

mood - A personal interpretation of the legendary Analog Synthesizer by Eugenio Giordani, iOS app by Alessandro Petrolati
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Thank you for purchasing the *mood* iOS synthesizer. This work is a tribute and a personal reinterpretation of the classic analog synthesizer we have known in the seventies. This is not the full reproduction of a particular subtractive synthesis instrument but the re-creation of a new one that incorporates some of the most important features that are present in the originals, including popular sound components of the eighties as Frequency Modulation synthesis module.

After the great effort in recreating the iVCS3, we wanted to design a new instrument more freely and creatively, having in mind primarily the joy of playing with the sound and sharing with you this our passion.

Again thanks to the incredible power and flexibility of Csound, it was possible in a relatively short time to turn from an idea into a finished project in a relatively short time.

During this process we have added many new features to the original design as a fully programmable sixteen steps arpeggiator/sequencer, polyphonic functionality, a “vintager” parameter and the full compatibility with Audiobus and Inter-App Audio protocols.

I hope you enjoy this synthesizer for your music and sound satisfaction.

Have fun with **mood**!

Eugenio Giordani and Alessandro Petrolati

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COMMON FEATURING

Important Changes Since Ver. 1.4

File Management

In order to accommodate Full Audio Unit Integration, the file management for User Audio and All Preset Banks required a major structural change. The previous '**Documents**' folder has now been replaced by a shared '**App Group**' folder.

Reorganising the file structure in this way allows *mood* to access the user files in both it's Audio Unit and Standalone App formats simultaneously and thus any user edits or changes made in one environment are also immediately evident in the other.

IMPORTANT: In this new file structure, the shared '**App Group**' folder cannot be accessed by iTunes nor the built-in iOS Files app, but users can access files as usual, using the 'Open In ...', 'Document Picker', 'E-Mail' etc.

Audio Unit Extension support

Since iOS 9 Apple introduced the Audio Unit V3 format which enables multiple instances of the same plug-in running at the same time.

You can load with compliant hosts like Apple's own GarageBand or other audio editing and mixing apps, compatible with the host-automations, host-save/load presets and host-save/load state in the session.

WARNING:

The memory limit imposed for AU Extensions on iOS is 300 MB for 32-bit devices and 360 MB on 64-bit devices.

These are performance considerations as you can expect from iOS devices having limited shared resources.

We do not recommend loading more than 10 instances.

Tips & Tricks

- **MAINS Toggle** on/off DSP (Digital Signal Processing). *mood* supports mixed audio with other applications, you can also disable DSP in order to save battery and CPU consumption. You cannot toggle off the Audio Engine when it's connected to Audiobus or Inter-App Audio.
- When the app is terminated just before to exit the whole status of parameters are saved and reload to the next opening. See Settings for more explanations.
- Double tap on the **Knobs** to show the options. In the '**Edit**' field you can enter the value from the keyboard. Tap '**Random**' to generate a random value, '**Default**' to reset to the factory settings and configure the knobs dragging behavior. Step fine resolution sets how many points of movement result in a one degree rotation in the knob's position. Only used in the horizontal/vertical slider modes. You can set Knobs behavior from Settings.
- Long Press Tap on the **Toggles** to open Control Manager Assignations
- *mood* can play audio in background and mix it's own audio with other iOS apps. *mood* also supports Apple IAA (i.e. Inter-App Audio for iOS 7 or higher) and Audiobus 2 and 3, so you can send and receive audio through applications.
- Tap over the Output Oscilloscope to switch Oscilloscope/Spectral-Scope
- Swipe gesture (right to left) on a preset or bank to rename/duplicate/delete it. See Presets for more details.
- You can load Presets (current selected bank) by remotely sending a MIDI Program Change message. See MIDI section, below for further details. You can select the MIDI channel where you can receive PC messages. A PC value of zero will select the first preset in the list, a value of 1 for the second etc... The range is from 0 to 127.
- **Init** will reset to default values
- **Create Random Sound** values for all of the parameters including the FX parameters. The result can be very interesting and wayward.



Show the main sections of *mood*



Show the Key Velocity Panel



MIDI Panic sends a general Message 'All Notes Off', resets the DSP and Keyboard.



Locking the Keyboard means that every note is sustained. So when you play a note it will hold the last pressed key even when you lift your finger from the keyboard. When the Keyboard is locked, Snapshots will not save/restore touched keys.



Enable/Disable Accelerometer X/Y and LFO, see the Control Manager for more details.



Captures Output stereo signal (post Effects) and creates an audio file wav format 44.1 kHz 16 bit in the App Group folder. Files created by *mood* are saved with an id-name followed by a number, for example:

Output Rec 1.wav, Output Rec 2.wav etc...

Each new file will be numbered with the next consecutive number.

SYNC



The goal of SYNC is to setup a global Metronome (MASTER BPM). This will affect the LFO (Low Frequency Oscillator) and/or the Sampler (or Sequencer etc...) when enabled to receive SYNC.

You can set the BPM (Beats Per Minute) by scrolling up/down (or left/right) the label value (♩ 120 ←○→) or tap out the tempo.

Single Tap or Long Tap the minus/plus buttons to increase or decrease by 0.25. By default 120 BPM corresponds to 1 Hz frequency for the LFOs.

Ableton Link description

Ableton Link is a new technology that synchronizes the beat, phase and tempo of Ableton Live and Link-enabled iOS apps over a wireless network. It lets you play devices together with the freedom of a live band. Anyone can

start and stop their part while others keep playing, and anyone can adjust the tempo and the rest will follow. You can use Link to play with several copies of Ableton Live, with Live and iOS apps, or with iOS apps together – even without Live in your setup.

MIDI Clock description

The clock signal is broadcasted via MIDI to ensure that several MIDI-enabled devices such as a synthesizer or music sequencer stay in synchronization. The iOS implementation is designed to provide precise, jitter-free MIDI clock transmission and robust, error-tolerant MIDI clock reception.

Quantization

When you are connected to an Ableton Live Session, the Play/Stop/Rewind transport will wait until the next sync quantum boundary before starting.

The 'Sync' button waits for the next beat (Tempo Forte) from the MIDI Clock or Ableton Link and resets all phases for LFOs, Sequencer etc.

Send MIDI Clock

Will create a virtual MIDI port for the MIDI Clock Output.

In Play/Stop mode the MIDI Start/Stop Clock messages are sent according to Transport Play/Stop (Sampler, Sequencer etc...). In 'Always' they will not be sent every time, but only at start.

Please note when you are connected to Ableton Link, the incoming MIDI Clock is disabled while you can send MIDI Clock out, converting the Ableton Link to MIDI Clock.

Receive Sync

- 1) Local-Host
- 2) MIDI Clock signal
- 3) Ableton Link.

When the Ableton Link its enabled the Local-Host and MIDI Clock will be disabled and viceversa.

In Local-Host when the app is connected through Inter-App Audio, will receive the Sync from the HOST (if available, i.e. tempo/start/stop) and the current BPM is overridden.

When MIDI Clock is activated, you cannot change the BPM (Slave) since is controlled by the MIDI Clock (Master). Through the 'CLOCK' button you can select a MIDI Clock Source.

Presets

Preset Manager will collect all the **Banks** (i.e. *.mood suffix*) and **Snapshots**. A *Snapshot* is a simple “photo” of the parameters in the UI (i.e. User Interface). Both the Matrix and Keyboard/Sequencer are included but they can also be excluded, see the Settings for more details.

So, once you find an interesting sound you can take a snapshot (i.e. save this new preset) by touching the ‘plus’ icon and this new preset will be added to the selected Bank. The top four elements of the Snapshots list are assigned for ‘HV Snapshot Pad’, you can then sort or delete the Snapshots in the List by tapping the ‘List Icon’. You can even share the selected Bank and you can restore the factory Built-In Banks from the ‘Cloud’ icon.

Backup



Factory preset-banks (Excluded from iCloud back up)



Library preset-banks (if available as In-App Purchasing) (Excluded from iCloud back up)



User preset-banks (Included in iCloud back up)

If you delete, overwrite, rename or save new presets in factory/library banks, the icon will change as User preset-banks, being backed up.

Snapshot banks are located in App Group folder, you can access files via built-in tools as 'Open In ...', 'Document Picker', 'E-Mail' etc.

Use iTunes to share files between your computer and your device

- 1) Open iTunes on your Mac or PC.
- 2) Connect your iPhone, iPad, or iPod touch to your computer using the USB cable that came with your device.
- 3) Click your device in iTunes.
- 4) In the left sidebar, click File Sharing.
- 5) Select an app to see which files are available for sharing in that app on your device.



After you have added files through iTunes in the Documents App folder, you need to move them to the shared directory ('App Group').

This action will move all files from 'Documents' to 'App Group' folder. If an item with the same name already exists (in the 'App Group'), the file will not be overwritten.



Load a preset, randomly from the banks list.



