REFLEX-PRO-X

Manual

TRUE STEREO 4 CHANNEL MULTI DELAY/FX PLUG IN

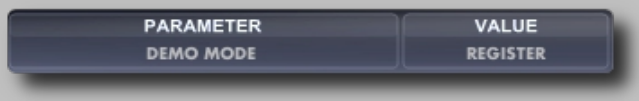
Features:

- 4 individual stereo delay channels with inter feedback and input routings
- 3 effect slots for each channel.
- 4 delay modes
- 22 selected customizable effects with countless combination possibilities
- Extensive modulation options
- 10 modulation sources of three different types
- Modulation source logic
- Master FX section

Content

REGISTERING....3
OPTIONS....4
GENERAL....4
MAIN SECTION....5
MULTI DISPLAY SECTION....6
TOP DISPLAY....7
SLOT SETTINGS....8
MASTER EFFECT....8
MASTER SETTINGS....10
FEEDBACK MATRIX....11
DELAY MODES....11
TAP EDIT PAGE....15
DSP EFFECTS....17
PRE/POST EFFECTS....17
FEEDBACK EFFECTS....26
LFO....27
ARPEGGIATOR/TRANCEGATE....28
ENVELOPE GENERATOR....29
MODULATION LOGIC....31

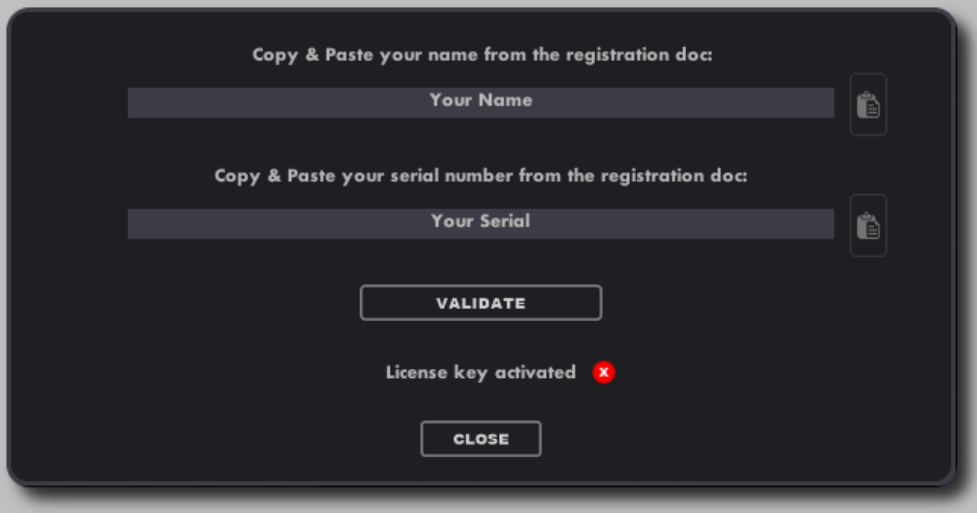
REGISTERING



'DEMO MODE' DISPLAY

REFLEX-PRO-X runs in Demo Mode until it's unlocked with a valid serial number and a registration name. While in Demo Mode the Parameter Display shows “DEMO MODE” and the Value display “REGISTER”.
Every one minute the input will be muted and the Parameter Display shows a blinking “INPUT MUTED”

To enter the registration page click on “**REGISTER**”

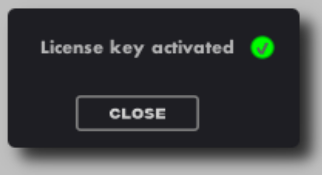


REGISTER PAGE

To unlock REFLEX-PRO-X you have to enter a valid registration name and a serial number into the corresponding fields. Both are sent to you in a registration doc after purchasing REFLEX-PRO-X.

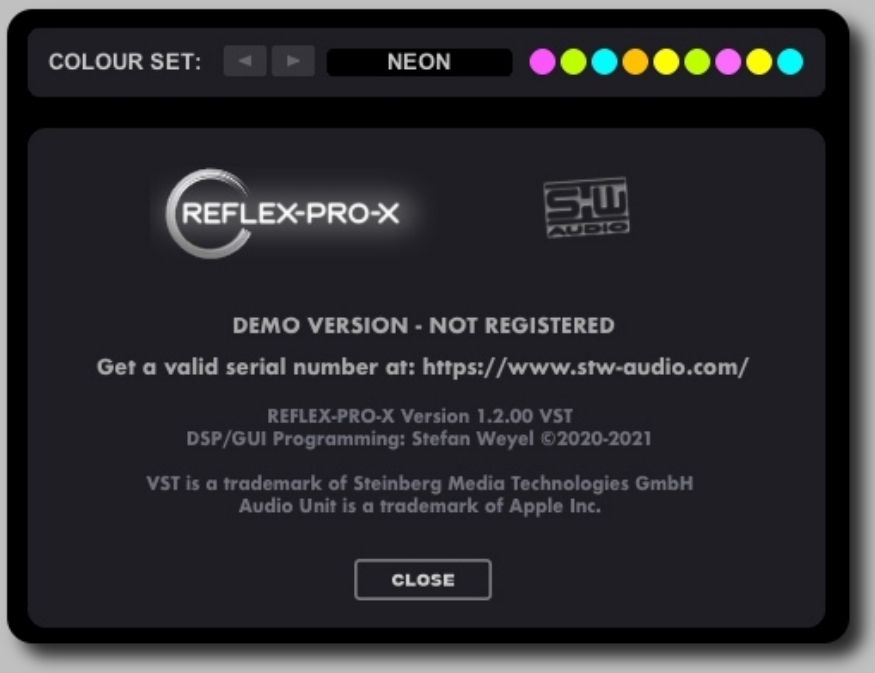
Though it's **not** recommended you can enter the data manually. More secure and convenient is to copy and paste the data by keyboard shortcuts or much easier, use the paste buttons alongside the input fields.

