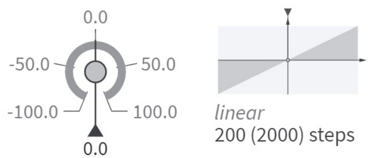
Determines the influence of the "Bender" Hardware Source on Macro Control C.
The amount can be adjusted continuously [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Bend to (D) | %



Determines the influence of the "Bender" Hardware Source on Macro Control D.
The amount can be adjusted continuously [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

AT to (A) | %

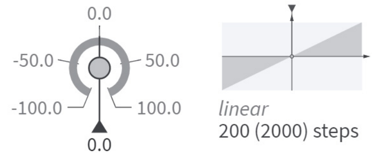


Determines the influence of the "Aftertouch" Hardware Source on Macro Control A.
The amount can be adjusted continuously [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

AT to (B) | %

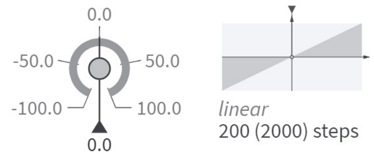
Determines the influence of the "Aftertouch" Hardware Source on Macro Control B.
The amount can be adjusted continuously [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

AT to (C) | %



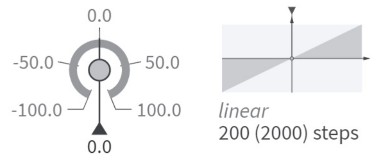
Determines the influence of the "Aftertouch" Hardware Source on Macro Control C.
The amount can be adjusted continuously [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

AT to (D) | %



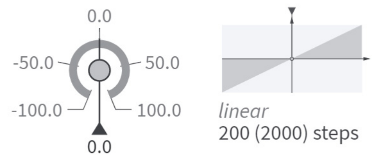
Determines the influence of the "Aftertouch" Hardware Source on Macro Control D.
The amount can be adjusted continuously [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Rib 1 to (A) | %



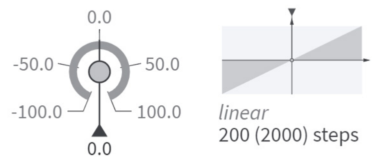
Determines the influence of the "Ribbon 1" Hardware Source on Macro Control A. If the Ribbon is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Rib 1 to (B) | %



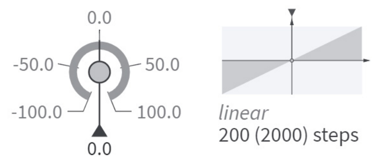
Determines the influence of the "Ribbon 1" Hardware Source on Macro Control B. If the Ribbon is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Rib 1 to (C) | %



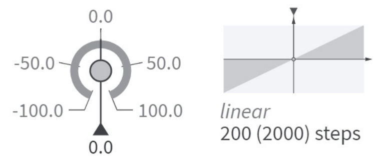
Determines the influence of the "Ribbon 1" Hardware Source on Macro Control C. If the Ribbon is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Rib 1 to (D) | %



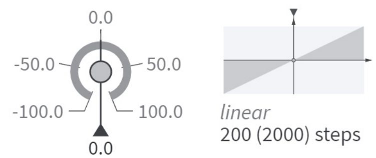
Determines the influence of the "Ribbon 1" Hardware Source on Macro Control D. If the Ribbon is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Rib 2 to (A) — %



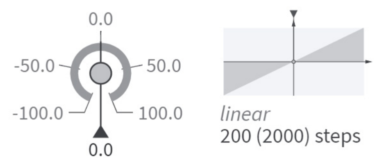
Determines the influence of the “Ribbon 2” Hardware Source on Macro Control A. If the Ribbon is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Rib 2 to (B) — %



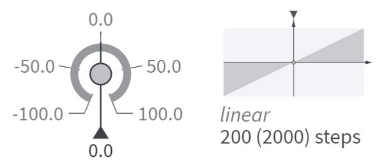
Determines the influence of the “Ribbon 2” Hardware Source on Macro Control B. If the Ribbon is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

Rib 2 to (C) — %



Determines the influence of the “Ribbon 2” Hardware Source on Macro Control C. If the Ribbon is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

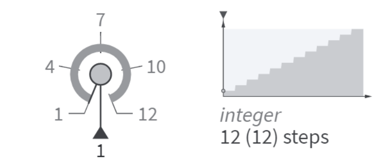
Rib 2 to (D) — %



Determines the influence of the “Ribbon 2” Hardware Source on Macro Control D. If the Ribbon is a returning Hardware Source, the amount can be adjusted continuously, otherwise it will be switch-like. Continuous amounts can be set [in percent] and can cover the whole range of the Macro Control in both directions (-100.0 % … 100.0 %).

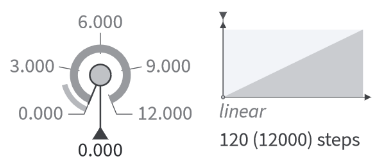
Unison

Voices



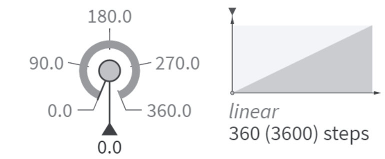
Number of unison voices that will be assigned to a key. At 1, the unison effect is disabled.

Detune — st — st



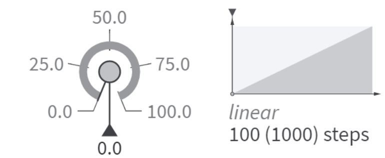
Spreading of the pitches of the unison voices [in semitones]. The Fine mode allows for adjustments in steps of 0.001 semitones (0.1 cents).