Delete all Presets for a selected bank. A warning message will be displayed.

The Snapshots bank file is a kind of Property List format (*.mood*), you can edit as text and modify the values just rename in *.plist*

Swipe (right to left) on a preset or bank to rename/duplicate/delete it.



The purpose of the unique **Snapshot Pad** is to obtain intermediate values between four snapshots (corners). You can change snapshots assigned in the corner through the Snapshots list (see above).

The Snapshots Pad performs complex interpolations between four snapshots on a two-dimensional space. By scrubbing your finger on the Snapshots Pad a temporary new snapshot will be created by mixing the four snapshots depending on distance. Thus you can modify hundreds of parameters with a single touch, this is also called *Hyper Vectorial Synthesis*.

Snapshots Pad can be resized on fullscreen for detailed controls (left bottom icon).

N.B. Snapshot Pad have no effect on XLFO Sequencer and Toggles.

Samples

Samples manager can read/write in the App Group folder, you can also share files through AudioCopy, Document Picker (iCloud, Dropbox etc...) and AudioShare. Samples manager can also read the Built-in files, but you cannot rename or delete them. Touch on a file in the list to show the actions popup. Here it is possible to **Load** a file in one of two Samplers (i.e. Sampler Ch.1 and Sampler Ch.2), Open In... contains all system actions over the file, according to file type. For example you can send files as an e-mail, open file with a listed app etc...



You can rename files in the App Group folder, if you omit the file extension then Samples Manager will fill the original audio file extension for

you. N.B. Samples manager shows only audio files supported, the other files in the App Group folder will not be seen.



You can pre-listen to the samples before you load them.



Starts audio capture from the microphone immediately and saves new stereo audio file in wav format 44.1 kHz, 16 bit in the App Group folder. Files created are composed by id-name followed by a number, for example:

Input Rec 4.wav, Input Rec 5.wav etc...

Every new file will be numbered with the next consecutive number.

N.B. You can record a mono or stereo file in wav format 16 bit 44.1 kHz according to the iDevice channels. Even if the *mood* is connected to Audiobus or IAA, the Grab Audio will record always from iPad microphone/line



You can import files from AudioCopy, Music Library, Document Picker (iCloud, Dropbox etc...) and AudioShare.

Access to the iPod library, this allows the application to read user's songs, audio books, and audio podcasts. The file can be converted in .wav (PCM 16 bit 44.1 kHz) or .caf formats and stored in the local app App Group folder. If the file exist at path then progressive number will be attached to the file name.

The document picker feature lets users select documents from outside your app's sandbox. These include documents stored in iCloud Drive and documents provided by a third-party extension. Users can open these documents directly, editing them in place. This access simplifies sharing documents between apps and easily enables more complex workflows.

Use iTunes to share files between your computer and your device

See 'Presets' for more informations.

Control



MIDI



Scrub Y



Accelerometer X

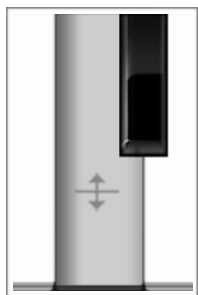


Accelerometer Y



LFO

After selecting **MIDI**, *mood* enters into "learn mode" i.e. it "hears" incoming MIDI Control Change messages. It's then possible to send messages with MIDI hardware, Virtual MIDI and Network MIDI. Flashing screen means the association between the parameter and the MIDI message has been successful and displays the corresponding control Change and Channel. Alternatively you can enter direct CC and MIDI Channel number through number keyboard. You will also receive an additional setting: 'Widget Range' that allows you to resize the range of action on the parameter. This is because you can use all 128 steps MIDI to control precisely particular part of the parameters.



Scrub Y binds the widget to vertical movement on the keyboard (Scrub Y). An additional setting allows you to specify the speed (gravity) of the action.

Aftertouch Y Scrub, you **can** assign one or more *mood* parameters to aftertouch scrub Y, so after a played note, you can scrub in the vertical axis (Y) by controlling one or more of the parameters. An additional setting allows you to specify the

speed (gravity) of the action.

N.B. Playing keys from top to bottom, you can change the amplitude of each note i.e. key velocity (0 ÷ 127). The same with black keys.

Accelerometer X and **Y** are used to control the parameters through the horizontal or vertical inclination of the device.

LFO, Low Frequency Modulation is a table look-up oscillator with seven built-in shapes. The frequency of LFO is expressed in Hz and BPM (Beats per Minute). You can get the period time by dividing 1/freq. The LFO Frequency value is converted in BPM (Beats Per Minute), you can adjust this value

through the minus/plus buttons, these will replace current value with the integer BPM (previous/next) or you can TAP to set your own Tempo.

- φ Will reset to zero the phase of current LFO.
- Φ Will reset to zero the phase of ALL LFO actives.



Enabling the Link symbol, you will disable the 'Low Frequency Oscillator in Hz' Slider, so the value of the current LFO is sampled from the global 'MASTER BPM'. You can adjust the BPM value from SYNC view. When the MIDI Clock or Ableton Link is enabled (see MIDI Manager and SYNC) the BPM value will affect all LFO enabled for SYNC mode. The goal of the 'SYNC Subdivision' Slider is to rescale the 'MASTER BPM' from SYNC according to the relative symbol (abbreviate musical note time values):

Normal : 1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64

Triplets : 1/1T, 1/2T, 1/4T, 1/8T, 1/16T, 1/32T, 1/64T

Dotted : 1/1D, 1/2D, 1/4D, 1/8D, 1/16D, 1/32D, 1/64D

Where 'D' is a **dotted** note and 'T' is **triplet**.

With 1/4 (Default), the BPM follows the 'SYNC BPM' or 'MIDI Clock' BPM when enabled, i.e. 120 BPM corresponds to 1 Hz.

- 1/4 - each step is a quarter note (or BPM), e.g. 60 BPM is 0.5 Hz
- 1/4D - each step is a dotted quarter note (or 1.5 x BPM),
- 1/4T - each step is a triplet quarter note (or 0.5 / 3) etc.

♩ Reset default value (1/4 = 120 BPM)

MIDI

You can enable/disable the incoming MIDI signal from all the physical, virtual and network ports available. The MIDI Clock is managed by SYNC, see the SYNC section for more details.



If the Core MIDI Network is connected a wifi symbol will appear in the Network port cell.

Channel sets the input channel for the selected port, the Piano Keyboard will receive the Note On/Off messages in OMNI (from all 16 channels) or, one of the 16 channels.

Configure Bluetooth LE MIDI

With the release of iOS 8 and OS X Yosemite, sending and receiving MIDI data is supported using Bluetooth Low Energy connections on any iOS device or Mac that has native Bluetooth Low Energy support. All established connections are secure which means that pairing is enforced and connections cannot be made to your devices without your explicit consent. After a connection is established, it simply appears as an ordinary MIDI device that any MIDI application can communicate with.

Enable NRPN

NRPN stands for "Non-Registered Parameter Number" and is part of the MIDI specification for the control of electronic musical instruments. NRPNs allow for manufacturer-specific or instrument-specific MIDI controllers that are not part of the basic MIDI standard.

Unlike other MIDI controllers (such as velocity, modulation, volume, etc.), NRPNs require more than one piece of controller data to be sent. First, controller 99 - NRPN Most Significant Byte (MSB) - followed by 98 - NRPN Least Significant Byte (LSB) sent as a pair specify the parameter to be changed. Controller 6 then sets the value of the parameter in question. Controller 38 may optionally then be sent as a fine adjustment to the value set by controller 6.

This fine adjustment is part of the conventional MIDI controller specification, where any of the first 32 controls can be optionally paired with a control offset 32 higher. This is the rare 14-bit Continuous Controller feature of the MIDI specification, and NRPNs simply take advantage of that existing option in the same way offering 16,384 possible values instead of only 128.

(<http://en.wikipedia.org/wiki/NRPN>)

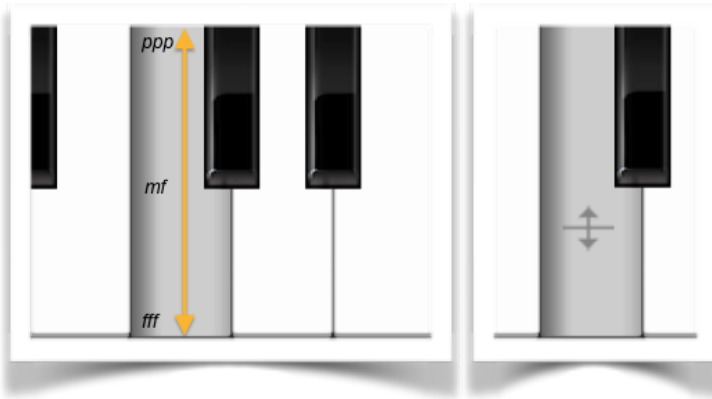
When you enable NRPN, you should not employ CC 99 and 98 as the normal CC in order to avoid an undesired overlap. An NRPN message must be sent with this order: CC 99 98 6 38 where the first couple is the CC number and the second couple is the data. You can MIDI learn as for the normal CC, and NRPN works for all knobs and parameters. Although an NRPN CC number can be greater than 127, you will not be able to learn CC beyond 127.