After entering your data push the “**VALIDATE**” button. If the validation succeeds the red icon behind “License key activated” changes to green and a license file will be saved..



A click on the “**CLOSE**” button brings you back to the main REFLEX-PRO-X Interface.

OPTIONS



The options page provides access to the colour-set selection. Change the actual colour settings with a click on the arrows or through the pop up menu which opens with a click on the colour-set name. The selected colour set will be saved individually for every REFLEX-PRO-X instance.
Beside applying just a visual preference, different colour settings could come in handy to distinguish multiple instances of REFLEX-PRO-X in the same project. A preview of the applied colours is displayed right to the colour-set name.

GENERAL

Knob operation:

Double click on a knob sets the default value. Dragging a knob while holding the shift key allows fine value changes.

Modulation:

All knobs in the **MULTI DISPLAY AREA** with a greyed or darker center circle, as well as all MAIN SECTION parameters provide modulation capabilities. Right click - alternatively SHIFT+left double click - the center of a knob to bring up a Drop down menu for modulation source selection. If a modulation source is active click&dragging the mouse in the center area of the knob sets the modulation amount. Click & dragging outside the center area sets the original parameter. If a modulation source is set it will be indicated by a corresponding icon and the mod source representing color.

Slot design:

REFLEX-PRO-X contains 4 individual slots with identical parameter selections. All described parameters for the MAIN/DELAY and EFFECT SECTIONS as well as the **SLOT SETTINGS** are available for each slot.

MAIN SECTION

ON:  Enable/Disable slot.

INPUT:  Slot input source. All slots have the options Mono[M], Left[L], Right[R], Stereo[ST], MasterFX output[FX]. Additionally slots 2 and higher provide inputs from single or combinations of previous slots. The routing is determined by the direct out setting of the selected slots.

GAIN: Input level [-inf dB - +12dB].

PAN: Panorama [100% L – 100% R].

FEEDBACK: Delay Feedback [0% - 160%].

LEVEL: Output level [-inf dB - +12dB]

MASTER FX: Master FX send level [0% - 100%]

All Main Section parameters can be modulated by one of 14 sources. Please refer to the section ***Modulation***.

MULTI DISPLAY SECTION

Page selector

Click on one of the page titles to open the associated page display.
Available pages are:

- Feedback Matrix [FB MATRIX]
- Pre Delay Effect Section [PRE-FX]
- Delay Section [DELAY]
- Delay Feedback Effect Section [FB-FX]
- Post Delay Effect Section [POST-FX]
- Slot Settings [SLOT]
- Low Frequency Oscillators [LFO]
- Arpeggiator/TranceGate [GATE]
- Envelope Generator [ENV]
- Modulation Logic [LOGIC]

Clicking on displayed circles activates/deactivates the corresponding page objects. The horizontal page selector represents objects for slot 1 – 4. The vertical page selector represents the available modulation source objects.

TOP DISPLAY

PARAMETER DISPLAY

TAP-T: The TAP-T[IME] area combines three functions:
1. If a non synced delay time is set with the delay time slider, the corresponding bpm is displayed here.
2. Right click into the area for tap-time target selection. [Slot 1-4 left/right]. If a target is selected the delay switches to non synced (*ms based*) time mode and is in stand by for 5 seconds after the receiving the last tap tempo click. This is indicated by a blinking red dot in front of the delay channel.

3. Left click into the area after selecting a tap-tempo target sends tempo information to the delay channel.

SLOT: The corresponding slot of the selected parameter.

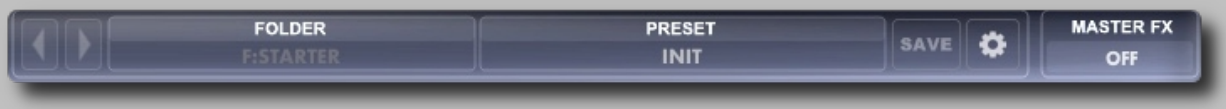
LOC: "Hook-point" of the effect if a effect parameter is selected. Pre-Delay [PRE], Delay, Feedback [FB], Post-Delay [POST]

PARAMETER: The name of the last changed parameter.

*Note: This display shows „**DEMO MODE**" until REFLEX-PRO-X is registered with a valid license key.*

VALUE: The value of the last used parameter.

*Note: This display shows „**REGISTER**" until REFLEX-PRO-X is registered with a valid license key. You can enter the registration display by clicking on 'REGISTER'. (See **registering** description)*



PRESET DISPLAY

ARROW LEFT: Steps through presets downwards in alphabetical order.

ARROW RIGHT: Steps through presets upwards in alphabetical order.

FOLDER: Folder of actual preset. Right click on the folder area opens the REFLEX-PRO-X preset directory.

PRESET: Selected Preset. Click on Preset Name opens a Drop down menu for direct preset selection.

SAVE: Saves the actual parameter settings to a new preset file. The default location for User presets is the "User Preset" folder which will open after hitting save. You can also add subfolders [*like in the "Factory Preset" folder*] to organize your presets. All other locations could be used to save a preset but will be ignored in the preset listing and you'll get the warning: "NOT SAVED IN USER FOLDER!"

OPTIONS: Opens the 'Options' page.

SLOT SETTINGS

The slot settings page contains some additional slot parameters which affect signal routing and controls. The slot page can be entered or left with a click on the SLOT icon

OFFSET: Fix Offset Delay of one side of the input channels. [0 - 25ms]

DIRECT/DELAY: Mix of direct and delay signal routed to the POST FX section. [100% DIRECT – 100% DELAY]

MODULATION: Modulation depth [see BOTTOM SETTINGS] of the main Delay Line. [0% - 100%]

DI-OUT: Source of slots Direct Out send. [PRE FX, DELAY, POST FX, OUT]

M-FX IN: Source of slots Master Effect send. [INPUT, PRE FX, DELAY, POST FX, OUT]

PANPOS: Position of the Pan Pot. [Post or Pre Width].

