reasonistas

Sidechain ReAction

Operation Manual v1.0

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Welcome

Thank you for choosing Reasonistas Rack Extensions. In order to maximize your experience with SideChain ReAction Enveloper, we encourage you to read through this operation manual to learn all device functions and capabilities.

In addition, we recommend that you become familiar with http://www.reasonistas.com/. There you will find many helpful tools designed specifically for Reason users such as our one-of-a-kind Virtual Reason Rack, Rack Extension Developer Directory, Reason Plugin Slider and PluginTEES, our Reason plugin developer apparel shop. Also, check out our blog and forum for great interviews and tutorials.

By signing up at https://shop.reasonistas.com/ you'll receive information about our Rack Extensions, reminders when updates are available, and the latest news and information about Reason and Rack Extensions.

About Reasonistas

Reasonistas was founded in 2012 by Electronic Music Producer Noel G., a devoted veteran Reason user and an active contributor of the legacy Propellerhead User Forums (PUF) and now ReasonTalk. The "Reason" in Reasonistas is obvious, but what is meant by "-istas"? The –ista suffix comes from Latin and before that Ancient Greek -ιστής (-istḗs). The derived English variant of this suffix is –ist, used in words like "pianist", "futurist", and "annalist" and so on. All this to say: Reason users are Reasonistas. We are here to support the entire Reason community.

About Lab One Recordings

Lab One Recordings is an independent digital music label, plus an audio plugin developer company and sound design company founded by Matt Fresha. From all aspects of electronic music, Lab One Recordings strives to supply the cream-of-the-crop products, for all your musical needs. Lab One dedicates themselves to bring quality products to the Reason Rack for all users, be it beginners, amateurs and professionals alike.

Acknowledgements

We thank Matt Fresha of Lab One Recording for partnering with us on this project and for helping us realize our vision. SCRE would not be possible without Matt's unwavering commitment and guidance throughout the process. Matt's superb coding knowledge, skills and deep understanding of Reason and music production in general is beyond incredible. It took nearly 12 months of preparation, endless communication and patience to finalize SCRE, but the journey was always a pleasure. Thank you, Matt.

Next we thank Mikko Niiranen (aka Nirude) for his ultra-realistic 3D renderings of Sidechain ReAction. Mikko is a consummate professional and he went above and beyond our expectations; delivering 3D images that even Hollywood would envy. Thank you, Mikko.

Thank you beta testers for helping us test and identify a few lingering bug Gremlins. We appreciate the support and suggestions you provided. Many of you contributed brilliant signature patches that are included in the SCRE factory patch library and for this we are forever grateful. Also, thank you for providing the audio demos of your signature patches for Reasonistas' Sidechain ReAction's SoundCloud page.

Last, but not least, we thank you for purchasing Reasonistas' SideChain ReAction Enveloper and for supporting our shared passion for Reason and music production. Please contact us at support@reasonistas.com should you have any questions or feedback to help us improve.

Introduction

SideChain ReAction Enveloper (SCRE) is more than just a witty play on words, it is the first Reason Rack Extension plugin fully dedicated and optimized for detailed multiband sidechaining (ducking) of any incoming audio right out the box. Meticulously designed by Reasonistas and thoroughly built by Lab One Recordings, with its unique user interface and free point movement, SCRE is far and away the most advanced yet simplest multiband sidechaining and envelope shaper available for Reason version 7.1 and higher.

Yes, this Swiss Army Knife of devices masterfully sidechains incoming audio at its core, but this is only scratching the surface. SCRE is in fact many capable devices rolled into one. It is a visual frequency splitter with meters, internal enveloper, CV trigger unit and 4way CV envelope generator for custom waveform/LFO shaping. SCRE is more versatile and capable than similar VST plugins thanks to Reason's unlimited audio routing and control voltage modulation capabilities.

