



# SAURUS ANALOG SYNTHESIZER



Reference **MANUAL**

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## 1. Introduction

### 1.1 Welcome to Saurus Analog Synthesizer

Congratulations on purchasing Tone2's Saurus Analog Synthesizer.

Saurus is a brand new synthesizer that uses true analogue modeling. Some of the circuits from classic synthesizers were examined, analyzed and modeled into Saurus to bring the best sonic quality of a past age brought forward in a digital one.

Saurus pairs two oscillators with two sub-oscillators employing both standard waveforms and more exotic waveforms modeled after the classic units examined.

Combine this with a powerful filter section, an extensive modulation system in the form of LFO's, Envelopes and a modulation matrix, all routed into a high quality effects section giving Saurus an incredible array of sonic possibilities at your fingertips.

### 1.2 Features

- True Analog Modeling Technology
- High-end sound quality
- Covers all important aspects of traditional analog synths
- Low CPU usage
- Mono, Legato & Polyphonic modes employing analog voice management
- Two Syncable Oscillators and two Sub Oscillator
- Offers not only standard waveforms like square and saw but also includes a large number of waveform types from exotic analog synths
- Pulse Width Modulation and Oscillator Sync applicable to every waveform
- Oscillator drift, phase and noise modulation controls
- Noise FM, AM and ringmodulation for Oscillators
- High quality analog filter section with self-oscillation, nonlinearity, 6 filter types, filter FM and filter feedback
- LFOs capable of running at audio-rate
- Arpeggiator section with extensive configuration possibilities; chord steps, step velocity,...
- Modulation Matrix with several new modulation possibilities, including unique modulation value modifiers
- Programmable gate
- 4x Stereo Unison modes with spread and panning control
- Analog modeled Distortion and Tube amp
- Optional (on/off) Psycho-Acoustic processing
- High-end quality Effects

## **2. Installation & authorization procedure**

Together with the download link from Share-it you have received attached to the product delivery email a keyfile called 'Saurus.t2k', this file contains your personal serial number & your name and is used to unlock the full version.

Please note: we recommend for installations on Windows7 & Vista to be done with admin. rights using 'Run as Administrator' for both the Saurus installer and host program.

### **2.1 Automatic Installation (recommended) for PC & Mac**

1. Close your host (Logic, Live, Cubase, etc.)
2. Install the full version of the plugin. Note: the demo version can not be unlocked
3. Open your host program
4. Do a plugin rescan in the host if it does not list Saurus as plugin. Detailed instructions on how to perform a rescan can be found in your host's manual
5. Open Saurus
6. Click on the registration box in the middle
7. Select your keyfile 'Saurus.t2k' to activate the full version
8. Restart the plugin. Note that some hosts programs may require a complete restart.

#### **Click here to activate the product**

Thank you for purchasing this product! By buying this software you support a small company, fund future developments and help us to keep our jobs.

You have received a keyfile called 'Saurus.t2k' together with the download link. You can find it in the attachment of the email from our order. This keyfile is your personal license which contains our name and works like a dongle. The keyfile must be placed within the same directory as the plugin to unlock the full version.

This product is copyrighted by Tone2. It is illegal to distribute Tone2 software without permission. Under the DMCA, copying and sharing copyrighted materials without a license is illegal. It can subject the user to very large penalties. This product is copy protected and uses audio watermarks. Users who distribute Tone2 software will be banned from free updates and our services.

Click inside the activation screen to browse – select your Saurus keyfile.

## **2.2 Manual installation for PC**

1. Close your host (Cubase, Sonar, Samplitude, Live, etc.)
2. Install the full version of the plugin. Note: the demo version can not be unlocked.
3. Copy 'Saurus.t2k' to the VST directory. Steinberg hosts often use C:\Program files\Steinberg\VSTplugins as the default plugin path. You can also take a look at your host's folder configuration. Note that the 'Saurus.t2k' keyfile should be inside the same folder the Saurus.dll is.
4. Open your host program.
5. Do a plugin rescan in the host if it does not list Saurus as plugin. Detailed instructions on how to do a plugin rescan are found in your host's manual.
6. Open Saurus. Now the normal user interface appears. If this is not the case close your host and go back to step 3 as most likely you did not copy the keyfile to the right place.