WIDTH: Stereo width of slots output. [0% - 100%]

OUT: Swaps or mutes the left and right outputs [L-R, R–L, X-X]. Muting the output can be a simple way of 100% wet routing through the MasterFX section , e.g. EQs

MASTER EFFECT

EFFECT SELECTOR: Drop down Menu for the master effect selection.
Available Effects are:

- REFLEX: A delay based ambience effect also known from the REFLEX+ plugin.
- REVERB: A dense reverb algorithm with decent modulations
- ROOM: A room ambience with rougher density.
- FIX EQ: 3 band EQ with fixed Lo/High band and tunable mid band.
- 2 BAND EQ: Two band EQ with FREQ and GAIN parameters.
- LO/HI SHELF: Shelving filter
- DRIVE LP+HP: Lo-pass and Hi-pass with gain.

BYPASS: Dry signal is routed to the MASTER FX output if Bypass is active.

PARAMETER 1 - 4: Each master effect holds up to 4 individual parameters. The actual knob assignment is displayed below the knobs. Available values depend on the actual knob parameter.

REFLEX:

SIZE: Delay time of the REFLEX algorithm [0% - 100%]

DECAY: Decay time of the REFLEX algorithm [0% - 100%]

MODULATION: Modulation depth of the REFLEX algorithm [0% - 100%]

DAMP: Feedback Damping frequency [20kHz - 50Hz]

REVERB:

SIZE: Decay time of the REVERB algorithm [1s - 30s]

PREDELAY: Pre-delay time until reverb tail gets in [0ms - 500ms]

HIPASS: Cutoff frequency of the Hi-pass filter. [50Hz - 2000Hz]

DAMP: Hi frequency damping amount. [0% - 100%]

ROOM:

SIZE: Decay time of the ROOM algorithm [1s - 4s]

PREDELAY: Pre-delay time until reverb tail gets in [0ms - 500ms]

HIPASS: Cutoff frequency of the Hi-pass filter. [50Hz - 2000Hz]

DAMP: Hi frequency damping amount. [0% - 100%]

FIX EQ: [LO SHELF + VARIABLE MID BAND + HI SHELF]

LOSHELF: Gain of the Lo band [shelving type] at 500Hz [-18dB - +18dB]

MID FREQ: Center Frequency of the mid band. [500Hz - 5000Hz]

MODULATION: Gain of the Mid band [-18dB - +18dB]

HISHELF: Gain of the Hi band [shelving type] at 3000Hz [-18dB - +18dB]

2 BAND EQ: [TWO BAND PEAK FILTER]

LO GAIN: Gain of the 1^{s} band [-18dB - +18dB]

LO FREQ: Frequency of the 1st band [50Hz - 20kHz]

HI GAIN: Gain of the 2nd band [-18dB - +18dB]

HI FREQ: Frequency of the 2nd band [50Hz - 20kHz]

LO/HI SHELF: [VARIABLE LO SHELF + HI SHELF]

LO GAIN: Gain of the 1^{s} band [-18dB - +18dB]

LO FREQ: Frequency of the 1st band [50Hz - 1000Hz]

HI GAIN: Gain of the 2nd band [-18dB - +18dB]

HI FEEQ: Frequency of the 2nd band [250Hz – 7500kHz]

DRIVE LP+HP: : [LOPASS + HIPASS]

HI PASS: Frequency of the Hi-pass filter [50Hz -20000Hz]

LO PASS: Frequency of the Lo-pass filter [50Hz -20000Hz]

GAIN: Gain amount [0% - 100%]

MODE: Slope [12dB, 24dB, 36dB] and routing of the filters [Parallel/Serial]

MASTER SETTINGS

WEB: Clicking the **„STW audio“** logo launches a link to the stw-audio homepage.

KILL: All audio buffers are cleared. Use this in emergency cases, or to abort long delay feedbacks.

MODULATION RATE: Modulation Rate of slots main delay modulation. [0% - 100%]

MODULATION DEPTH: Maximum overall Modulation depth of slots main delay modulation. The relative ratio to that maximum depth can be set individually for each slot at the slot setting page. [0% - 100%]

FEEDBACK OFFSET: Overall offset of slots feedback setting. Use this to decrease or increase the feedback amount for all slots at once. [-50% - +50%]

DELAY TIME SCALE: Scale factor for all delay times [x0.5 – x2.0]

LIMITER MODE: Enable/Disable the master limiter. The final limiter takes the sum of all four slots as input and sends it to the 'WET' control. Modes are['Off', 'Slow 1' (Original Mode), 'Slow 2', 'Fast']

BOOST: Input Gain of the master limiter. [0 - 36dB]

SEND: Mutes the dry amount of the audio output. This should be the preferred mode if REFLEX-PRO-X is used as send effect.

ATTENUATION: Additional attenuation of all input gains. [0dB, -3dB, -6dB, -12dB]
To keep wet/dry balance this also affects the dry output level.

NOTE: “SEND” mode and INPUT ATTENUATION are not part of the preset data but rather saved as a plugin state in your projects.

DRY LEVEL: Amount of dry input signal added to the plugs audio output. [0% - 100%]

WET LEVEL: Amount of wet effect signal added to the plugs audio output. [0% - 100%]

WIDTH: Stereo amount of wet signal. Value < 100% = decreased stereo signal, value > 100% = decreased mono signal. [0% - 150%]

OUTPUT GAIN: Attenuation or gain of the plugs output signal. [-12dB - +12dB]

OUTPUT VU: VU meter for each Slot, Master Effect and Left/Right main output.

MASTER FX LEVEL: Amount of the MASTER EFFECT output. [0% - 200%]

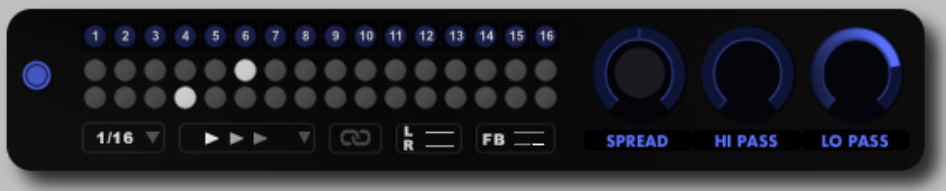
FEEDBACK MATRIX

The feedback matrix allows to route each slots main delay feedback path into each other slots main delay.