And last, but not least, SCRE ships from the factory with over 240 cleverly designed patches, including many SCRE signature patches brilliantly designed by the following veteran Reason users and premier Rack Extension and Refill developers:

1.	Adam Fielding	http://www.adamfielding.com/wordpress/	United Kingdom
2.	Benedict Roff-Marsh	https://benedictroffmarsh.com/	Australia
3.	Alex Cavax (CVX)	https://www.youtube.com/CVx	Italy
4.	Ed Bauman (EditEd4TV)	http://www.baumanproductions.com/edited4tv.html	United States
5.	Lab One Recordings	http://lab-one-recordings.co.uk/rack-extensions/	United Kingdom
6.	Linus Wileryd (CutUp)	http://www.cutup.se/	Sweden
7.	Navi Retlav Studio	http://naviretlav.com/	Poland
8.	Ned Rush	https://www.facebook.com/NedRush	United Kingdom
9.	Noel G.	http://www.reasonistas.com/	United States
10.	Peff	http://www.peff.com/	United States
11.	Protostar	https://www.twitch.tv/protostar	United Kingdom
12.	Reason101	http://www.reason101.net/	United States
13.	Softphonics	http://www.softphonics.com/	Northern Ireland
14.	Soundcells	http://www.soundcells.de/	Germany
15.	Speo	http://www.speomusic.com/	Austria
16.	Synclab	https://www.facebook.com/synclab	México
17.	Vojta Šiman (Fluxton)	https://soundcloud.com/Fluxton	Czech Republic

SCRE front panel overview

Following are descriptions of SideChain ReAction Enveloper's front panel sections.

1. **Bypass/On/Off Switch**
   In Bypass mode, the input signal passes through unaffected to the main outputs of the device. In On mode, the device outputs the processed signal when the Mix Amount knob is set higher than 0% and the All Band Loop Button is on. Off mode mutes the inputs, which completely silences the device.

2. **Patch Selector**
   This is Reason's standard patch browser where you can select/save patches in Rack Extension patch format. *Note: Due to Reason's GUI configuration, when loading SCRE patches in LO/MID/HI mode you will find that the display resets to ALL envelope display; this is the standard GUI behavior of SCRE.*

3. **MIX AMOUNT Knob**
   The Mix Amount Knob determines the output balance between the dry and wet signal. Turn the knob to the right to blend the dry and wet audio signal from 0% to 100%. *Note: The Mix Amount knob must be set to 0% when modulating with the mix amount CV input on the back panel*.

4. **Glass Display**
   The heart of SideChain ReAction Enveloper lies in the glass display where you can load, edit, delete and create custom waveforms to effect incoming audio routed to either the entire frequency spectrum (ALL Mode), or split it into LOW, MID and HIGH frequency bands; each with independent controls over frequency, shape, sync rate and gain. It also shows each envelope's playhead position.

   Note: Due to the way Reason controls the GUI update speed, you will notice SCRE's playhead appears to be going backwards at high speed rates. Think of spinning wheel when it goes faster and faster at one point it appears to spin backwards. This is the same effect with SCRE's playhead at high rate speeds.
   .

5. **Default Waveforms**
   SideChain ReAction Enveloper provides 15 fully editable default waveforms, which are always visible at the far right of the device. These serve a dual purpose. First they allow you to quickly set standard waveforms and secondly they are a great starting point to help you create your own envelope / wave shapes.

SCRE front panel overview (continued)

Following are descriptions of SideChain ReAction Enveloper's front panel sections.

6. Glass Display Controls Section

The 21 controls in the glass display allow you to create and modify waveforms, view audio meters and the 4 frequency waveform windows, and turn on the multiband mode, as described below.

- **A.** Add or move points in envelope (24 points max per 'band').
- **B.** Delete points in envelope (1 point remains at all times).
- **C.** Sharp point mode = 0% curve.
- **D.** Tight point mode = 20% curve.
- **E.** Smooth point mode = 50% curve.
- **F.** Snap to grid on/off (snaps to 1/16th grid).
- **G.** Randomize active envelope and only visible point position and types (overrides snap to grid).
- **H.** Shift all waveform points left at 1/16th round including wrap around.
- **I.** Shift all waveform points right at 1/16th round including wrap around.
- **J.** Flip all waveform points. *Note: Flipped turns the vertical upside down.*
- **K.** Reverse (mirror flip) all waveform points. *Note: 'flow' may be the same as before reversing.*
- **L.** Copy current visible waveform points. *Note: This does not copy envelope's rate, hertz or gain.*
- **M.** Paste to current displayed band envelope screen.
- **N.** Reset current visible waveform.
- **O.** Reset all 4 waveforms.
- **P.** "FREQ" Displays FREQUENCY screens (must be disabled to see selected envelope).
- **Q.** "ALL" Displays the ALL band envelope screen (White color).
- **R.** "LO" Displays the LOW band envelope screen (Purple color).
- **S.** "MID" Displays the MID band envelope screen (Green color).
- **T.** "HI" Display the HIGH band envelope screen (Blue color).
- **U.** Enable LO/MID/HI mode (Purple/Green/Blue), or ALL mode (White).