Program Change for Presets Selection

You can select Presets (current selected bank) by remotely sending a MIDI Program Change. You can select the MIDI channel where you can receive PC messages. A PC value of zero will select the first preset in the list, a value of 1 for the second etc... The range is from 0 to 127.

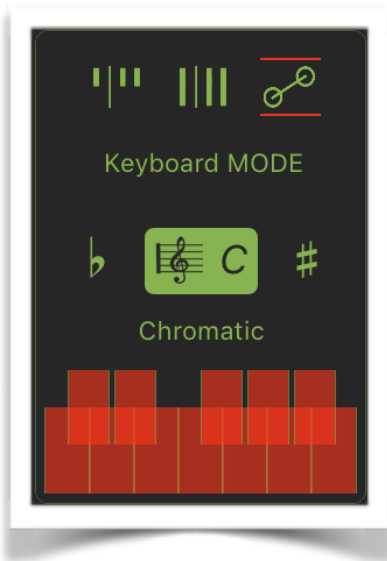
N.B. When *mood* is connected to Audiobus 3 through the MIDI receiver slot, the Core MIDI functionality is bypassed to prevent receiving Core MIDI events twice, once via Audiobus and once from the Core MIDI system itself.

Keyboard



Playing keys from top to bottom, you can change the amplitude of each note i.e. key velocity (0 ÷ 127). The same with the black keys. The **Aftertouch Y Scrub**, is designed to be assign to one or more parameters, see Control Manager. After played a note, you can scrub the vertical axis

(Y) by controlling one or more parameters. See also [Key Velocity](#) for more details.



We have three Keyboard operations mode: Classic '|', Elongated '|||' and Ribbon '🎵', please note: in Ribbon mode *mood* will play mono even if the poly switch is selected, thus you can play poly through a remote MIDI keyboard and use the iTouch Display to play the Ribbon Mono.

The \flat and \sharp transposition keys allows to change the base note of the keyboard (C) and the Scale button C , opens a menu where from you can choose among several scales. The first item on the list (User Defined Scale) is a special feature which allow you to setup your own scale through the Musical Keyboard.

N.B. The transposition keys WILL AFFECT incoming MIDI notes.

Settings

Sampling Rate, for full-range audio, the recommended sampling rate is 44.1 kHz. Using a lower rate *mood* will reduce the number of samples that has to calculate, this will facilitate your Device's burden, but it will also reduce the frequency range. If your device is struggling at 44.1 kHz, you should try a lower rate and/or increase Buffer Size.

Buffer Size set the Audio Device latency. When you run *mood* from **Audiobus**, or **Inter-App** this value will be taken from **Audiobus** or **Inter-App Host**. Warning! When an app runs first and keeps running in the background, the Sampling Rate and Buffer Size will impose for the whole iOS while running.

In '**High Control Rate**' the audio engine buffer is set to 32 samples. This increase drastically the accuracy of all **envelope generators** although requires more CPU.

Include Keyboard in Presets

Include or exclude Keyboard state (not the notes) in presets. The Keyboard state is composed to split, keys zoom and Keyboard Mode.

Snapshot Pad Resolution Update sets the time interval for the interpolations, from about 15 to 350 milliseconds. Short times for higher resolution but higher consumption of CPU.

Save/Restore the Last App Setup, when you exit from the application, save the status (all *mood* Parameters) and reload when next opening the app.

Knobs Interactions Mode

Use this to configure the Knobs dragging behavior. Step fine resolution set's how many points of movement result in a one degree rotation in the knob's position. Only used in the horizontal/vertical slider modes.

Getting Started

The *mood* is a sixteen-voice virtual analog synthesizer running under iOS that recreates the electronic sonic feel of an ideal vintage instrument of the seventies. All the synthesis parameter are accessible on two switchable main Sections (1 and 2) that contains all the graphic widgets for the sound generation control. Tapping alternatively on label 1 or 2 it is possible to switch from one to each other.



SECTION 1

Inside the Section 1 are located the controls for the main synthesis parameters and settings. They are grouped in panels each one of them is related to a particular synthesis component.

OSCILLATORS PANEL

mood is equipped with three basic independent audio oscillators: OSC 1 / OSC 2 / OSC 3



For each one of these oscillators, it is possible to select the waveform type, the range of frequency operation and the frequency control (or detuning) .

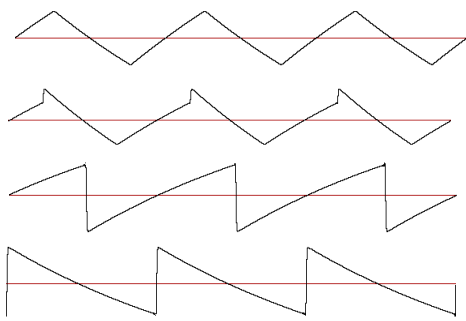
Waveforms Oscillator 1/2 - [WAVE 2/3]

Each one of the *oscillators 1* and *2* provide six different waveform:

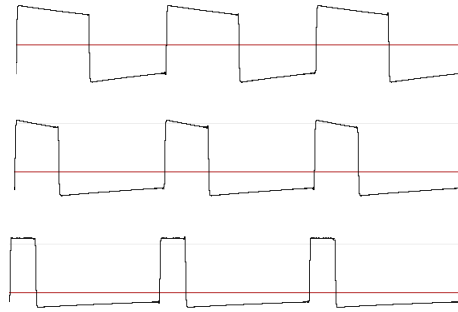
- triangle
- peaked-triangle
- ascending sawtooth
- square
- asymmetric square 1 (29.1 PWM)
- asymmetric square 2 (17.1 PWM)

Waveform Oscillator 3 - [WAVE 3]

- triangle
- peaked triangle
- descending sawtooth
- square
- asymmetric square 1 (29.1 PWM)
- asymmetric square 2 (17.1 PWM)



Triangle, Peaked-Triangle,
ascending and descending
Sawtooth (OSC 3 only)



Square, Asymmetric Square
(29.1 PWM, Asymmetric Square
@ 17.1 PWM)

Frequency Range Oscillator 1/2/3 - [RANGE 1/2/3]

The frequency range of each oscillator is controlled by a six position selector (RANGE 1/2/3) so in ascending order we have:

- | | |
|---|----------------------------------|
| | (i.e. referring to A4: 440 @ 8') |
| - LO (5 octave below the 8') | : A-1 (13.75 Hz)... (sub audio) |
| - 32' (2 octave below the 8') | : A2 (110 Hz) |
| - 16' (1 octave below the 8') | : A3 (220 Hz) |
| - 8' <u>the reference organ stop</u> (no transposition) | : A4 (440 Hz) |
| - 4' (1 octave above the 8') | : A5 (880 Hz) |
| - 2' (2 octave above the 8') | : A6 (1760 Hz) |

Frequency Control (detuning) Oscillators 2/3 - [FREQ 2/3]

The individual frequency of each oscillator can be controlled by a continuous/discrete knob in a range of -7 to +7 half steps. The central position is the neutral position (no detune applied).

:::NOTE::: Tapping on up/down small arrows on the sides of the knob, it is possible to increase/decrease the frequency at a quarter-step of a tone.

The OSCILLATORS panel include also three additional controls:

Poly/Mono switch - [POLY]

This control allows to switch between **monophonic** and **polyphonic** mode. In monophonic mode, the *mood* generates no more than one note at a time. In this mode, you can play with two different articulations:

- a) *non legato*: each new note is detached from the previous one so that all the Envelopes are re-triggered again from start
- b) *legato*: for each new key pressed, when an previous note remains hold, the pitch goes to the new note without the re-triggering of the envelopes.

::NOTE:: *There is no a “priority” scheme as in original or clone synthesizer, but the only rule is that each new note will be tracked in pitch.*

In polyphonic mode, the maximum number of simultaneous voices is 16 with the feature of generating anyway each new note exceeding the maximum number. When playing in this mode, you will monitor in real time the actual polyphony load in the ENVELOPE panel.

Sync switch - [SYNC 1->2]

This switch is used to “hard sync” the oscillator 2 (slave) from oscillator 1 (master). When active, the pitch of oscillator 2 is “slaved” by oscillator 1 and the change of FREQ 2 control will only produce a wave shape modification and a consequent timbre variation.

Slop - [SLOP]

This continuous controls is optionally used to give some “pitch” inaccuracy for each new note to simulate the unstable frequency experienced in vintage analog synthesizer. You can better appreciate this parameter when you play chords in polyphony mode. Exaggerated values of this parameter resembles in an poor conditions instrument.