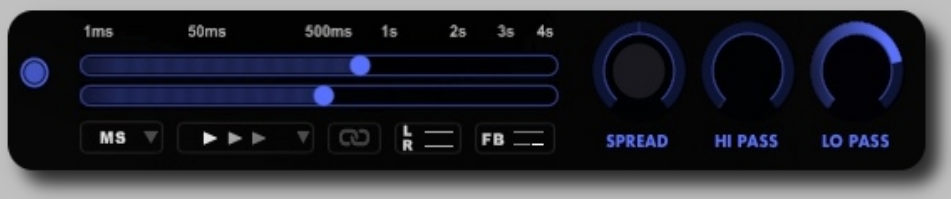
FEEDBACK AMOUNT: Positive or negative [phase inverted] amount of slots 1 – 4 feedback amount into the corresponding slot. These settings are all relative to the Main Feedback level in the MAIN SECTION of the appropriate slot. [-100% - +100%]

DELAY MODES

The delay section provides a stereo delay module with four different delay modes for every slot. All coming with individual parameters. The max delay time for each delay line is 8 seconds. Synced and free time modes displays are similar in FORWARD, BACKWARD, and GRAIN mode. The TAP DELAY MODE offers a wide variety of individual settings for each delay tap (*see* **TAP EDIT PAGE***).*



FORWARD MODE (synced time mode)



FORWARD MODE (free time mode)

ON: Enables/Disables the delay module.

TAP/TIME SELECT: ['*TAP*' Dots - In synced mode] Sets the Delay time to the selected note length multiplied with the upper circle number. Left and right channel can have individual settings.
['*TIME*' Slider - In free mode] Sets left and right Delay time with the horizontal faders.

TIMEBASE: Delay time base. [Note length of 1/16 1/16th, 1/32nd, 1/64th, 1/8th triplet, 1/16th triplet, 1/32nd triplet. Option "Milliseconds" MS, changes to non synced display]. (*All four delay modes)*

MODE: Main Delay mode. FORWARD / BACKWARD / GRAIN / TAP

LINK: Links left and right channel time settings. (*Forward/Backward and Grain mode)*.

ROUTING: Selects the feedback and output routing of the delay (forward and backward mode).

- DUAL MONO: Left and right input go to own input, feedback and output.
- LEFT PING PONG: Left input goes into left input and is feed back into the right channel. Right feedback goes into the left channel afterwards.
- MONO LEFT PING PONG: Same as LEFT PING PONG, just with the mono input signal.
- RIGHT PING PONG: Right input goes into right input and is feed back into the left channel. Left feedback goes into the right channel afterwards.
- MONO RIGTH PING PONG: Same as RIGHT PING PONG, just with the mono input signal.
- LEFT/RIGHT PING PONG: Left and right channel go into own input and feed back to each other.
- MIX: Left and right channel go into own input and feedback to both channels.
- MONO LEFT: Only left channel is processed and routed to both outputs.
- MONO RIGHT: Only right channel is processed and routed to both outputs.

FEEDBACK MODE: FB

Proportional/Linear feedback mode.
In proportional mode left and right channels have the same release time when different delay times are set. (*Only active in DUAL MONO mode)*.

SPREAD: Spreads left and right delay times in milliseconds. Opposite to the offset delay time the spread time sums up every feedback loop. [-20ms - +20ms]

HIPASS: Cutoff frequency of the delay output Hi-pass filter [20Hz - 3000Hz]

LOPASS: Cutoff frequency of the delay output Lo-pass filter [200Hz - 20000Hz]

BACKWARD MODE (synced time shown)

TRIGGER: Trigger source to start delay read fro the top. Useful for timed reverse delays.

- OFF - Reverse buffer reads are running free.
- BAR – Delay buffer writes start at every new bar from top.
- ENV1/2 – Delay buffer writes start at every envelope trigger [Envelope follower is in GATE mode and the envelope level exceeds the threshold level].

Note: Reverse buffer reads are delayed for the selected delay time. That means the buffer has to be filled with the delay length first before the read starts. In case of e.g. a delay length of 1/16th the reverse buffer read starts 1/16th after the written input sample and is read from the buffer head in reverse. The first input sample is therefore reached after 2/16th. So the attack of a percussive sound will be heard at the doubled amount of the selected delay time.

POSITION: Delay buffer read position

X-FADE: Crossfade time from top/end of buffer frames. [10ms - 1000ms]

LOPASS: Cutoff frequency of the delay output Lo-pass filter [200Hz - 20000Hz]

GRAIN MODE (synced time shown)

SMOOTH: Smoothing of grains. AUTO sets a pre-calculated time which fits to the linked parameters.
[AUTO, 

0ms – 50ms 
]

POSITION: Read position relative to the delay time buffer start. 0% is head, 100% is tail of the buffer. [0% - 100%]

SPEED: Playback speed of delay buffer. -100% results in one octave lower, +100% in one octave higher pitch. [-100% - +100%]

SIZE: Size of grains. [5ms – 400ms]

TAPPED MODE

LENGTH:  Click on a top row numbers sets the amount of delay taps. Inactive delay taps are greyed out.

ENABLE: Click on a tap circle enables/disables the delay tap. White taps are enabled.

DIRECT OUT POSITION: Direct out feed of the delay line could be the  last tap or the sum of  all taps output.

FEEDBACK POSITION: Available taps are 1-16  or auto select of  last tap in selected length. Feedback position can exceed the actual tap amount and is independent of tap enabled setting and tap length..

MODE: Tap delay process modes are:


- STEREO: Independent left/right delay tap outs.


