

# Ins & Outs

then Setup

Synclavier Regen™ 50 kHz/DC

App Version 1.02

Display Brightness

1 2 3 4

Panel Brightness

1 2 3 4

USB Input

Controller DAW

Additional Audio Buffer (msec)

0 1 2 3

Audio Output Style

Composite Multi-Chan



Up, Down and the Swiper are used to make selections and change values.

Enter activates a selection or calls up a Timbre. Left and Right typically navigate to a related display. A green Enter button means “Go Back”



## AUDIO OUTPUT SELECTION

Synclavier Regen™ 50 kHz/DC

1-2 3-4 5-6 7-8

Duet USB, USB Audio

44 48 88 96 192

1-2 3-4 5-6 7-8

## MIDI INPUTS

5-Pin MIDI Input

On: MPE Channel:

Arturia KeyStep 32

On: MPE Channel:

Test\* Done



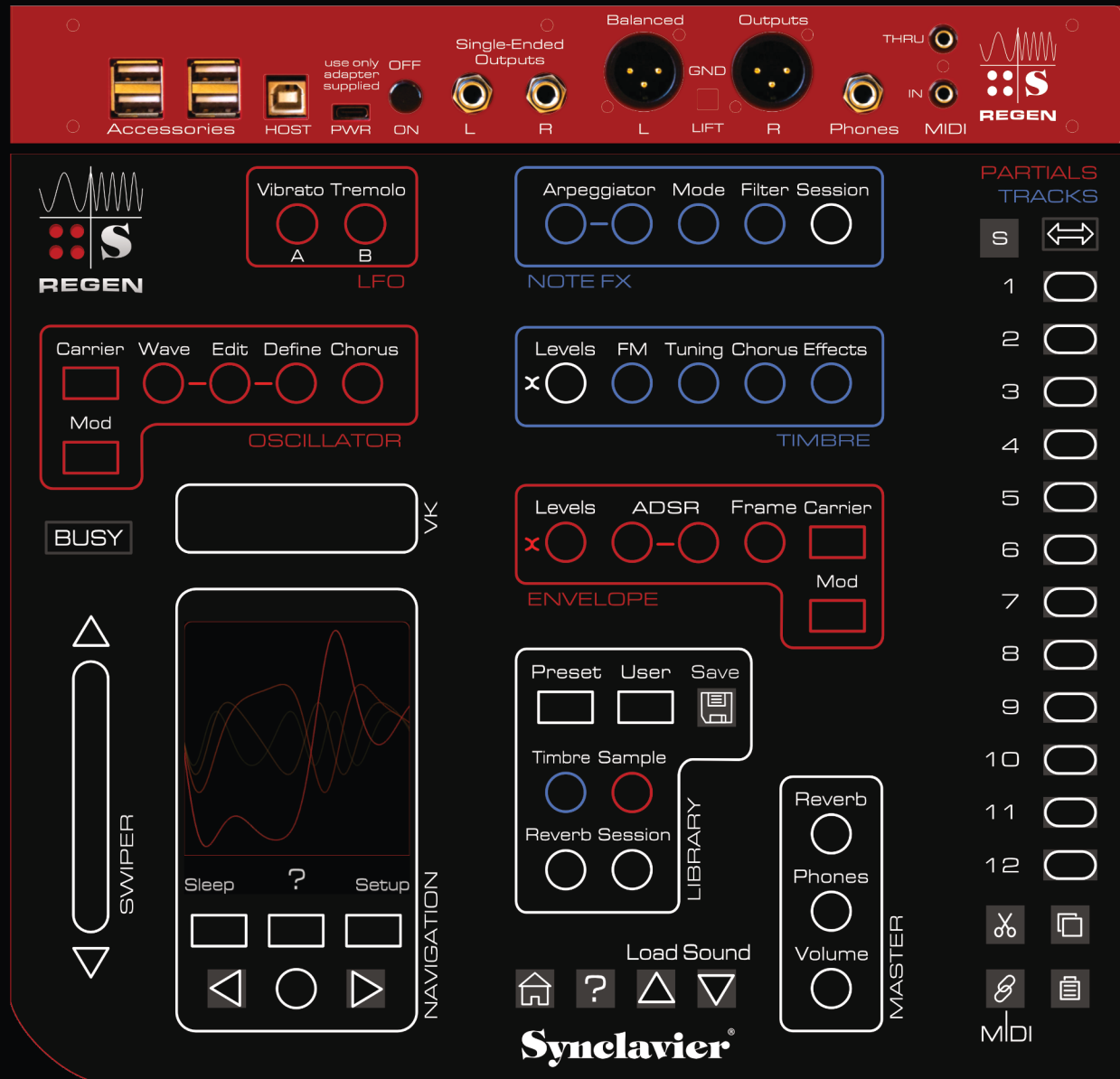
Done

\*Use the **Test Tone** button to set your audio levels. Test signal level is -2 dBu with 18 dB of headroom. A typical 4-note chord will yield +4 dBu (0 VU).

\*\***Bluetooth** is supported on a limited basis. We had best results with the Plugable BT4LE USB Adapter which is Linux-compatible. It paired well with the Yamaha MD-BT01 Wireless MIDI Adapter. Some keyboards would not pair with Linux.

help@synclavier.com

<https://www.synclavier.com/regen-quickstart/>



- The **USB Accessories** are limited to 1 A total current; use their external power supplies.
- The **Host** port is available in DAW mode only.
- The **included USB-C Power Supply** is particularly low-noise.
- The **Ground Lift** switches should always be grounded except in the one case where both the balanced and unbalanced outputs are connected to the same audio system.