MIX PANEL

This panel includes the oscillator MIXING, the WARP (sampled) source, the FM and the NOISE generator.

Oscillator level 1/2/3 – [LEVEL OSC 1/2/3]

Oscillator switch 1/2/3

The three oscillator are mixed together in this section with individual level controlled by a level logarithmic knob and by an on-off switch.

Warp Source – [LEVEL WARP]

Warp Source switch

In addition of the three main oscillator a sampled/live input source is available.

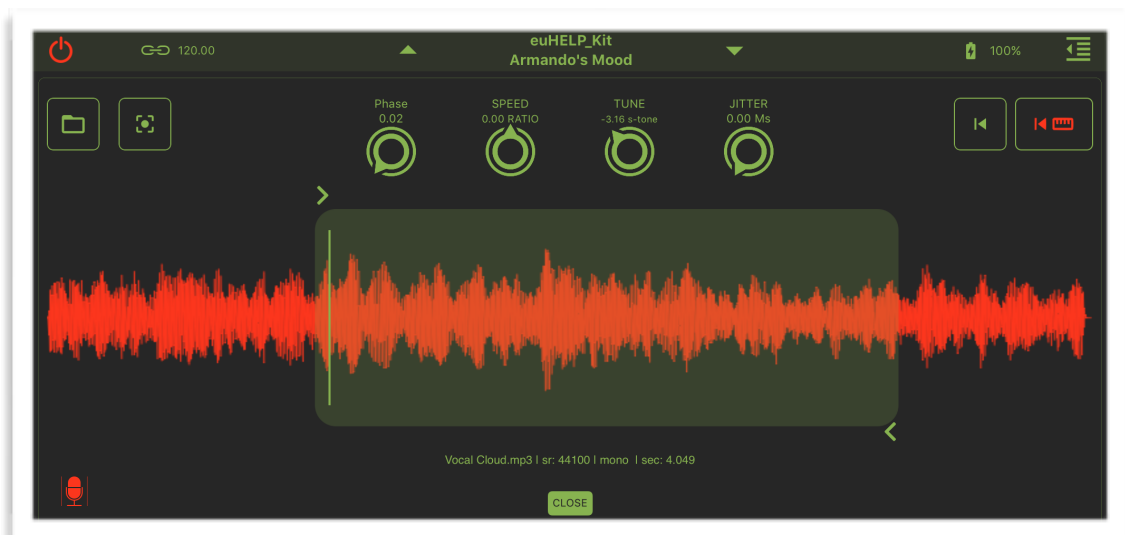


The sampled/input source level is controlled by LEVEL WARP knob and Switch (on/off) in the same way of the three basic oscillators. When on, tapping on the small label/switch icon under the switch, it is possible to open the viewer and sample managing window.

In this window you can adjust a group of parameters to properly manage the sample (or input).

WARP/LIVE

You can feed *mood* with a special WARP or microphone, line or Audiobus/ Inter-App Audio when connected. The Warp provide a complete time/ frequency de-correlation so you can scrub the waveform. The main goal of

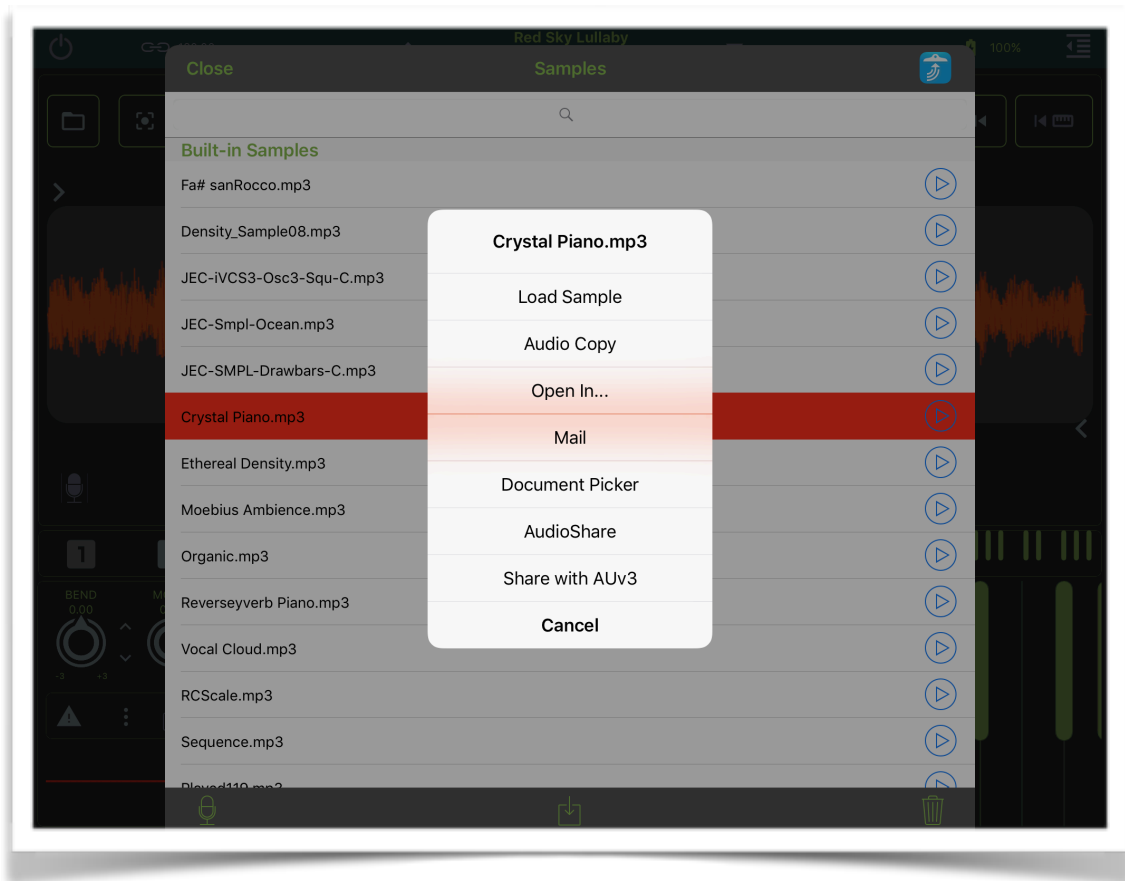


The Warp Window

Warp is to freeze the sound in a certain point and tune it according to the oscillators frequency (TUNE Parameter).

In this window you can load a mono sample to use as an additional source to be processed by *mood*.

In the middle of this window you can view the waveform of the loaded sample (mp3 format is also allowed **preferably Constant bit rate**). Tapping on the



folder icon (upper hard left) a list of Built-in-Samples will appear:

You can select a file to load in memory by tapping on its name and select “Load Sample” in the menu list of commands available

When the selected file is loaded, the default selection spans over the whole sample. You can select your own sample region using the > / < symbols (left side / right side of the sample). Depressing a key on the keyboard you will trigger the sample playing starting from the position of the vertical cursor inside the selected sample region.

Four control knobs are available to set the desired way of read the sample:

Phase index – [PHASE]

This control allows to set the init phase (and consequently the position of the cursor inside the selected sample region) for the sample reading. For any region length, the phase is mapped from the begin to end of region itself.

Speed of sample reading – [SPEED]

This control (when non zero) automatically move the sample phase producing (eventually) a moving timbre during the course of the note.

- If the Speed knob is set to 0, the phase is constantly locked to a certain value and the timbre stays almost invariable.
- If the Speed knob is set to any positive value, the phase cyclically runs from left to right (forward reproduction). The value of 1 reproduce the sample at original recorded speed. The maximum positive value is 2 so the speed is doubled.
- If the Speed knob is set to any negative value, the phase cyclically runs from right to left (reverse reproduction). The value of -1 reproduce the reversed sample but at original recorded speed. The maximum negative value is -2 so the speed is halved.

Sample tuning – [TUNE]

This control allows to change the sample pitch in the range 0 plus/minus 12 half-steps (plus/minus 1 octave)

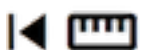
Jitter – [JITTER]

This control (when non zero) randomly move the Phase around a time span of a maximum of 1000 milliseconds (1 second).

In addition to this continuous controllers, the Warp window includes also:



Reset scanning to the start position.



When is enabled, the scanning pointer jump to the start position for each note you play.

You can choose between the internal WARP player and LIVE input via Microphone, Audiobus or Inter-App Audio.