SCRE front panel overview (continued)

Following are descriptions of the sections of SideChain ReAction Enveloper (SCRE).

7. RATE Knob

The Rate knob controls each band's envelope loop sync rate at independent time signatures locked to Reason's sequencer. It begins with the value of "Hz>>" to switch the sync rate from specific time signatures to hertz dialed in with the Hertz knob to the right. After the value of "Hz>>", the available time signatures are as follows:

(1/64) -- (1/32) -- (1/16T) -- (1/16) -- (1/8T) -- (1/8) -- (1/4T) -- (1/4) -- (1/2) -- (1/1) -- (1.5/1) -- (2/1) -- (3/1) (4/1) -- (6/1) -- (8/1) -- (12/1) -- (16/1)

8. HERTZ Knob

The Hertz knob controls each band's envelope loop rate at frequencies ranging from 0.10 Hz to 100 Hz. It is enabled when the Rate knob's value is set to "Hz>>" and disabled when the Rate knob's value is NOT set to "Hz>>". You may notice the Hertz knob values seem rasterized (0.10, 0.49, 0.88). This is related directly to MIDI number configuration (128 steps, 0 to 127) so we have to divide 0.1Hz to 100Hz evenly between 127 MIDI steps. You can use the sequencer edit lane for higher precision if need be.

Note: The Hz tool tip may still indicate the Hz setting when the display is showing '<<RATE'. This is so you can have the Hz rate adjusted on the fly but the RATE setting would take over the envelope speed of the visible envelope.

9. GAIN Knob

The Gain knob independently controls each band's gain. By default it is set to 0dB (unity gain) at center, -12.0dB to the left position and +12.0dB to the right position.

10. PASS THRU Button

PASS THRU determines the signal when not being controlled by the envelope. When ON, this activates the PASS THRU mechanism and allows SCRE to send the original signal through unaffected, unless the envelope is playing (in LOOP SYNC only mode, or when being triggered by MIDI/CV gate).

PASS THRU ON: unaffected signal can be heard when envelope not in motion.
PASS THRU OFF: any input signal will not be heard unless SCRE is LOOPING or is MIDI triggers (with RETRIG on).

SCRE front panel overview (continued)

Following are descriptions of the sections of SideChain ReAction Enveloper (SCRE).

10. PASS THRU Button (continued)

PASS THRU Functionality:

a.) SETTING: PASS THRU ON, LOOP & RETRIG are OFF and MIX Amount is at 0%,
a.) RESULT: You will only hear the DRY audio signal.

b.) SETTING: PASS THRU OFF, LOOP & RETRIG are OFF and MIX Amount is at 100%,
b.) RESULT: You will NOT hear any audio signal.

c.) SETTING: PASS THRU ON, LOOP & RETRIG are OFF and MIX Amount is at 100%,
c.) RESULT: You will only hear the DRY audio signal.

d.) SETTING: PASS THRU & LOOP are ON, RETRIG is OFF and MIX Amount is at 100%,
d.) RESULT: You will only hear the WET audio signal.

e.) SETTING: PASS THRU & RETRIG are ON (RELEASE On or Off) and MIX Amount is at 100%,
e.) RESULT: You will only hear the DRY audio signal until you press on your MIDI keyboard to MIDI trigger the RETRIG to hear the WET audio signal. Note: MIDI RETRIG / MIDI RETRIG+RELEASE with note down sustains the last part of the envelope by design.

f.) SETTING: PASS THRU, LOOP+RETRIG are ON (RELEASE On or Off) and MIX Amount is at 100%,
f.) RESULT: You will hear the DRY signal until you press your MIDI keyboard to MIDI trigger. Holding your MIDI key down will cause SCRE to loop the envelope until you release the key. With RELEASE OFF, the envelope resets, returning back the DRY signal. With RELEASE ON, the envelope plays through from the point of MIDI key release to the end of the envelope then resets.

Note: This very handy for lengthened LFO style envelopes, without the need to keep re-triggering.

SCRE front panel overview (continued)

Following are descriptions of the sections of SideChain ReAction Enveloper (SCRE).