- **Sleep** the system before turning off to save the current Timbre and system state.

**In a hurry? Learn about Tracks, Layers and MIDI on the flip side**

# Tracks, Layers and MIDI

- *Regen* is a fully poly-timbral instrument.
- 12 independent **Timbres** are active at any one time, stored in a **Session**.
- Each MIDI note can play one or more of the active Timbres, or a blend.
- Incoming MIDI is routed to a Timbre using MIDI Channel numbers, a range of MIDI notes (for example a specific octave), or a combination.

## Session Terminology

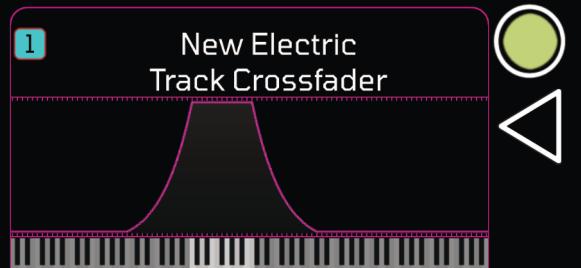
- If all Timbres use a different MIDI Channel we call the Session a **Mix**.
- If all Timbres respond to the same MIDI Channel we call it a **Stack**.
- If some Timbres respond to a different note range, we call it a **Split**.
- Each Timbre in the session can be thought of as a **Track** or a **Layer**.

## Levels Buttons

- Note there are two **Levels** buttons, one for **Tracks** and one for **Partials**.
- Here we are talking about the upper Levels button, **Track Levels**.
- Press **Track Levels**, then arrow **Left** (◀); **Left** again for the fade values.
- Press a button twice to “arm” the system to capture a MIDI note in real time.

## Track Crossfader

1 New Electric Track Crossfader



MIDI Channel: CH2


Track 1 Values

MIDI Channel	Low Note	High Note
2	C3	C4

Track 1 Values

Fade Shape	Fade In	Fade Out
-12dB	12	12

Levels




## Want to get started?

- Press **Session** (top right).
- Press **Erase**, then **Confirm Erase**.
- Press **Load Sound**, then **Enter**.