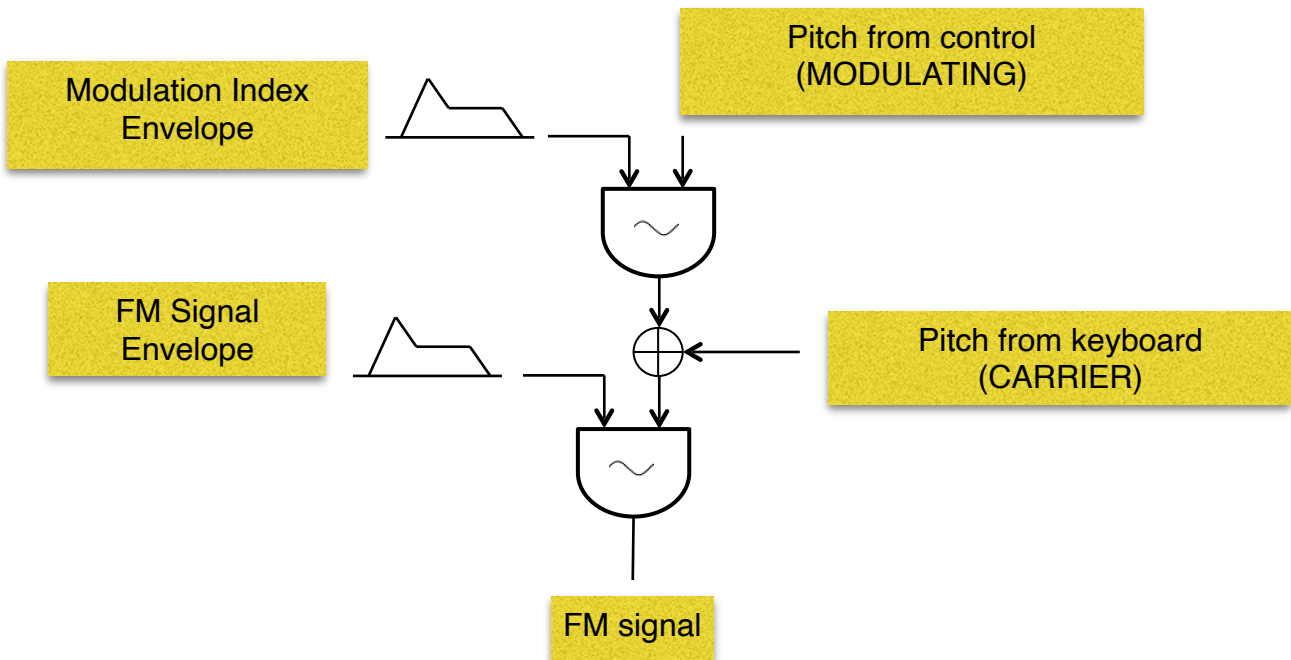
::IMPORTANT NOTE::

When you switch between WARP/LIVE, if you are not connected to Audiobus or Inter-App Audio (as FX) a warning message will be displayed in order to prevent dangerous Speaker audio feedback. The same behaviour will occur if you have not attached, in your iPad/iPhone/iPod Touch, an external device as headset or Mic. etc.

You can disable this message through the app Settings, see later for more explanations.

FM Module

In addition of the three main oscillators and the sampled (or input) signal, the *mood* includes also a basic FM generator. The carrier pitch is directly supplied by the note played on the keyboard while the modulating frequency derives from the FIXED / RANGE parameter. Both carrier and modulating signal are pure sine waves. Two ADS envelope are available for the timbre and articulation control of the sound.



FM Level – [LEVEL FM]

FM switch: When FM switch is on the On position, the FM signal is added to the oscillator mix using the LEVEL FM knob to set the level of this additional sound component.



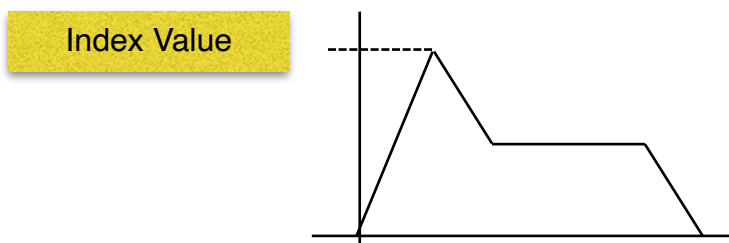
Tapping on the small icon under the FM switch you can access to the dedicated FM parameters panel.

FM PANEL (open/close)

This panel includes all the FM synthesis parameters and controls.

Modulation Index – [INDEX]

This parameter sets the peak value of the FM index. The higher the value, the wider will be the resulting spectrum. The index range spans from 0 to 10. This value can be thought of as the maximum (peak) value reached by the Index Envelope.

***Fixed /Ratio Mode – [FIXED]***

There are two different functionalities for Modulating / Carrier mode of operation depending on the value of the switch under the FIXED knob so that:

- a) *Fixed Mode* (The switch shows **RATIO** and the knob shows **FIXED** label)

In this mode the modulating frequency is the absolute value set with the Fixed knob and it ranges from 1 Hz to 1000 Hz

- b) *Ratio Mode* (The switch shows **FIXED** in red colour and the knob shows **RATIO** label) In this mode the modulating frequency is the ratio between the actual keyboard note pitch and the modulating internal signal. For example, if Ratio = 2 and the actual pitch note is A4 (440 Hz), the modulating frequency will be automatically set to $440 \times 2 = 880$ Hz

In general, the Ratio Mode is preferred to generate tones with more harmonic content (better if the ratio is an integer number). In this mode the timbre created will stay stable along the keyboard. Conversely, the Fixed Mode is preferred to create noisy and inharmonic sound.

FM Send Mode– [SEND]

This parameter allows to route the FM signal directly to output or at the input of the Low Pass Filter. You can create a mix of the direct FM signal and the filtered version of it by setting the knob in an intermediate position. Turning the knob hard left, the FM signal will bypass the filter. Turning the knob hard right, the FM signal will be fed into the filter.

FM Amp Envelope

Attack – [ATTACK]

Dec – Rel [DEC / REL]

Sustain [SUSTAIN]

These three controls are used to set up the ADS(R) values for the FM signal amplitude. The Attack / Decay-Release values range from few milliseconds to 1000 milliseconds. The Sustain values range from 0 to 1.

FM Index Envelope

Attack – [ATTACK]

Dec – Rel [DEC / REL]

Sustain [SUSTAIN]

These three controls are used to set up the ADSR values for the FM index. The Attack / Decay-Release values range from few milliseconds to 1000 milliseconds. The Sustain values range from 0 to 1.

::NOTE:: The exact attack/decay/release minimum value depends on the length of the Buffer Size set in the general Settings. With Buffer Size = 128, the minimum value is 3 milliseconds.

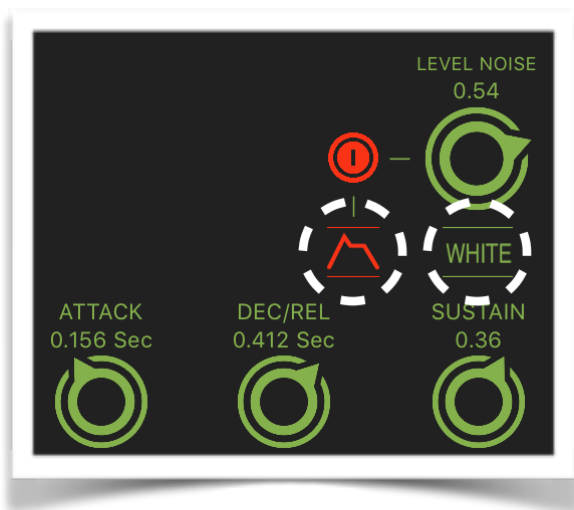
NOISE GENERATOR

As usual in analog synthesizer, a Noise generator is always available so such a module is included in our instrument. It is the classical White/Pink noise generator. In addition to the noise generator, *mood* also make a dedicated envelope available.

Noise Level – [LEVEL NOISE]

Noise switch

When Noise switch is on the On position, the Noise signal is added to the oscillator mix using the LEVEL NOISE knob to set the level of this additional sound component.



By tapping on the small icon under the NOISE switch you can access to the dedicated Noise envelope parameters.

By tapping on the switch/label under the Level Noise you can alternatively change from white to pink noise.

NOISE Amplitude Envelope

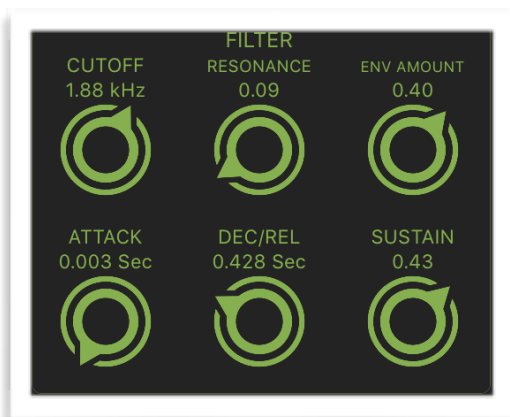
Attack – [ATTACK]

Dec – Rel [DEC / REL]

Sustain [SUSTAIN]

These three control are used to set up the ADS(R) values for the Noise amplitude. The Attack / Decay-Release values ranges from few millisecond to 1000 milliseconds. The Sustain values ranges from 0 to 1.