Phase — deg



Spreading the (Oscillators’) start phases of the unison voices to get different phase cancellations at the beginning of a note. The value is the phase range [in degrees] covered by a group of unison voices.

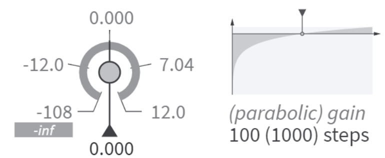
Pan — %



Voice panning inside of a group of unison voices. At 100.0 %, the voices are spread over the full stereo base.

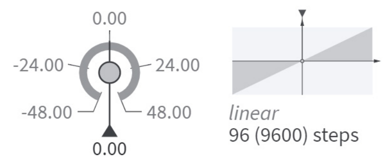
Master / Scale Group

Volume — dB



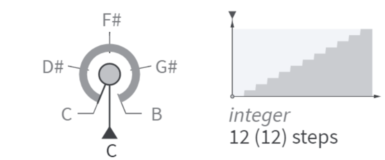
Master volume [in dB], applied at the end of the effect chain, before the soft clipper.

Tune — st



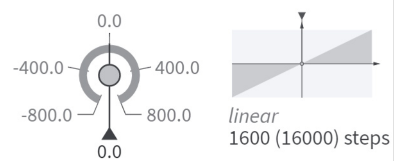
Global pitch transposition [in semitones].

Base Key



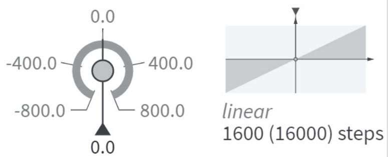
Sets the base key for the custom scale. The scale is defined for the eleven keys above the base key and will be applied to all octaves accordingly.

Offset +1 — ct



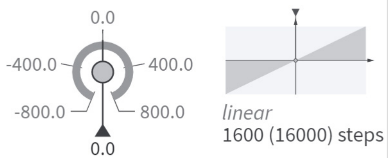
Offset of the first key following the base key [in cents]. At zero, the interval to the base key would be the minor second of the equally tempered scale.

Offset +2 | ct



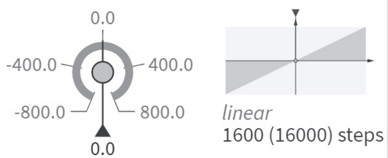
Offset of the second key following the base key [in cents]. At zero, the interval to the base key would be the major second of the equally tempered scale.

Offset +3 | ct



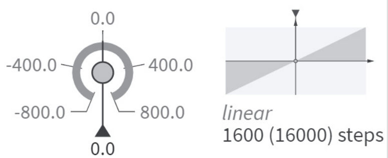
Offset of the third key following the base key [in cents]. At zero, the interval to the base key would be the minor third of the equally tempered scale.

Offset +4 | ct



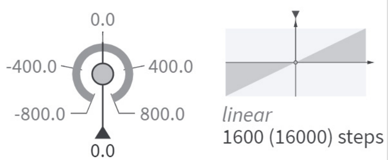
Offset of the 4th key following the base key [in cents]. At zero, the interval to the base key would be the major third of the equally tempered scale.

Offset +5 | ct



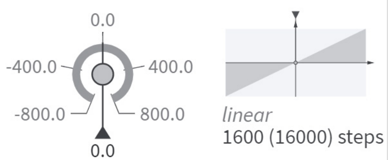
Offset of the 5th key following the base key [in cents]. At zero, the interval to the base key would be the quarter of the equally tempered scale.

Offset +6 | ct



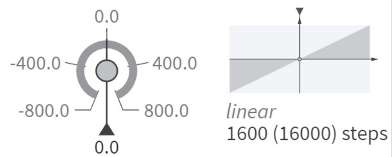
Offset of the 6th key following the base key [in cents]. At zero, the interval to the base key would be the tritone of the equally tempered scale.

Offset +7 | ct



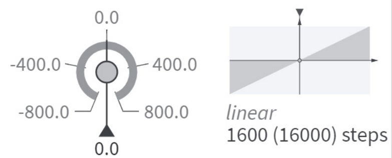
Offset of the 7th key following the base key [in cents]. At zero, the interval to the base key would be the fifth of the equally tempered scale.

Offset +8 | ct



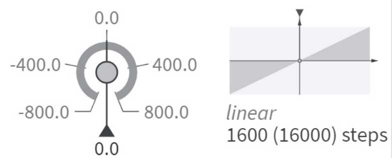
Offset of the 8th key following the base key [in cents]. At zero, the interval to the base key would be the minor sixth of the equally tempered scale.

Offset +9 | ct



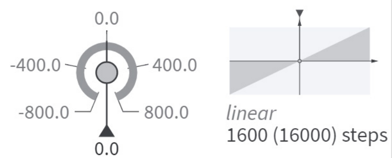
Offset of the 9th key following the base key [in cents]. At zero, the interval to the base key would be the major sixth of the equally tempered scale.

Offset +10 | ct



Offset of the 10th key following the base key [in cents]. At zero, the interval to the base key would be the minor seventh of the equally tempered scale.

Offset +11 | ct



Offset of the 11th key following the base key [in cents]. At zero, the interval to the base key would be the major seventh of the equally tempered scale.