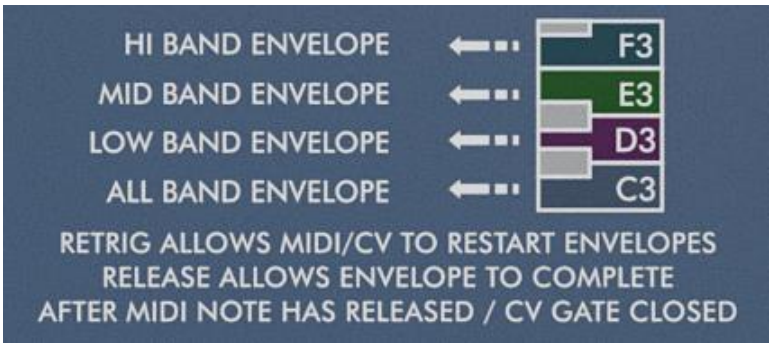
11. Loop Buttons and LED MIDI Indicators

a. LOOP Buttons

The Loop 4 Buttons allow the wet audio signal through without having the Pass Thru button on. It loops at the rate set by either the Rate or Hertz knob. This also synchronizes SCRE to the sequencer, so you can move around the sequencer window and discover where in the envelope playback would appear.

b. LED MIDI Indicators

The LED MIDI indicators light up when using SCRE as a performance device. The SCRE MIDI control is mapped on the keyboard as follows:



Pressing keys C3, D3, E3 and/or F3 will send a gate MIDI signal to SCRE resulting in any of the following results:

SCRE front panel overview (continued)

Following are descriptions of the sections of SideChain ReAction Enveloper (SCRE).

12. RETRIG and RELEASE Buttons

a. RETRIG Buttons

The Retrigger Buttons play the envelope as long as its corresponding MIDI note is held down (shown on page 5), then it resets on note up. Works with PASS THRU ON or OFF. This is great for repeat stuttering effects.

b. RELEASE Buttons

The Release Buttons allow each envelope to complete after its corresponding MIDI note has been released. Good for smooth transitions out of the envelope effect.

Following are the possible combinations of the LOOP, RETRIG and REELASE Buttons:

- RETRIG + RELEASE allows you to hit MIDI note and if you release before end of envelope, SCRE knows this and plays to the end.

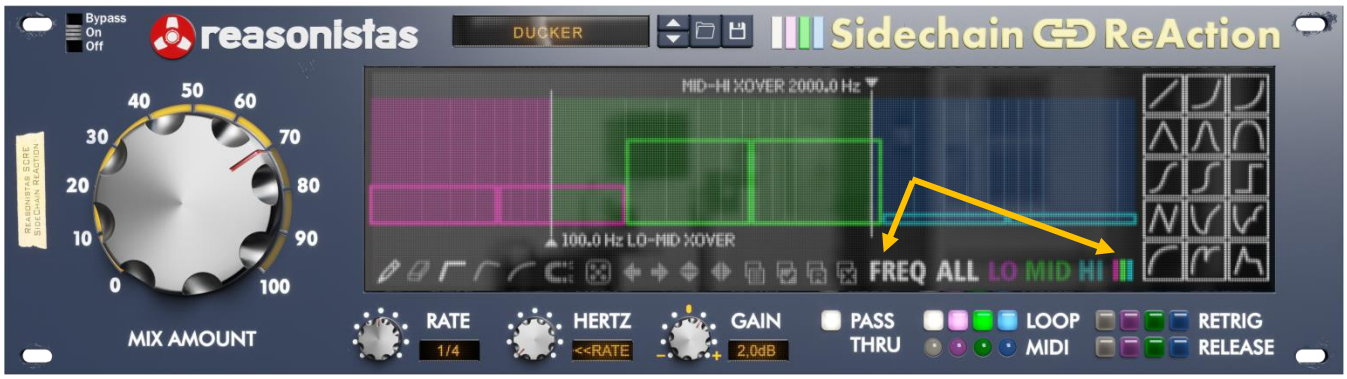
- LOOP + RETRIG works like RETRIG, but allows looping while MIDI note held.

- LOOP+RETRIG+RELEASE allows looping with MIDI key down, on release if not at the end then SCRE plays the rest of the envelope, then resets back.

Note: If you retrigger with RELEASE active, then SCRE will restart the envelope playback.

SCRE FREQ screens overview

The frequency screens display a stereo audio meter in either ALL mode (White) or in MULTIBAND mode for the LO (Magenta), MID (Green) and HI (Blue) frequency bands.