## Load Sound



**Load Sound** calls up the Next or Previous Timbre.



Regen Warehouse

1-1 New Electric  
Satisfying #moody piano sound that drones if sustained. ModW adds spooky FM chorus voice

1-2 G&C  
Plinky string sound morphs to chorused wind note  
#stereo #keys #evolving

Change Sort Choose Partial Speed Dial

## Session



Mix - Engage The Shades

1.	1	Rap Drums
2.	2	Acoustic Bass #2 5-bit
3.	3	Rhodes +vinyl
4.	4	Acid Glide Lead
5.	5	Synclavier-Click
6.	6	(Empty)
7.	7	(Empty)
8.	8	(Empty)
9.	9	(Empty)
10.	10	(Empty)
11.	11	(Empty)
12.	12	(Empty)

Music note icon Erase Output Routing

## To check your MIDI and Audio:

- Press **Volume**, then arrow **Right**.
- Our **Live** display shows **MIDI** and **Audio**.
- Let's you know MIDI is coming in and Audio is being generated.


## Volume




Master Volume

## PARTIALS TRACKS


S




1




2




3




4




5




6




7




8




9




10




11




12



✂



🔗



MIDI

# Presets and Library

Preset

User

Save

Timbre

Sample

Reverb

Session

LIBRARY

## What is a “Timbre”?

A **Timbre**, commonly called a **Preset**, describes the sound you get when you play a single note. A Timbre consists of 12 **Partials** (a Partial is described later in the Sound Design sections).

Some Timbres are simply one soundfile or perhaps an FM sound. Other Timbres are complex combinations with prepatched modulator settings.

A **Timbre Library** provides a means to organize Timbres by bank and entry for fast recall. **Built-in** Timbre Libraries are available in all systems.

The **SD Card** lets you create your own sound libraries and import your sample library into Regen. FAT32 and exFAT format SD Cards (the most common kinds) can be used.



Press **Preset** to see the list of Libraries, then press **Timbre** to see the list of Timbres in that Library.

Navigate up and down using the **Swiper**, or the **Up** and **Down** buttons. Call up the Timbre with **Enter**.

**Change Sort** let's you see Timbres and Samples by **Name** or **Tag**

1	TIMBRE DIRECTORY - PRESETS
	AuraZither
	Bali Cocktail
*	Barberpole Bass
A	Basoon R
B	Bass Lead Stab
C	Beauty Drum Kit
D	Bell Tree
E	Big Room Drum Kit
F	Big Strings (Multi)

Change Sort   Choose Partials   A-Z B

1	TIMBRE TAG SEARCH - PRESETS
5.	drone lead
6.	keys pad
7.	lead percussion
8.	orchestral wind
9.	organ arp
10.	pad bright
11.	percussion distorted
12.	sfx grungy
13.	strings metallic

Change Sort   Choose Partials   Tag + Tag



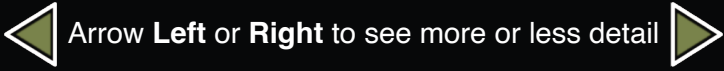
## SYNCLAVIER PRESET LIBRARIES

5. Paul Schilling - Anthem
6. Red Sky Lullaby - Newer Ho...
7. Droomusic - Farfield
8. Gary Chang - One Hand Cla...
9. Regen Warehouse
10. Selected Legacy Samples
11. Sound Design Tutorial

## SYNCLAVIER PRESET LIBRARIES

- 
- Gary Chang - One Hand Clapping
- 
- Regen Warehouse
- 
- Selected Legacy Samples

Timbre



## REGEN WAREHOUSE

A trove of expertly-developed timbres employing Regen features, such as poly-sampling, expression modulators, filter and reverb.

**1-1 New Electric**  
Satisfying #moody piano sound that drones if sustained. ModW adds spooky FM chorus voice

**1-2 G&C**  
Plinky string sound morphs to chorused wind note  
#stereo #keys #evolving

Change Sort   Choose Partials   Speed Dial   Change Sort   Choose Partials   Speed Dial

Sample

The **Speed Dial** button lets you quickly call up a Timbre by **Bank** and **Entry** (1-1 through 8-8). Use the Track buttons for 1 through 8.

**Choose Partials** lets you combine Partials from different Timbres. For fearless sound designers only!



## Regen Warehouse

**1-1 New Electric**  
Satisfying #moody piano sound that drones if sustained. ModW adds spooky FM chorus voice  
#mpe #keys #virtuoso



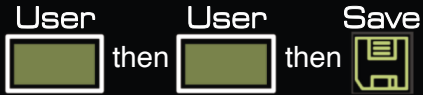
## REGEN WAREHOUSE

A trove of expertly-developed timbres employing Regen features, such as poly-sampling, expression modulators, filter and reverb.