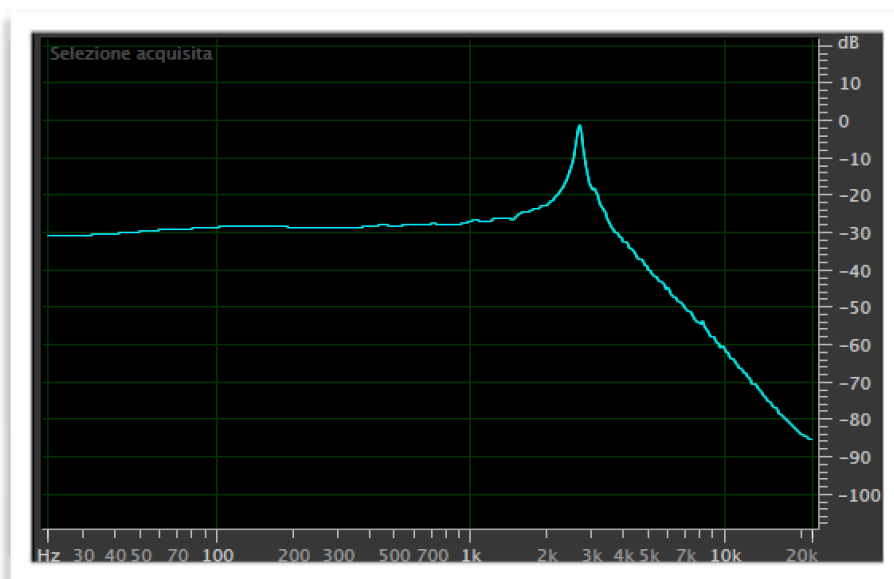
FILTER



In this panel are located the control parameters for the resonant low pass filter. This filter is a four poles 24/dB octave hi-resonant filter. When the resonance parameter is not zero, its frequency response has a peak at the cutoff frequency. The cutoff frequency is controlled by the following parameters:

- cutoff knob setting
- filter envelope
- oscillator 3 (as LFO)
- extended LFO module (XLFO)

The amount of LFO action is proportional to the amount of Modulation Wheel (internal and/or external)



Typical response of a 24 dB/oct resonant lowpass filter

For high values of resonance (> 0.96) the filter behaves like an quasi sinusoidal oscillator so you have another source of sound available.

Filter Cutoff – [CUTOFF]

Using this knob you can set the basic cutoff frequency of the filter, selecting a value in the range between 20 to 20 KHz.

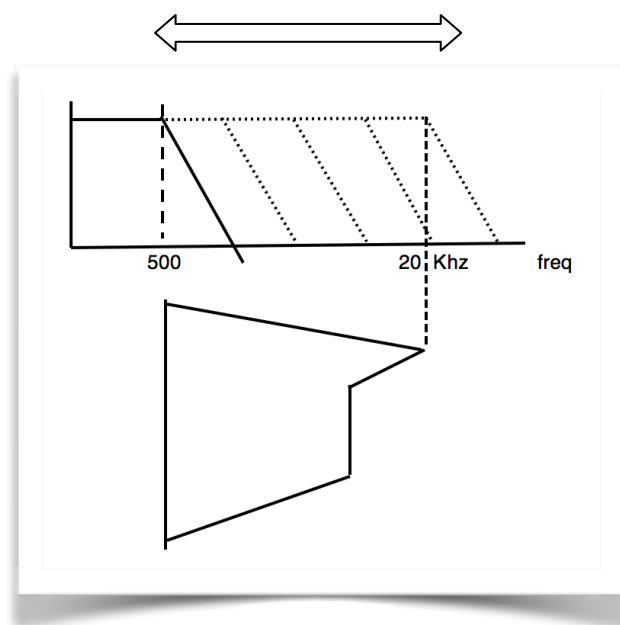
Filter Resonance – [RESONANCE]

When this value is set to zero, the filter will not have any peak in its response. For all the others values, the knob will control the amplitude and the band of the peak. For high values of resonance, as mentioned before, you can hear a whistle tracking the actual cutoff frequency. (*!!Be careful to your ears and to your loudspeakers!!*)

Envelope Amount – [ENV AMOUNT]

This parameter scales the function generated by the filter envelope from zero to a maximum value (1).

For example, if Cutoff frequency knob is set to 500 Hz and envelope amount is set to 1 and resonance to zero, the envelope function will move the filter cutoff from 500 Hz to the maximum allowed (20 KHz) following the shape of the envelope itself.



FILTER Envelope

Attack – [ATTACK]

Dec – Rel [DEC / REL]

Sustain [SUSTAIN]

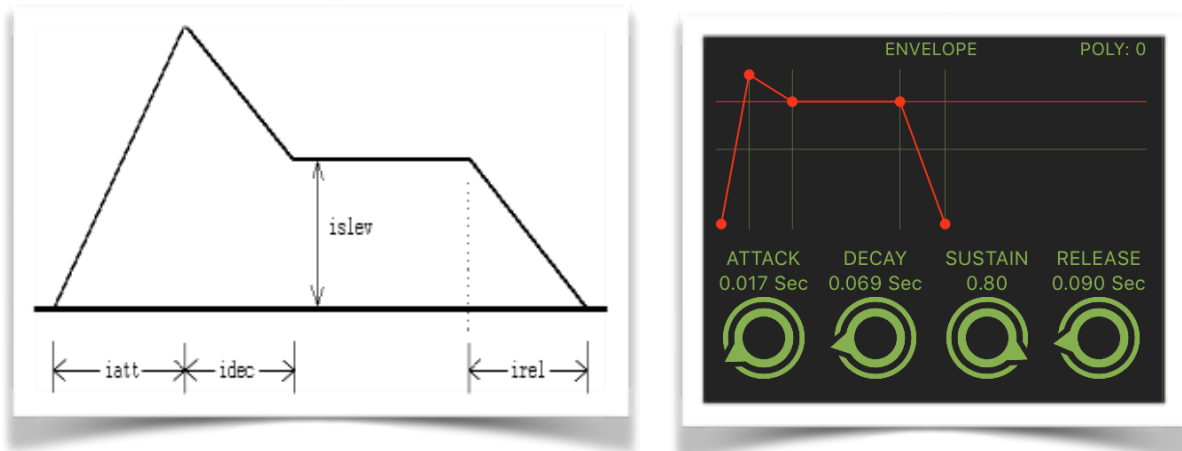
These three controls are used to set up the ADS(R) values for the Filter cutoff. The Attack / Decay-Release values ranges from few millisecond to 16 seconds. The Sustain values ranges from 0 to 1.

So, if the sustain is set to a any value between 0 and 1, the cutoff frequency will be also at a certain value between the nominal cutoff (set with the cutoff knob) and the maximum value allowed.

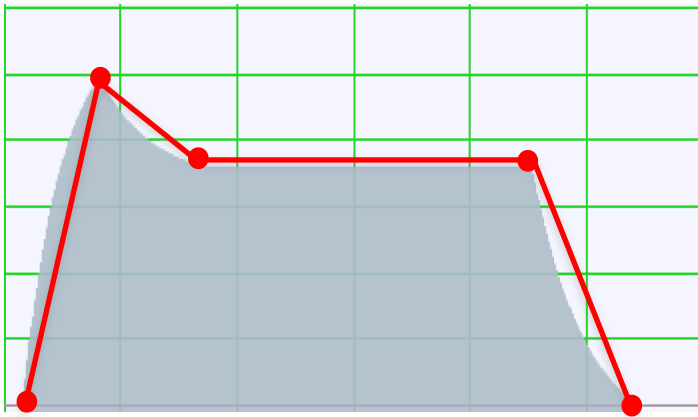
AMPLITUDE ENVELOPE (ADSR)

In this panel are located the controls for the amplitude envelope. This is a true ADSR envelope generator. That is, while in all other envelope generators there are only three control parameters because decay and release share the same time value, in this envelope generator it is possible to independently control decay and release.

You can see the graphically resulting shape of the ADSR depending on the actual values of the four knobs. At the same time, when you press a key, a vertical marker will follow the timing of the generated function in real time, included an highlight during the sustain stage and a memory tracking.



::NOTE:: It is important to specify that the graphic shape of every envelope function (included this one) is only a simple sketch of the real one. In the real world, the low to high transitions are logarithmic while the high to low transitions are of exponential type. In this way, the energy articulation of the result in sound is more natural and smooth.