The two columns per band represent AUDIO INPUT (Max peak, left) and AUDIO OUTPUT (Max peak, right), so you can visualize which band is being affected at any one time.

Additionally there are the following two frequency handles.

- The one on the left is the LO-MID Crossover set to 100.0 Hz default.
- The right is the MID-HI Crossover set to 2000.0 Hz default.

Note: Both range from 20.0 Hz to 22050.0 Hz

You can drag either of these handles to the left to increase or to the right to decrease the crossover frequency of each one. To hear the effect you would need to use a combination of LOOP, RETRIG (+MIDI/CV gate), and RELEASE functionality.

Note: If PASS THRU is OFF and the corresponding band is inactive (LOOP OFF, or MIDI triggering is not active with Retrig / Retrig+Release), then the AUDIO OUTPUT column would rest at the bottom (-inf dB, aka silence). This can be useful to audition separate bands

Using SideChain ReAction Enveloper

How to change envelope point types on the main screen

The way you change the point types on the main screen is select the type you want (sharp, tight or smooth) then click the node you want to adjust. The mode sets the current point type so you can click on existing to change their state from sharp to smooth for example. If you click anywhere else a new point with that curve characteristic will be added.

1. Sharp = 0% curve
2. Tight = 20% curve
3. Smooth = 50% curve

Also, if you create a point in the envelope and want to move it, then do it! We've got no restrictions on the point movement of position so you can dynamically update the envelope without removing one point and adding another. *Note: We don't do restrictions!*

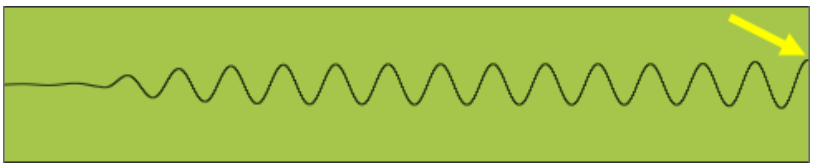
How to create a square wave

SCRE has a 'flow' direction because of the way the points are editable, and by the way it understands the order of the points. Use the envelope templates on the right hand side to pick from 15 default wave types. Creating ‘pure’ vertical envelopes could result in sawtooth shapes, so to aid simply offset the top or bottom point. This will also help ‘smooth out’ sharp transient clicks, which is intrinsic in certain sound sources as explained on page 12.

Using SideChain ReAction Enveloper (cont'd)

How to manage audible artifacts (clicks, snaps, pops, etc.)

When using SCRE for volume modulation, you may occasionally hear unwanted audible artifacts that, depending on audio source, can be subtle or very obvious. These clicks, snaps or pops occur naturally with hardware and in all DAWs. This is because our ears pick up the 'cut' when a sample is chopped a high peak to 'zero', as illustrated below.



Try this: Hook up a Thor sine with a Matrix. Set the AMP ADSR so that A = 0 and R = 0. Now each time Matrix triggers the sound module, you'll hear a 'snap on' and a 'snap off'. This is not overload; it's just that the speaker is literally 'popping off from max level'.