**1. Simple Stab**  
44.1 kHz, 3.5 Sec Stereo (C3)  
a very pop #bright synth #lead sound

# Saving and Master Effects

To Add a **Library**



## SD-CARD LIBRARIES

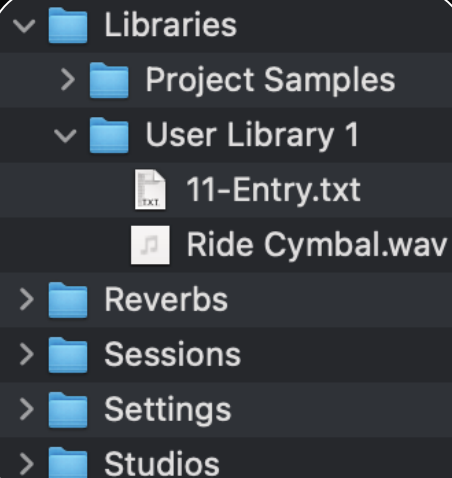
Here is where you can Save a Timbre, Reverb or Mix to your SD-Card

User Library 1

Add New Edit &  
Cancel Library Delete

You can use your computer to store your own samples on your SD Card.

Each Library is simply a folder within the Libraries folder. Nested Libraries are allowed.



To Save a **Timbre**



## 1 USER LIBRARY 1

Swipe Up or Down to the Bank-Entry where you want to save the Timbre, then press **Save Timbre**.

1-1 (Empty)

1-2 (Empty)

Cancel Save  
Timbre



A small Linux-compatible wired USB keyboard is handy for naming Libraries and Timbres. Or Swipe.

## SD-Card Libraries

User Library 1

1-1 Bank 1, Entry 1  
(Empty)

New Electric 2

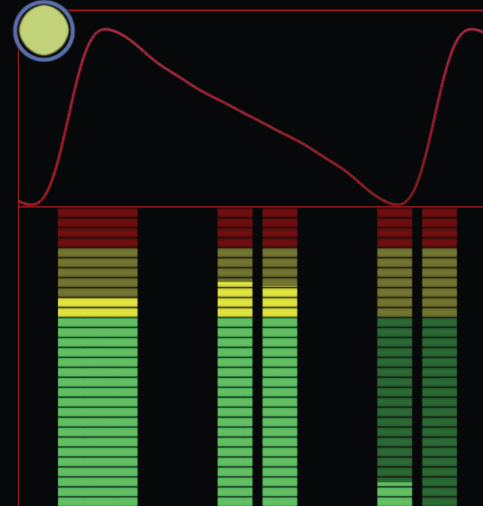
Cancel Edit Info Save

**Master Volume** provides 0 VU == +4 dBu with a simple 4-note chord. Regen has a dramatic dynamic range and DC-Coupled outputs; you will need to scale your output volume accordingly.

You can use the **MIDI** button to set up an external **MIDI Controller** to operate any of the Master section parameters (press **Volume** then **MIDI**).