- DUAL MONO: Left/right delay taps are summed to a mono out.


- LEFT MONO: Only left delay taps are routed to a mono out.


- RIGHT MONO: Only right delay taps are routed to a mono out.

TAP EDIT:  Opens the Tap Edit Page.

 Closes the Tap Edit Page

EDIT PAGE:  Toggles TIME/LEVEL/PAN and FX  Tap Edit Page.
(*Only visible if Tap Edit Page is opened)*

SWELL:  Adds additional pre delays to every tap [0% - 100%]. This creates some smoothing effect.
(*Only visible if Tap Edit Page is closed)*

SET:  Drop down menu to select from predefined tap settings.

SWING: Swing amount of consecutive taps. If a binary timebase is used (e.g. 1/8th) an amount of 100% extends all odd taps to a two 1/8th triplets and shortens all even taps to one 1/8th triplet. [0% – 100%].

TAP TIME: Manual tap delay time [1ms – 500ms/Tap]. (*Could also be set by Tap-Tempo)*
The tap time knob follows the synced timebase values

TAP EDIT PAGE

The Tap Edit Pages allows individual settings for every single delay tap. All step edits share the same functionality:
Drawing of single or multiple levels on the fly for tap time/level and panorama. Panorama sliders cover a range from -100% to 100%, and the effect depends on the selected Tap Mode.
Time and level sliders cover a range from 0% - 100%. 100% time level corresponds to the selected time value at the Tap Delay Page!

Right click into a fader area opens a step menu. A selected step amount enables a step grid for fixed slider divisions.

TAP EDIT PAGE 1

NUDGE LEFT: Moves all sliders one step left.
NUDGE RIGHT: Moves all sliders one step right.

SET: Drop down menu to select from predefined slider settings.

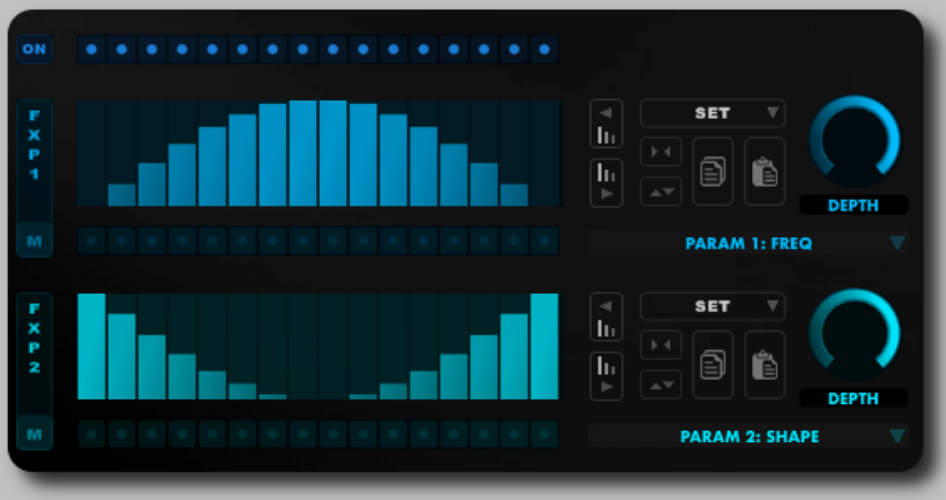
REVERSE LEVELS: Reverse slider values. First becomes last and the other way round.
INVERSE LEVELS: Inverse slider values. 0% becomes 100% and the other way round.

Note: SET/REVERSE/INVERSE are applied on the selected tap length only.

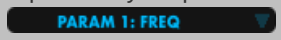
COPY LEVELS: Slider values are copied to the clipboard buffer.

PASTE LEVELS: Slider values are pasted from the clipboard buffer.

DEPTH: Overall depth of the slider values.



TAP EDIT (FX) PAGE 2

Tap Edit Page 2 can control up to two individual post delay FX parameters.
If a parameter is set in the PARAM1/2 menu 

the actual POST FX becomes a POST 'TAP' FX which provides individual values for **each** tap of the selected POST FX parameter. Since each tap uses its own FX instance this can become CPU expensive if used extensively.

Modulation 

(*if a modulation source is set at the FX Page*), as well as

FX activation 

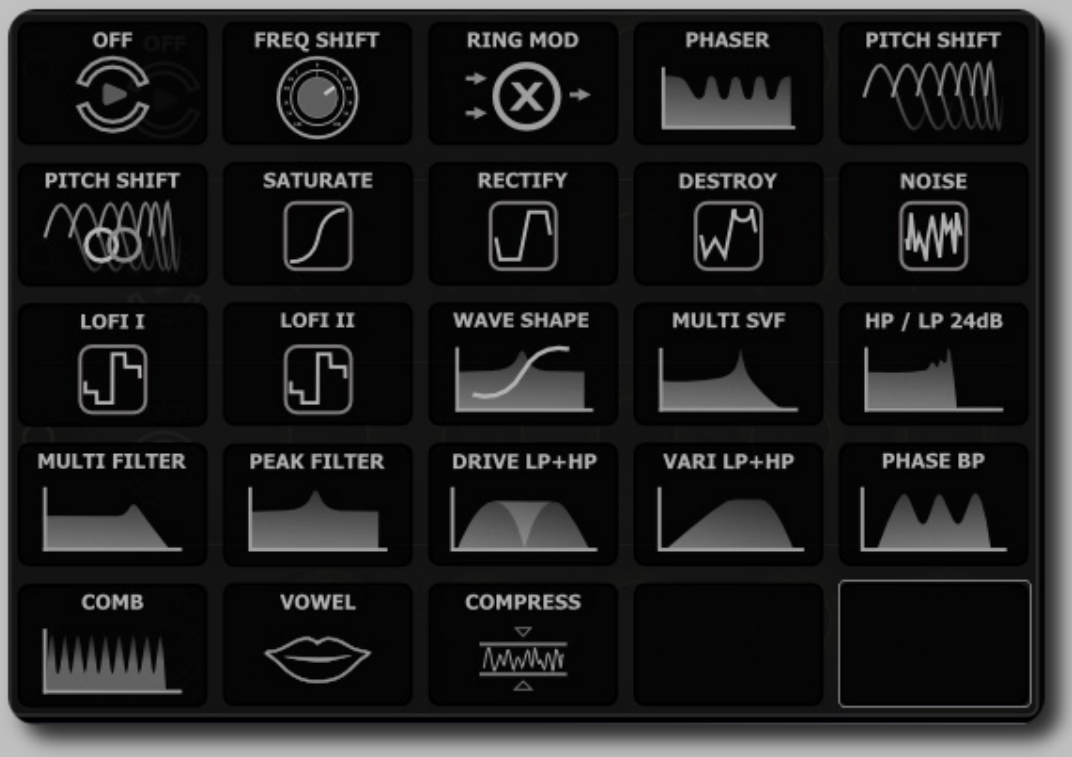
can be enabled or disabled for each tap individually.