AMPLITUDE Envelope

Attack – [ATTACK]

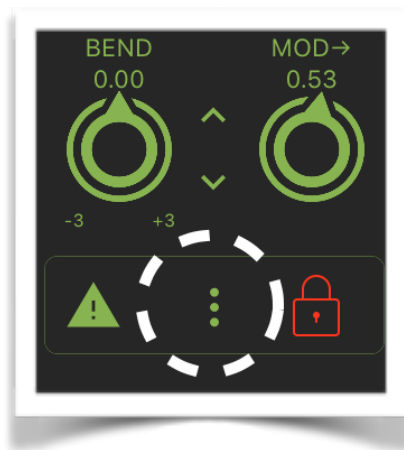
Dec - [DEC / REL]

Sustain [SUSTAIN]

Release – [RELEASE]

These four controls are used to set up the ADSR values for the amplitude contour. The Attack / Decay / Release values ranges from few millisecond to 16 seconds. The Sustain values ranges from 0 to 1. Release occur when you send Keyboard note Up or MIDI note off.

KEY VELOCITY



In this section you will find the Keyboard Velocity assignments. The amplitude of the various Signal Generators can be controlled according to UI Keyboard vertical touch or through the MIDI Velocity. Also, three curves can modify and shapes the general touch sensitivity.

When the 'Key Veloc' is switched off, the key-velocity is fixed. You can use the curve shapes selector to set the fixed values for the MIDI Velocity expressed as % of the MIDI range (0 to 127). Thus the Linear is 50%; Log is 80% and Exp is 20%. Since the MIDI goes from 0 to 127, the 80 % of 128 is 102; 20% is 25 and 50% is 64.

See Keyboard explanations for more details about the embedded UI keyboard.

CONTROL & TRACKING



This panel serves to configure important global control parameters and includes eight switches, one label/switch and four continuous knobs.

Main Synth Level – [MAIN LEVEL]

This logarithmic knob is used to set the global volume of the output sound.

Master Pitch – [PITCH TRIM]

Master Pitch Reset – (icon switch)

This parameter controls the master tune of the synth. It is possible to vary the master tune in a range of +2 / - 2 half-steps. To quickly return to default pitch (A4 = 440 Hz), you can tap on the icon-switch on the left side of the Pitch Trim knob.

Modulation Mix – [MOD MIX ->]

There are three sources of modulation inside *mood*:

- the oscillator 3
- the noise signal

- an extended LFO (XLFO)

This control is used to create a mix of modulating signals deriving from oscillator 3 and noise source. Setting this knob to hard left the source of modulation will be only the oscillator 3 while setting to hard right the modulation will come only from noise generator.

Portamento (or Glide) – [PORT]

This parameter is used to create a smooth transition between a note and the next one in order to create a “portamento” (o glide effect). When the Port switch (see below) is in on position, this parameter sets the transition time (milliseconds) between pitches of subsequent notes. The Port time will affect the articulation of the notes played meaning that the higher the time is, the smaller the articulation of the notes will be possible.

Modulation to Oscillators 1 / 2 – [-> OSC 1- 2]

This switch, when on, routes the signal os oscillator 3 to modulate oscillators 1 and 2.

Modulation to Filter – [FILT]

This switch, when on, routes the signal os oscillator 3 to modulate the filter.

Oscillator 2 Keyb Control - [OSC 2]

This switch, when on, enables the keyboard to control the pitch of oscillator 2 (normal mode of operation). When off, the pitch is constant and independent of which key is pressed. The pitch will remain set at C4 (for range at 8’), C3 (for range at 16’) and so on.

Oscillator 3 Keyb Control - [OSC 3]

This switch, when on, enables the keyboard to control the pitch of oscillator 3 (normal mode of operation). When off, the pitch is constant and independent of which key is pressed. The pitch will remain set at C4 (for range at 8’), C3 (for range at 16’) and so on.

Keyboard tracking (light tracking) – [THIRD +/-8]

In order to keep enough harmonic wideness on he high pitches, the *mood* uses a pitch tracking applied to the cutoff frequency of the filter. This switch activates / deactivates a light tracking that is to say that the cutoff frequency will be hi-shifted of a musical third per octave.

Keyboard tracking (heavier tracking) – [THIRD +/-8]

This switch activates / deactivates an heavier keyboard tracking that is to say that the cutoff frequency will be hi-shifted of a musical fifth per octave.

::NOTE:: When both the tracking switches are in on position, the tracking is the combination of individual tracking. This results in a harder tracking so that the cutoff shift will be of one octave per octave. You can experiences this shifting by setting a high value for the resonance parameter and playing an ascending or descending scale on the keyboard.

Portamento switch – [PORT]

This switch activates / deactivates the glide action.

Release switch – [RELEASE]

This switch, when on, allows you to inhibit the release stage of the amplitude envelope.

SECTION 2

EXTENDED LFO (XLFO)

In this section you will find five panels dedicated to the effectors and LFO parts of the synth.



This panel contains the parameters for controlling the XLFO module. XLFO is a powerful LFO module that includes also a function of arpeggiator/sequencer.

Modulation Depth – [DEPTH]

This knob controls the depth of modulation.

Modulation Rate – [RATE]

This knob controls the velocity (rate) of modulation. Tapping on the x1 or x10 label-switches you can select between basic and ten times the rate.



By enabling the SYNC switch, (green highlighted) you will not longer be able to set the local tempo since now the TEMPO is sampled from Master SYNC Clock. You can subdivide the SYNC Tempo from the Subdivision Menu.

Subdivision Menu will show a list of symbols that abbreviate musical note time values:

Normal: 1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64

Triplets: 1/1T, 1/2T, 1/4T, 1/8T, 1/16T, 1/32T, 1/64T

Dotted: 1/1D, 1/2D, 1/4D, 1/8D, 1/16D, 1/32D, 1/64D

Where 'D' is a **dotted** note and 'T' is **triplet**.

With 1/4 (Default), the Sequencer will fire a 'step' every BPM according to 'Local Tempo' or 'Ableton Link' BPM.

- 1/4 - each step is a quarter note (or BPM),
- 1/4D - each step is a dotted quarter note (or 1.5 x BPM),
- 1/4T - each step is a triplet quarter note (or 0.5 / 3) etc.

Delay modulation start – [DELAY]

This parameter sets a time delay before the XLFO starts its modulating process.

Delay attack – [ATTACK]

This parameter sets the duration of a positive ramp on the modulating signal, allowing an immediate or gradual modulation start.

Delay wave - [WAVE]

Using this selector you can choose the desired waveform for the modulation process:

- sine
- square
- triangle
- descending sawtooth
- ascending sawtooth
- complex sum
- sample/hold

- **arpeggiator/sequencer** (see below)

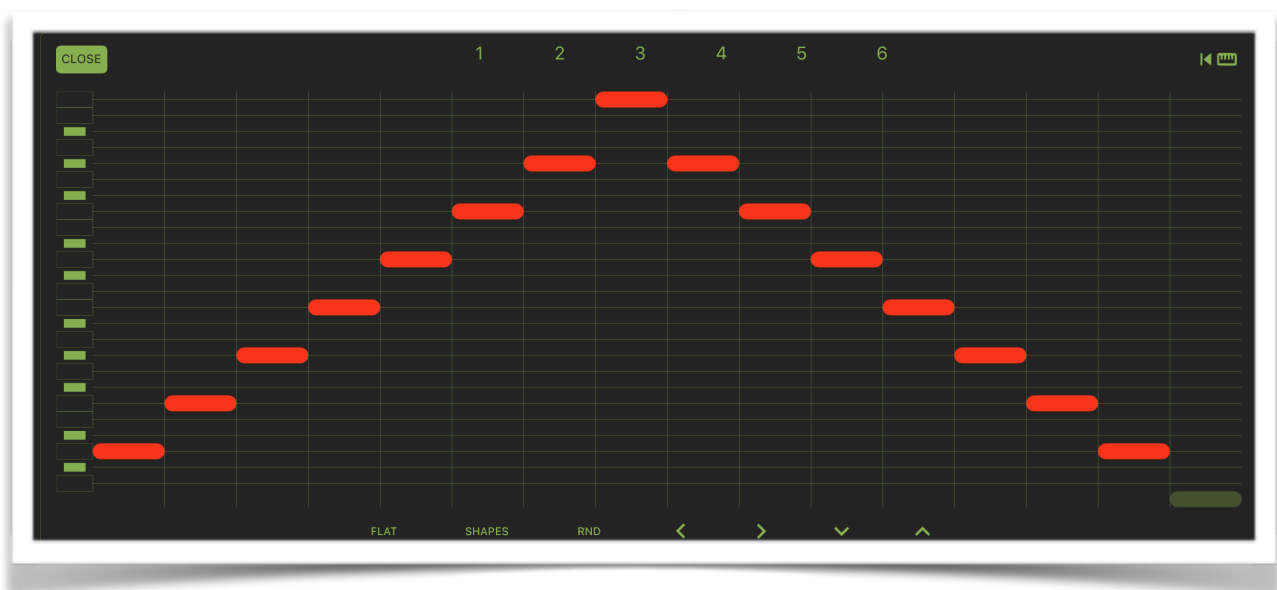
The selected waveform can be assigned to modulate:

- oscillator 1
- oscillator 2
- oscillator 3
- Filter (VCF)

If the label-switch MOD-> is on, the LFO process is controlled by external or internal modulation wheel.