## Volume

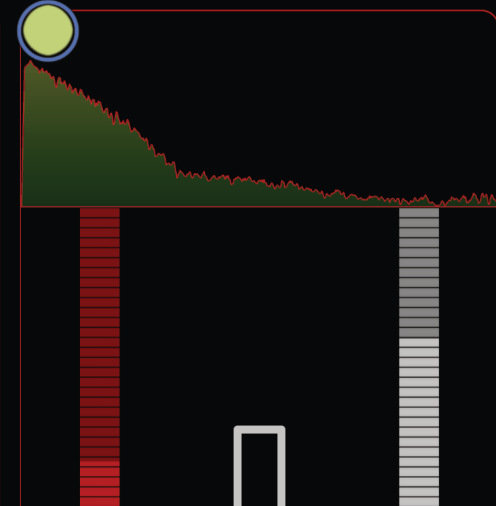


Master Volume

VU

CPU & Memory

## Reverb



Wet/Dry Mix

Hall Size

Room Echo

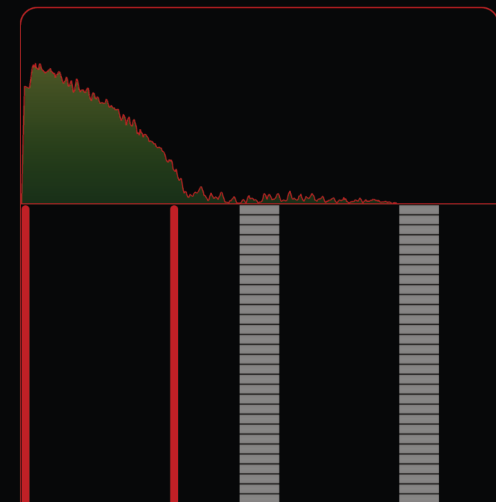


Arrow between pages

The **Regen Reverb** is crafted from a specially-designed set of Schroeder-Moorer filtered-feedback comb-filters. The **Hall Size** and **Room Echo** parameters have a wider range than other reverbs so you can get creative.

The built-in **Reverb Library** is accessed via the **Reverb** button in the Library Section. Each SD Card can store **64 Reverbs**.

The **Noise Floor** setting is for die-hards that want their Regen to sound like a **Synclavier II**.



Stereo Image

Pre Delay

Noise Floor

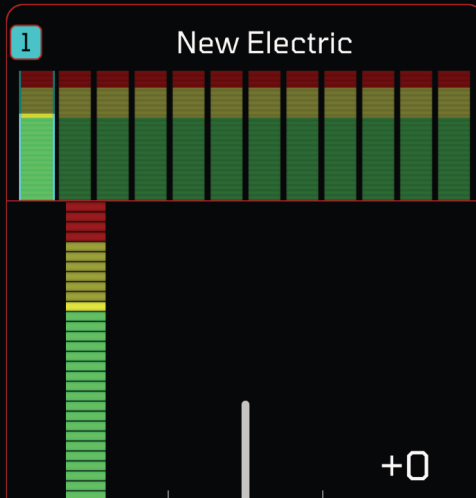


# Timbre-Level Parameters

Levels FM Tuning Chorus Effects

× ☒ ☐ ☐ ☐ ☐

TIMBRE



The **Track Parameters** are saved with the **Session**; they are not part of the **Timbre**.

1 New Electric

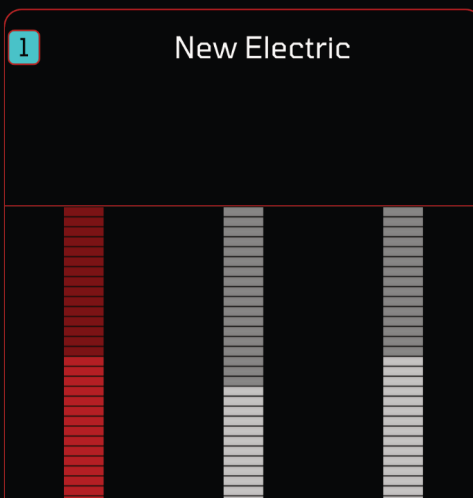
The **Timbre Filter** is primarily for **EQ**. Use the **Note Filter** if you want an ADSR Generator.

Band Pass 24  
Band Pass 12  
High Pass 24  
High Pass 12  
Low Pass 24  
Low Pass 12  
Off

Filter Cut Off: C5 +0 Cents 523.3 Hz

Filter Type Cut Off Resonance

The **Timbre FM  $\pm$**  parameter will add or subtract FM to all Partial, including Partial that have no FM on their own. Weird effects 😊



The **Timbre FM %** parameter will **scale** the FM Amount for all partials; it will not add FM to a Partial that has no FM on its own.

Semi-tones

Octave Chorus Cents

Smart Hyper Fine  
Chorus Chorus Chorus

Bit Alias  
Depth Grunge Filter

Each Timbre can have its own **Reverb** and, optionally, also use the **Master Reverb**.