Note: Right click into a Mod[M] or Active[ON] button row toggles all boxes enabled or disabled.

All other control elements on this page share the same functionality as on TAP EDIT PAGE 1.

DSP EFFECTS

The DSP effect section is divided into a PRE-Delay, a FEEDBACK and a POST-Delay section. A detailed effect description can be found in the following section parts. A click on the effect icon opens the effect selection page. Hovering over the display moves a rectangle which visualizes the selected effect when clicking. Clicking on an empty rectangle closes the effect selector and leaves your settings unchanged.



PRE/POST EFFECTS

A collection of 15 different effects could be invoked in the pre or post delay audio path. Pre/Post effects share the same effects pool. All effects share the enable/disable button. Most effects also share the “MIX” parameter which sets the ratio of dry/wet signal in the range from 0% - 100%. These are not further explained in the individual effect descriptions.

FREQUENCY SHIFTER

FREQUENCY: Frequency shift f the input signal. [-1Hz - +1Hz]
SCALE: Scaling factor of the shift frequency. Scaling factors are [x10, x100, x1000]
FEEDBACK: Output feedback amount to freq shifter input. [0% - 100%]
SPREAD: Frequency spread factor of left/right channel. [-100% - 100%]

RING MODULATOR

FREQUENCY: Frequency of the modulator signal. [0Hz - 2000Hz]
SHAPE: Shape of the modulating wave. Greater values produce more overtones. [0% - 100%]
WIDTH: Amount of signal phase to panorama. [0% - 100%]
SPREAD: Frequency spread factor of left/right channel. [-100% - 100%]

PHASER

BASE: Phaser Base frequency. [100Hz – 5kHz]
DEPTH: Depth of phasing notches. [0% - 100%]
STAGES: Amount of phaser stages. [2 - 8]
SPREAD: Base frequency spread factor of left/right channel. [-25% - +25%]
FEEDBACK: Output feedback amount to phaser input. [0% - 100%]

PITCH SHIFTER I

COARSE: Coarse pitch shift value. [-12 - +12 semitones]

FINE: Fine pitch shift value. [-100 - +100 cent.]

DELAY: Pitch shifter buffer size. Low values fit best for percussive signals higher values fit best for sustaining sounds. [1ms - 100ms]

SPREAD: Pitch shift spread factor of left/right channel. [-100% - 100%]

PITCH SHIFTER II

COARSE L: Coarse pitch shift value of left channel. [-12 - +12 semitones]

COARSE R: Coarse pitch shift value of right channel. [-12 - +12 semitones]

WIDTH: Panning width of left and right channel. -100% results in right channel on left output, left channel on right output. 0% results to mono signal of both channels, 100% results in right channel on right output, left channel on left output. [-100% - +100%]

DETUNE: Adds a negative detune value to the left channel and positive detune value to the right channel. [10% - 100]

SATURATION/RECTIFY/DESTROY/NOISE

GAIN: Gain factor on input signal. [0% - 100%]

LOPASS: Cutoff frequency of the post gain stage Lo-pass filter. [50Hz - 20kHz]

Q: Q (Resonance) amount. [0% - 100%]

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

LOFI I - Downsampling with Hi-pass Filter

RATE: Amount of sample rate reduction. [0% - 100%]

HIPASS: Cutoff frequency of the post gain stage Hi-pass filter. [50Hz - 20kHz]

Q: Q (Resonance) amount. [0% - 100%]

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

LOFI II - Lofi algorithm collection

DRIVE: Gain amount. [0% - 100%]

NOISE: Noise amount. [0% - 100%]

DNSAMPLE: Downsampling amount. [0% - 100%]

BITCRUSH: Bitcrush amount. [0% - 100%]

WAVE SHAPE with Bandpass Filter

MODE: Wave Shape Mode. [0% - 100%]

GAIN: Noise amount. [0dB - 24dB]

FREQ: Frequency of the pre gain stage Bandpass filter. [50Hz - 20kHz]

Q: Q (Resonance) amount. [0% - 100%]

MULTI State Variable Filter

FREQ: Cutoff frequency of the SVF filter. [50Hz - 20kHz]

Q: Q (Resonance) amount. [0% - 100%]

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

MODE: Filter type. Available types are Lo-pass/Hi-pass/Bandpass1/Bandpass2. Bandpass1 retains more hi frequencies while Bandpass2 has a symmetric slope to both sides of the cutoff frequency.

CHEBYCHEV 24db/Octave LOPASS/HIPASS Filter

FREQ: Cutoff frequency of the Chebychev filter. [50Hz - 20kHz]

Q: Q (Resonance) amount. [0% - 100%]

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

MODE: Filter type. Available types are [Lo-pass/Hi-pass].

MULTIMODE 12db/Octave BUTTERWORTH Filter

FREQ: Cutoff frequency of the Butterworth filter. [50Hz - 20kHz]

Q: Q (Resonance) amount. [0% - 100%]

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

MODE: Filter type. Available types are [Lo-pass/Hi-pass/Bandpass/Allpass].