ARPEGGIATOR/SEQUENCER

As already mentioned, the last waveform in XLFO is a step function and this arrangement is something very close to an arpeggiator. When this wave is selected a label switch will be visible (ARP EDIT). Tapping on it, a special editing page will be available.



The display will show a “piano-roll” like notation to visualise the actual 16 steps of this embedded arpeggiator.

On the left you can see the two octaves range of a virtual keyboard as a pitch reference. There are different ways to draw a sequence:

Direct Draw : by direct draw on the pitch grid by moving vertically each individual step

or using available pre-selections (each one with different modality):

FLAT : all steps are aligned at lowest level (no step active)
SHAPES : by tapping repeatedly on the label-switch you can recall in sequential order nine different shapes corresponding to some remarkable mathematical functions
RND : by tapping repeatedly on the label-switch you can recall a random sequence

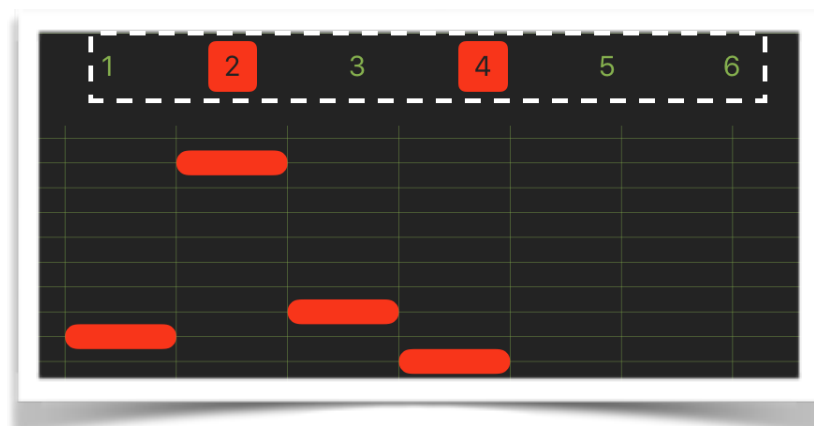
In addition to this, you can modify the actual sequence using the four label-switches:

< : rotate the sequence left by one position (with wrap around)
 > : rotate the sequence right by one position (with wrap around)
 v : shift the sequence down of half step (with wrap around)
 ^ : shift the sequence up of half step (with wrap around)



When is enabled, the scanning pointer jump to the start position for each note you play.

::NOTE:: when in Mono mode the envelopes (filter and amplitude) are triggered on the first note played on keyboard at the same time that the sequence starts. Each new note will re-trigger the envelopes except when you are playing in “legato” style. In Poly mode every new note will trigger the envelopes and will play synchronous with the sequence.



Each preset can contain up to six additional memory where you can Store/Recall the Arpeggiator's configurations.

Long-press Tap to store and a **Simple-press Tap** to recall. The picture above shows the slots 2 and 4 are allocated (highlighted), it means they have a valid data (i.e. Arpeggiator's pattern). You can erase the memory by Long-press over an allocated slot.



By enabling the SYNC switch, (green highlighted) you will not longer be able to set the local tempo since now the TEMPO is sampled from Master SYNC Clock. You can subdivide the SYNC Tempo from the Subdivision Menu. Subdivision Menu will show a list of symbols that abbreviate musical note time values:

Normal: 1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64

Triplets: 1/1T, 1/2T, 1/4T, 1/8T, 1/16T, 1/32T, 1/64T

Dotted: 1/1D, 1/2D, 1/4D, 1/8D, 1/16D, 1/32D, 1/64D

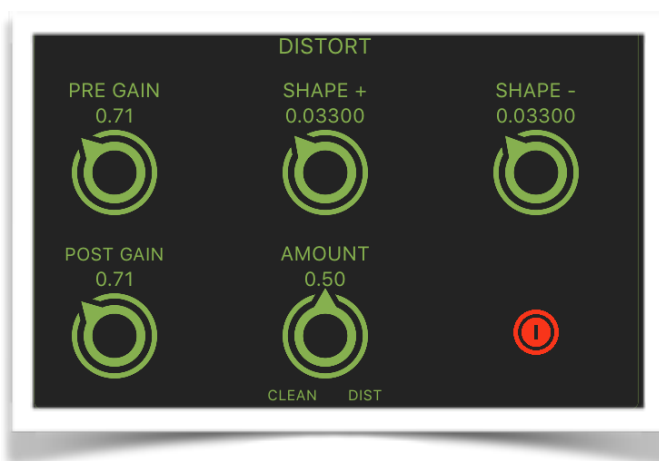
Where 'D' is a **dotted** note and 'T' is **triplet**.

With 1/4 (Default), the Sequencer will fire a 'step' every BPM according to 'Local Tempo' or 'Ableton Link' BPM.

- 1/4 - each step is a quarter note (or BPM),
- 1/4D - each step is a dotted quarter note (or 1.5 x BPM),
- 1/4T - each step is a triplet quarter note (or 0.5 / 3) etc.

DISTORTION

This panel includes the controls of a distortion process that implements a non-linear wave shaping of the incoming signal.



Pre Gain – [PRE GAIN]

The control sets the amount of signal gain before wave shaping

Shape + – [SHAPE +]

This control sets the shape of the positive portion of the distortion function.

Shape - – [SHAPE -]

This control sets the shape of the negative portion of the distortion function.

Post Gain – [POST GAIN]

The control sets the amount of signal gain post wave shaping

STEREO DELAY

This panel contains the controls of a stereo delay in a ping-pong arrangement with including a feedback lowpass filter. The sequence of the repetition is L / R / L / R .. etc.

**Delay Time – [TIME]**

This control sets the time delay between the repetitions.

Feedback – [FEED]

This control sets the feedback amount (regeneration factor).

Delay Mix – [MIX]

This control sets the mixing amount of direct (dry) and processed (wet) signal.

Level – [LEVEL]

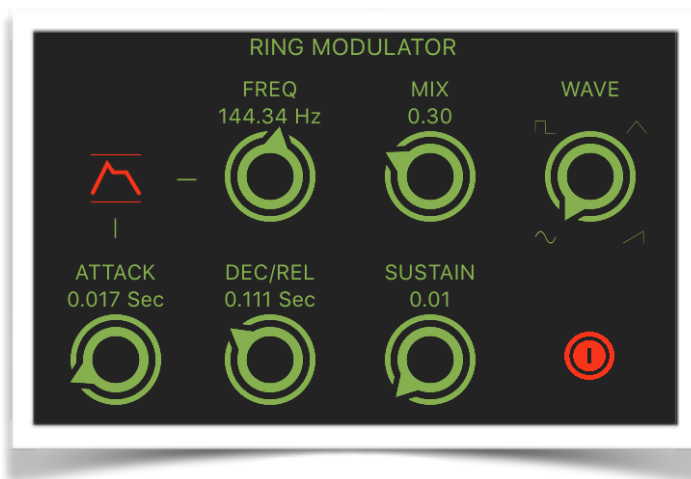
This control sets the global level of the processed signal.



The hard reset cleans the delay lines to prevent a damages sound as excessive feedback etc...

RING MODULATOR (RM)

This panel contains the controls of a Ring Modulator (RM) that is to say a time multiplication of two signals. This process produce a resulting signal formed by the a combination (basically sum and subtraction of the two individual spectrum components). The RM process is able to create a frequency shift of the original sound with inharmonic or pulsating features.



Modulator Frequency – [FREQ]

This is the frequency of a selected waveform that is multiplied by the incoming signal to produce the RM sound.

Modulation Mix – [MIX]

This control sets the mixing amount of direct (dry) and processed (wet) signal.

RM wave - [WAVE]

Using this selector you can choose the desired waveform for the RM process:

- sine
- square
- triangle
- ascending sawtooth

By tapping on the small icon on the left side of the frequency knob, you can access to the dedicated RM envelope parameters.

RM Envelope

Attack – [ATTACK]

Dec - [DEC / REL]

Sustain [SUSTAIN]

Release – [RELEASE]

These four controls are used to set up the ADS(R) values for the amplitude contour. The Attack / Decay / Release values ranges from few millisecond to 16 seconds. The Sustain values ranges from 0 to 1.

REVERBERATION (REVERB)

This panel contains the controls for the dual reverberation module. Two different type of reverberation are available: a “vintage” type and a “modern”. You can select one of these by tapping on the label-switch (modern / vintage)



Reverb decay - [DECAY]

This parameter controls the length of reverberation (or the T60)

Hi-Frequency Damp - [DAMP]

This parameter controls the dynamic absorption of the hi-frequency components of the generated reflections.

Reverb Mix – [MIX]

This control sets the mixing amount of direct (dry) and processed (wet) signal.