Wet/Dry Choose Master  
Mix Reverb Reverb

Arpeggiator Mode Filter Session

☐ - ☐ ☒ ☐ ☐

NOTE FX

The **Poly Mode** setting has a subtle yet powerful effect on how a Timbre sounds as it is played. It controls how a Timbre responds to **overlapping notes**, and also whether the **final decay can be retrigged** when a note is repeated.

Logarithmic Linear Off

Monophonic Mono Retrigger Poly Retrigger Polyphonic

Port Mode Porta-mento Poly Mode

The **Timbre VU Meter** is available in **Multi-Channel** output mode.

**Partial Leveling** adjusts the **Partial Volume** so the loudness does not change as you add Partial to the Timbre.

Timbre Partial VU  
Volume Leveling

**Stereo Spread** pans the Partial from left-to-right without having to set a **Pan** value for each Partial.

Stereo Timbre Octave  
Spread Detune Ratio

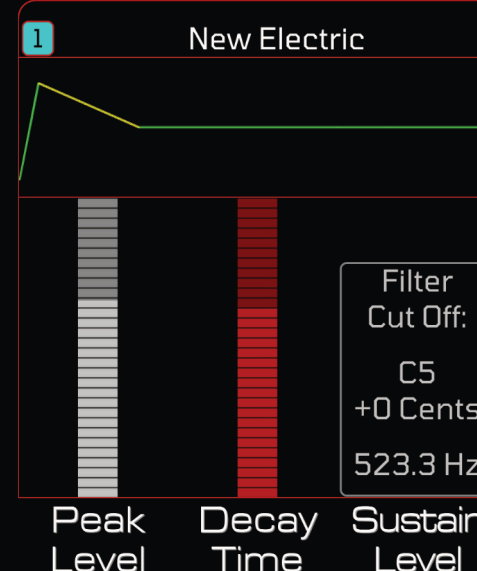
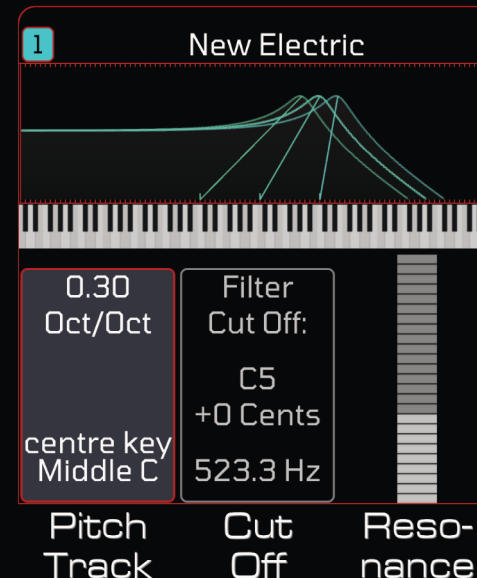
Arpeggiator Mode Filter Session

☐ - ☐ ☐ ☒ ☐

NOTE FX

The **Note Filter** is a powerful, flexible filter with a built-in **10-Octave ADSR Generator**.

You will have to **read the manual** to master the Note Filter 😊



## Partial-Level Parameters



Category	Count (approx.)
Partial Volume	800
Partial Pan	100
Frame Speed	400

Press **Mod** for FM settings

Partial FM%	FM Ratio (Fine)
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The **Vibrato** and **Tremolo** generators are modeled after

**Synclavier II.** **Invert** causes the Vibrato to go in the opposite direction. **Bias** makes the Vibrato go all up or all down from the center pitch. **Quantize** rounds the Vibrato to semi-tone boundaries.

Vibrato Tremolo

A B

Vol Env	Decay	Decay
Delay	Adjust	Shape


Vol Env	Vol Env	Vol Env
Attack	Decay	Release

Partial Volume	Vol Env Peak	Vol Env Sustain
-------------------	-----------------	--------------------

FM Env	FM	Decay
Delay	Adjust	Shape

FM Env	FM Env	FM Env
Attack	Decay	Release

Partial FM%	FM Env Peak	FM Env Sustain
-------------	-------------	----------------



The screenshot shows the 'Waveform Editor' window with the 'Waveform' section selected. The 'Random' button is highlighted in the list of waveform options. The waveform visualization area shows a random signal.