PEAK/NOTCH Filter

FREQ: Cutoff frequency of the Peaking filter.[50Hz - 20kHz]

Q: Q (Resonance) amount. [0% - 100%]

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

GAIN: Gain of filter frequency. Positive for peaking type or negative for notch type. [-24dB - +24dB]

DIM: Attenuation of the filter output. 100% equals the [positive] gain. Notch filter won't be attenuated. [0% - 100%]

VARIABLE SLOPE LOPASS/HIPASS Filter

FREQ HP Cutoff frequency of the Hi-pass filter.[50Hz - 20kHz]

HP SLOPE: **Hi-pass** Filter slope (12,24,36, and 48 dB/Octave

FREQ LP Cutoff frequency of the Lo-pass filter.[50Hz - 20kHz]

LP SLOPE: **Lo-pass** Filter slope (12,24,36, and 48 dB/Octave

SATURATED LOPASS/HIPASS Filter

FREQ HP Cutoff frequency of the Hi-pass filter.[50Hz - 20kHz]

FREQ LP Cutoff frequency of the Lo-pass filter.[50Hz - 20kHz]

GAIN: Amount of saturation. [0% - 100%]

MODE: Filter slope and routing. The LP and HP filter can run in series (indicated by '..-s') or parallel (indicated by '..-p'). Both options provide slopes of 24, 48 and 72dB/Octave.

PHASING BANDPASS Filter

FREQ: Cutoff frequency of the Bandpass filter. [50Hz - 20kHz]

Q: Q (Resonance) amount. [0% - 100%]

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

POLES: Amount of Phaser Poles. This equals the amount of notches around the Cutoff frequency. [3, 5 or 7]

COMB Filter

FREQ: Frequency of the COMB filter. [1Hz - 10kHz]

FEEDBACK: Output feedback amount to comb filter input. [0% - 100%]

HIPASS: Cutoff frequency of the outputs Hi-pass filter. [FORWARD/ BACKWARD mode] [50Hz - 20kHz]

LOPASS: Cutoff frequency of the outputs Lo-pass filter. [FORWARD/ BACKWARD mode] [50Hz - 20kHz]

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

VOWEL Filter

VOWEL POS: Crossfades between different sets of vowels depending of the selected MODE [0% - 100%]

MODE: Changes the active vowel set. Available sets are:

I) iy-e-oo II) i-ae-a III) uh-ow-oo IV) ae-u-er

SPREAD: VOWEL spread factor of left/right channel. [-100% - +100%]

GAIN: Gain of vowel frequencies. [-24dB - +24dB]

DIM: Attenuation of the filter output in % of gain level. 100% equals the gain. [0% - 100%]

COMPRESSOR

THRES: Threshold level. [0dB - -50dB]

RATIO: Ratio of compression. [1:1 – 10:1]

ATTACK: Attack time compression level. [1ms - 200ms]

RELEASE: Release time compression level. [20ms - 1000ms]

GAIN: Output Gain of compressed signal. [0dB – 24dB]

FEEDBACK EFFECTS

A collection of 13 different effects could be invoked in the delay feedback path. Feedback effects are equal or altered versions of pre/post effects. All effects share the enable/disable button. Most effects also share the “MIX” parameter which sets the ratio of dry/wet signal in the range from 0%-100%. These are not further explained in the individual effect descriptions. These are the effects which differ from the pre/post versions.

SATURATION/RECTIFY/DESTROY/NOISE

GAIN: Gain factor on input signal. [0% - 100%]

FREQ: Cutoff frequency of the post gain stage multi-mode filter. [50Hz - 20kHz]

MODE: Filter type. Available types are [Lo-pass/Hi-pass/Bandpass/Allpass].

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

MULTIMODE VARIABLE SLOPE BUTTERWORTH Filter

FREQ: Cutoff frequency of the filter. [50Hz - 20kHz]

SLOPE: Slope of the filter curve. 12/24/36/48 db/Oct

SPREAD: Cutoff frequency spread factor of left/right channel. [-100% - +100%]

MODE: Filter type. Available types are [Lo-pass/Hi-pass/Bandpass/Allpass].

LFO

REFLEX-PRO-X provides four identical Low Frequency Oscillators as modulation source. Each LFO offers a variety of reversible and invertible waveforms, diverse trigger and sync modes as well as phase offset. Hence the frequency could set up to 500Hz it allows audio rate modulations.

WAVE: Select the LFO wave either from the drop down menu by clicking into the wave display or with the left or right arrows to step through the waves.

INVERT: Inverts the wave [top/bottom].

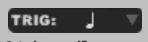
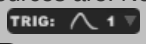
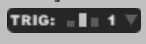
REVERSE: Reverses the wave [left/right].

PHASE: Lower fader sets the phase offset amount. [0% - 100%]

POL: Polarity of the LFO output. Can be positive POL: POS (+) [0 – 1], negative POL: NEG (-) [0 - -1], or bipolar [-1 – 1] POL: BI (+/-)

UNIT: Timebase of the LFO frequency. Select from HERTZ or a range of note values synced to the host tempo. UNIT: HERTZ UNIT:

RUN: Running mode of the LFO. Available settings are:
"looped" RUN: - LFO always running,
"one shot" RUN: - LFO runs once if triggered and is restarted on every new trigger,
"latch" RUN: - LFO runs once to the end if triggered. New triggers are ignored until end of wave is reached.

TRIG: Trigger source of the LFO. If the LFO receives a trigger event it starts from top with the actual running mode. Available sources are: Note values  [1/4 or ½], bars  [1 or 2], ENVELOPE 1 & 2  [hit of 100% level], as well as GATE 1 to 4. Gates can trigger with Step 1  or any 100% step level. 