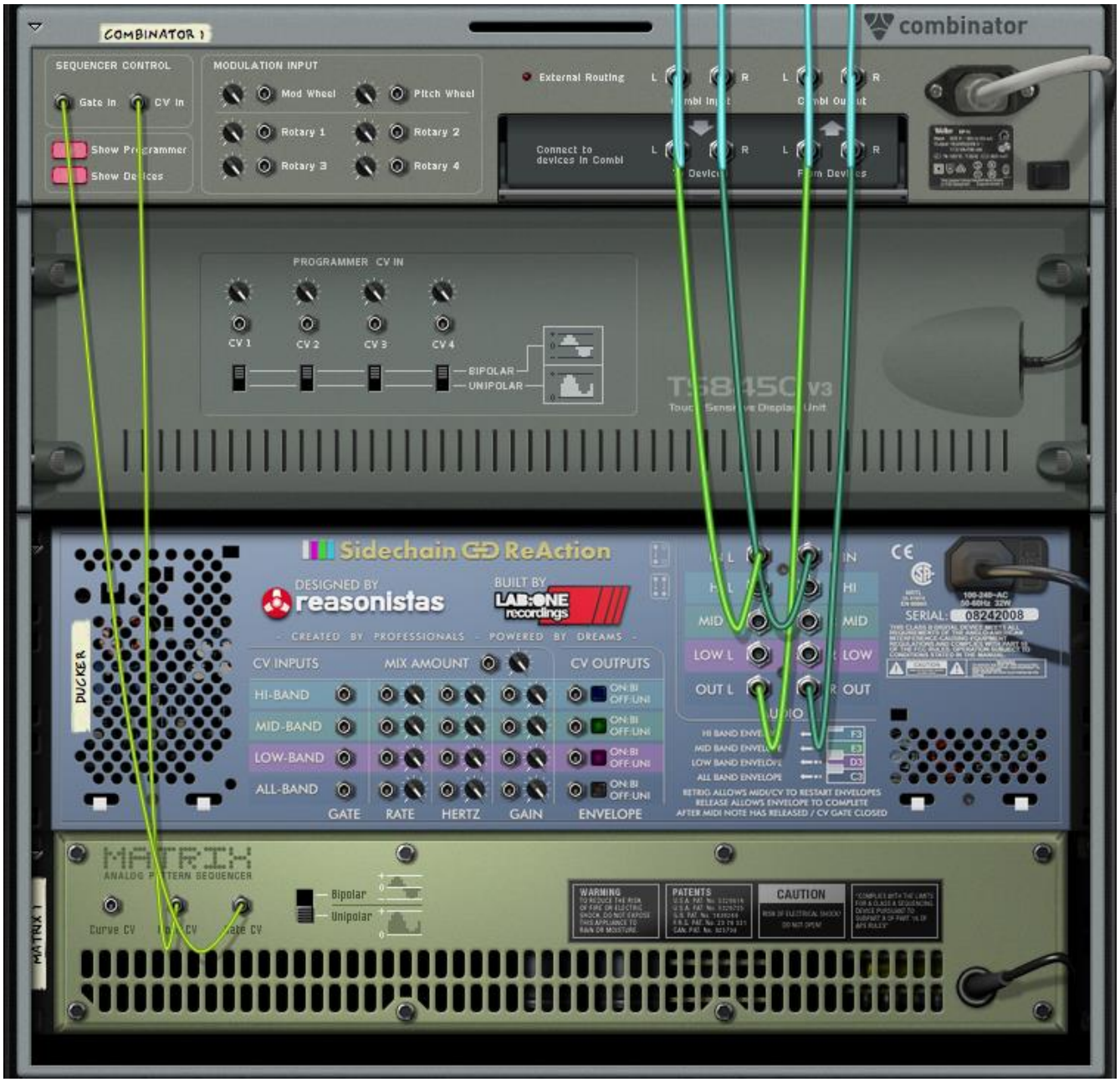
Although SCRE is design to minimize these issues, to entirely prevent audible artifacts on their own, the oscillator frequency plus level timing would need to be perfectly synced. This is also why sometimes you'll hear it and sometimes you don't (due to the waveform crest at the time).

To remedy this problem you simply apply gentle fades to smooth out any clicks you hear at the end of any looped cycles. As shown below, simply move the last point to the left while listening to the audio and adjusting to taste.

Using SideChain ReAction Enveloper (cont'd)

How to use CV to control SCRE's retriggering

You can use CV to control retriggering using the Combinator's note in and gate in. First, turn on RECEIVE NOTES in the Combi for SCRE. Next, using a Matrix as an example, have the Matrix Gate and CV linked to the Combi, Matrix triggering C/D/E/F on 16ths for 1/32 lengths. You can turn ON the Retrig for 1/32 sections every 16ths, or have the Release active as well for longer segments. Other notes not C/D/E/F3 won't affect SCRE.



SCRE back panel overview

Following are descriptions of SideChain ReAction Enveloper's back panel sections.

1. **Audio Jacks**
   SideChain ReAction Enveloper includes the following audio jacks:

   A. **Audio In L&R** - Patch audio signals to process here. If the input signal is in mono, connect only to the L (left) input.
   B. **Hi Band Outputs** - These are the stereo audio outputs for hi band pass frequencies only.
   C. **Mid Band Outputs** - These are the stereo audio outputs for mid band pass frequencies only.
   D. **Low Band Outputs** - These are the stereo audio outputs for low band pass frequencies only.
   E. **Audio Out L&R** - These are the standard stereo audio outputs.