Vib / A	Vib / A	Vib
Wave	Rate	Depth

Each **Timbre** has **12 Partial**s.  
Each Partial can be manipulated  
independently. Use the Track  
buttons to select a Partial.

# Expression Modulators



- 1 **New Electric Expression Modulators**  
Each Modulator takes real-time data from a MIDI input and applies it to a synthesizer parameter. Starting and ending range points are provided for each Partial.

#	From	To
1.	Pitch Bender	Tuning
2.	Mod Wheel	Chorus/Detune
3.	Velocity	(None)
4.	Pressure	(None)
5.	(None)	(None)
6.	(None)	(None)

	Reset	Edit	Reset	Edit	Reset	Edit
			All	From	To	Range
	----- Output Range -----					
1.	0.0	127.0	(None)			Stereo Spread
2.	0.0	127.0	Pitch Bender			Tuning
3.	0.0	127.0	Mod Wheel			Chorus/Detune
	0.0	127.0	Velocity			FM Ratio
	0.0	127.0	Pressure			FM %

Regen's **Expression Modulators** are both utilitarian and powerful. Here is another case where, well, **you might have to read the manual.** 😞

The image shows a software interface with a dark background. On the left, there are three rounded rectangular buttons stacked vertically, labeled 'Square Wave', 'Triangle Wave', and 'Sine Wave' from top to bottom. To the right of these buttons are two vertical bars. The first bar is red and the second is gray. Both bars are composed of many horizontal segments, with the red bar having a slight gradient from dark red at the top to a lighter red at the bottom.

Trm/B Wave	Trm/B Rate	Trm Depth
---------------	---------------	--------------

Vib/A	Vib	Vib/A
Invert	Quantize	Bias

Vib/A	Vib/A
Attack	S-Curve

Trm/B	Trm/B	Trm
Attack	S-Curve	Phase

Trm/B Trm/B Trm/B  
Invert <-Alt-> Sync

# Regen's Oscillator Section

Carrier Wave Edit Define Chorus

Mod

OSCILLATOR

1 1 New Electric

Hybrid

Analyze

Samples

Subtractive

Additive

Partial Tuning

220.000 Hertz

-12.000 Semitones

Synth Mode

Semi-tones

Cents

Carrier Harmonics

1. 100.0	9. 0.0	17. 0.0
2. 50.0	10. 0.0	18. 0.0
3. 25.0	11. 0.0	19. 0.0
4. 12.0	12. 0.0	20. 0.0
5. 6.0	13. 0.0	21. 0.0
6. 3.0	14. 0.0	22. 0.0
7. 2.0	15. 0.0	23. 0.0
8. 1.0	16. 0.0	24. 0.0

Edit Edit Edit

1 - 8 9 - 16 17 - 24

Additive

Partial Chorus

1.041 Ratio

0.696 Semitones

69.6 Cents

On

Chorus Chorus

Fine Pitch

Regen's **Additive Synthesis** implementation is modeled after **Synclavier II**.

The **Hybrid Synthesis Mode** involves using a **sampled attack** along with Additive Synthesis **Timbre Frames**. See the flip side for an introduction to **Resynthesis**.

Select multiple **Harmonics** or **Partials** with a **Swipe** for simultaneous editing.

Subtractive

Stereo Noise

Mono Noise

Super Square

Super Saw

Low Pass Roll Off:

C8

+0 Cents

4,186 Hz

Wave

Roll Off

Pulse Width

9 Voices

7 Voices

5 Voices

3 Voices

1 Voice

1.00068 Ratio

0.012 Semitones

1.2 Cents

+35.0

Unison Voices

Unison Detune

Stereo Spread

Regen includes a new **Subtractive Synthesis** implementation with robust features and a full sound. Fearless sound designers can add **FM** to a Partial in any **Synth Mode**.

To create a **Timbre from scratch**, first **Cut** the Timbre, then press **Envelope Levels**, then double tap **Partial Levels**, then choose your **Synth Mode**.