GLIDE: Glide amount of LFO output. Smoothes edges of stepped waves. [0% - 100%]

RATE: Frequency of the LFO. Depending on the selected timebase values in hertz or note values are available. [0.001Hz – 500Hz] or [4/1, 2/1, 1/1, 1/2, 1/4, 1/8, 1/16, 1/32]

DEPTH: Output depth of the LFO. 100% equals full range of the selected polarity. [0% - 100%]

ARPEGGIATOR/TRANCEGATE

REFLEX-PRO-X provides four identical ARPEGGIATOR/TRANCEGATE modules as modulation source. Each one offers 16 steps and various run and sync modes. A selected step amount [right click into the bar area] enables a step grid for fixed levels.

LENGTH:  Click on a top row number sets the amount of steps. Inactive steps are greyed out.

LEVEL: Drawing into the bar area moves the step values between 0% or -100% to 100% depending on the polarity setting. A right click into that area bings up the division menu [0 – 12 Steps] and the value is rounded to the next division. This could be useful e.g. for semi tone divisions at pitch modulation.

TRIGGER: Trigger for advancing to the next step [*depending on the RUN mode*]. Available sources are a selection of note values, as well as ENVELOPE and GATE triggers (*see description in **LFO** part)*

RUN MODE: Sequence of ARPEGGIATOR/TRANCEGATE steps.
[FORWARD  , BACKWARD  , FORWARD/BACKWARD  , RANDOMN ]

SET: Drop down menu to select from predefined step value curves.

SYNC: Enable/Disable host sync. This option is only available if the trigger source is a note value.

GLIDE: Amount of smoothing between steps. [0%- 100%]

DEPTH: Overall depth of steps values. [0%- 100%]

*Note: **REVERSE / INVERSE** / **COPY** / **PASTE** / **POLARITY** functionality as described in the **LFO** part.*

ENVELOPE GENERATOR

REFLEX-PRO-X provides two identical ENVELOPE GENERATOR modules as modulation source. Each can operate as ordinary envelope generator or as gate generator. The input signal passes a GAIN and the HIPASS/LOPASS stage before reaching the envelope detector.

SOURCE: Input source of the envelope generator. Available sources are plug inputs and all individual slot outputs [determined by the direct out setting] with left/right and mono sum options as well as an additional side chain input or the MASTER FX mono sum.

MODE: Operation mode [ENVELOPE/GATE]

OUTPUT: Switch between Linear and Logarithmic output

MONITOR: If activated the processed envelope input is directly routed to the plugs output. Use this to test and find proper envelope settings. **Be careful with high GAIN settings!**

GAIN: Gain of the envelope input signal. [0dB - 40dB]

LOCUT: Cutoff frequency of the envelope input Hi-pass filter. [50Hz - 10kHz]

HICUT: Cutoff frequency of the envelope input Lo-pass filter. [100Hz - 20kHz]

DEPTH: Output range of the ENVELOPE GENERATOR. [0%- 100%]

THRESHOLD: [*available in GATE mode*] Threshold level to trigger the gate. [-90dB - 0dB]

ATTACK: Attack time until the ENVELOPE GENAERATOR reaches full output level. [0ms- 5000ms]

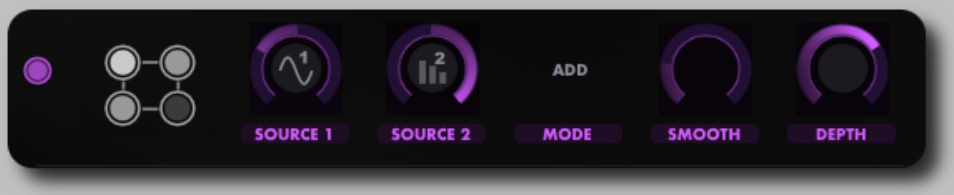
HOLD: [*available in GATE mode*] Hold time until the ENVELOPE GENAERATOR triggers release mode after gate reached full output. [0ms- 10000ms]

RELEASE: Release time until the ENVELOPE GENERATOR reaches zero level after elapsed hold time. [10ms- 15000ms]

VU METER: Visual level control. The white line — represents the actual input level. The red line — represents the threshold level. The full red bar represents the actual ENVELOPE GENERATOR output.

MODULATION LOGIC

REFLEX-PRO-X provides four identical MODULATION LOGIC modules as modulation source. Each provides two modulation sources slots which create a new output depending on the selected algorithm and sources.



SOURCE 1/2: Right click opens the Dropdown menu for modulation source selection. Available sources are all LFO/ENV/GATE slots as well as the preceding LOGIC slots.
Left click and drag sets the amount of the set modulation source for the appropriate slot. [-100% - 100%]

MODE: Logic algorithm for the selected sources. Available modes are:

	Mode	*Description*	*Example*
•	ADD:	Output of Source1 and Source2 are added.	-0.5 ; 0.2 => -0.3
•	MULTIPLY:	Output of Source1 and Source2 are multiplied.	-0.5 ; 0.2 => -0.25
•	MIN:	The minimum value of both sources	-0.5 ; 0.2 => -0.5
•	MAX:	The maximum value of both sources	-0.5 ; 0.2 => 0.2
•	ABS MIN:	The absolute minimum value of both sources	-0.5 ; 0.2 => 0.2
•	ABS MAX:	The absolute maximum value of both sources	-0.5 ; 0.2 => 0.5
•	GATE:	If absolute value of Source1 is higher than absolute value of Source2 output is absolute value of Source1, else 0	-0.5 ; 0.2 => 0.5 -0.5 ; 0.7 => 0
•	HIGHER:	If Source1 is higher than Source2 output is 1, else 0	-0-5 ; 0,2 => 0 0-5 ; 0,2 => 1
•	LOWER:	If Source1 is lower than Source2 output is 1, else 0	-0-5 ; 0,2 => 1 0-5 ; 0,2 => 0

GLIDE: Amount of smoothing between steps. [0%- 100%]

SMOOTH: Overall depth of the MODULATION LOGIC output. [0%- 100%] The depth itself can also de modulated by any modulation source.

Have fun!