2. **Control Voltage (CV) Inputs**
   SideChain ReAction Enveloper includes CV inputs for All Band and individual LOW/MID/HI Bands. A CV signal on these inputs will modulate the mix amount, gate, rate, hertz and gain parameters. You can attenuate any of these input CV signals with their corresponding attenuation knob.

3. **Control Voltage (CV) Outputs**
   SideChain ReAction Enveloper includes an envelope CV output with a button to switch between unipolar and bipolar signals for All Band and individual LOW/MID/HI Bands. *Note: The polarity buttons are used for defining the polarity of the CV output signals.*

   Note: *All CVs are designed to be bipolar inputs and unipolar outputs. If using an envelope output as bipolar, 100% would be +0.5volts, while 50% would be 0 (zero) volts, and 0% would be -0.5volts. In Unipolar mode, think of 100% as +1volts CV, 50% as +0.5volts, and 0% as 0 (zero) volts.*

   Additionally, if using SCRE as a CV generator to connect to a sound generating module, the CV signal of +1volts would equal 127, +0.5volts as 64, 0volts as 0, and -0.5 volts as -64 . This is convenient for pitch control (+-0.5v, or +-64), or velocity (+1v, or 127 max velocity).

   CV input to a Rate control will only affect the Rate knob speed, excluding the Hz setting (for example, a sine wave CV input would trigger through all the rate values ONLY, excluding Hz speed) - Rate CV will never select Hz as an option for Rate.

SideChain ReAction Enveloper MIDI Chart

In MIDI terms, a continuous controller (CC) is a MIDI message capable of transmitting a range of values, usually 0-127. The MIDI Spec makes 128 different continuous controllers available for each MIDI channel.

The table below presents a summary of SCRE's MIDI Implementation codes in decimal form.

---

[7] = MIX
[12] = LOW HZ RATE
[13] = MID HZ RATE
[14] = HIGH HZ RATE
[15] = ALL HZ RATE
[16] = LOW SYNC RATE
[17] = MID SYNC RATE
[18] = HIGH SYNC RATE
[19] = ALL SYNC RATE
[20] = LOW GAIN
[21] = MID GAIN
[22] = HIGH GAIN
[23] = ALL GAIN
[24] = LOOP ON/OFF LOW
[25] = LOOP ON/OFF MID
[26] = LOOP ON/OFF HIGH
[27] = LOOP ON/OFF ALL
[28] = RETRIG ON/OFF LOW
[29] = RETRIG ON/OFF MID
[30] = RETRIG ON/OFF HIGH
[31] = RETRIG ON/OFF ALL
[33] = RELEASE ON/OFF LOW
[34] = RELEASE ON/OFF MID
[35] = RELEASE ON/OFF HIGH
[36] = RELEASE ON/OFF ALL
[37] = PASS THRU ON/OFF
[41] = FILTER MODE (ALL / LMH)

SideChain ReAction Enveloper Remote Chart

The Remote protocol was introduced with Reason 3.0, which provides Remote support for a large number of control surfaces. Support for new control surfaces can be added at any time, in many cases by the control surface manufacturers or even by users.

The table below presents the Remote Implementation Chart for Reasonistas SideChain ReAction Enveloper.

//Remote Map template for Creative FX Reasonistas SideChain ReAction Enveloper

Scope Reasonistas com.reasonistas.SCRE

//	Control Surface Item	Key	Remotable Item	Scale	Mode
//Map	_control_	Enabled			
//Map	_control_	Mix			
//Map	_control_	Pass Thru Audio			
//Map	_control_	Filter Mode			
//Map	_control_	Low Rate			
//Map	_control_	Mid Rate			
//Map	_control_	High Rate			
//Map	_control_	All Rate			
//Map	_control_	Low Hz			
//Map	_control_	Mid Hz			
//Map	_control_	High Hz			
//Map	_control_	All Hz			
//Map	_control_	Low Gain			
//Map	_control_	Mid Gain			
//Map	_control_	High Gain			
//Map	_control_	All Gain			
//Map	_control_	Low Loop			
//Map	_control_	Mid Loop			
//Map	_control_	High Loop			
//Map	_control_	All Loop			
//Map	_control_	Low Retrig			
//Map	_control_	Mid Retrig			
//Map	_control_	High Retrig			
//Map	_control_	All Retrig			
//Map	_control_	Low Release			
//Map	_control_	Mid Release			
//Map	_control_	High Release			
//Map	_control_	All Release			