1 1 Theatrical Piano

4.piano-basement-A3

5.piano-basement-A4

6.piano-basement-A5

7.piano-basement-A6

8.piano-basement-A7

Choose File

Insert Row

Delete Row

1 1 piano-basement-A6

File Tuning

1760.000 Hertz

A6

+0.0 Cents

3.9 Sec @ 48.0 kHz

G#6 to A#6

Define Pitch

Define Range

Loop & Trim

Regen's **Polyphonic Sampling** implementation is modeled after the **Synclavier PSMT**.

A6 MIDI Note

0.0 Cents

+2.3 dB

----- Auto-Tune -----

Base Key

Tuning Offset

File Volume

G#6 MIDI Note

A#6 MIDI Note

Off

Low Key

High Key

Alias Filter

One-Shot Loop

One-Shot

Loop w/Tail

Always Loop

No Loop

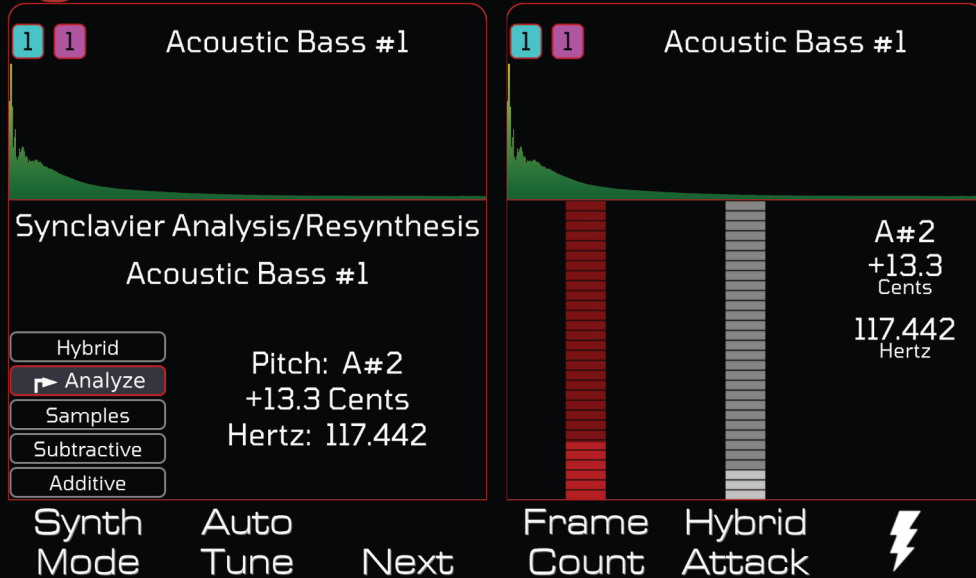
Loop Mode

Loop Start

Loop End

Wave

# What is Resynthesis?



Developed by New England Digital in the 1980's, **Resynthesis** is a technique to create sounds with precisely-controlled harmonics that vary over time. Think of it as "sampling" before there was "Sampling". Here is a "how to":

- Call up a sample. Pitched sounds work best.
- Percussive sounds like cymbals will typically yield bizarre results.
- Change **Synth Mode** to **Analyze**. Then **Auto-tune**, then **Next**.
- **Frame Count** controls how many "Timbre Frames" are created.
- **Hybrid Attack** controls how much of the original soundfile you hear.
- ⚡ triggers the analysis, which can take several seconds.

Once the Timbre Frames have been created they can be edited with the **Frames** button. The perspective display attempts to show how the harmonics vary over time. You can control the delay and crossfade time between frames, as well as the frame volume, amount of modulation, and a pitch offset. Complex volume, modulation and pitch envelopes can be constructed using this technique.

You can edit the harmonics of each frame with the **Edit** and **Define** buttons (see the **Oscillator** section). Press **Edit** twice to toggle between editing the frame harmonics and editing the underlying soundfile parameters.

Frame



Fearless sound designers can try analysis with a **Patch List**. Only one soundfile is analyzed, but the underlying hybrid attack is chosen for each note. Switch **Synth Mode** to **Additive** to remove the hybrid attack.

Resynthesized partials can be combined with other partials as desired. And of course FM and other effects can also be applied.

Switch **Synth Mode** back to **Analyze** to try again with different settings.