## **2.3 Manual installation for Mac**

1. Close your host (Logic, Digital Performer, Live, Cubase, etc.)
2. Install the full version of the plugin. Note: the demo version can not be unlocked.
3. Copy 'Saurus.t2k' to 'Library/Audio/Plug-ins'. The correct path for the file is: '/Library/Audio/Plug-ins/Saurus.t2k'.
4. Open the host.
5. Do a plugin rescan in the host if it does not list Saurus as plugin. Detailed instructions on how to do a plugin rescans are found in your host's manual.
6. Open Saurus. Now the normal user interface appears. If this is not the case close your host and go back to step 3 as most likely you did not copy the keyfile to the right place.

### 3. Saurus Interface controls

#### Buttons

There are two types of toggle buttons in Saurus, one where clicking a button cycles between all options available, a good example of this are the OSC1 oscillator waveform selectors where clicking on the OSC1 button will cycle through its waveforms.

The other type is the toggle on/off buttons used for the Sync or Drift options, clicking on these will either enable or disable the feature.



To speed up the selection process options can also be switched-to directly by clicking on the light above or below the selection. Active selections are clearly shown as 'glowing' as if illuminated by a lamp.

#### Rotary Knobs

The rotary knob control increments a parameter value linearly from a minimum threshold value to a maximum threshold value.

To increase a knob's setting value, turn it clockwise: click-and-hold the knob with your mouse and then move it up and/or to the right. To decrease, move down and/or to the left, or anti-clockwise.

If you press the Shift key on your keyboard and then click-and-hold the left mouse button on a knob, you will have fine control.



There are two type of value ranges for the rotary knobs, depending on the parameter the knob is controlling. There is the unipolar knob – that goes from zero to a positive value or the bipolar knob – that goes from a minus value to through zero and then to a positive amount.

Bipolar values are useful for setting modulation amounts (which can be positive or negative) or pan where zero is the center.

## Context Menus



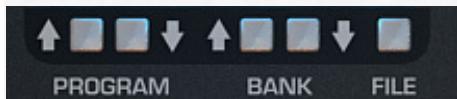
The small LCD-style screens contain some parameters that are actually context menus (excluding the PARAMETER DISPLAY section).

Click on a parameter to show a context menu of options. Click on the desired setting to select and close the menu. The display changes to show the current value.

In the example pictured above clicking on 'Tutorial' will open the category menu from which you can choose a preset category to open, clicking on the preset name 'Analog Drift' will open the list of all presets available from the Tutorial category.

## Previous/Next

In Saurus, the left and right arrows in its browser are used to select the previous and next patches (program) or category (bank)



Click the program up arrow to select the previous patch in the current category, click the program down arrow to select the next patch in the current category. The browser display changes to shows the newly selected patch.

Click the bank up arrow to select the previous patch category, click the bank down arrow to select the next patch category. The browser display changes to show the current selected patch category.

## 4. The Saurus User Interface



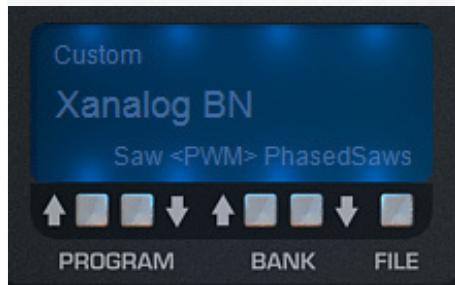
The Saurus GUI is split into various sections. The oscillator section offers all controls over the 2 main oscillators and the sub-oscillators.

The Filter section controls the filter to be used and various modulation methods. The Effects section allows for full control of all the effects within Saurus.

There are also sections for the two LFO's and an additional envelope. The LFO's and Aux Envelope can be routed by using the section for the Mod-Matrix and the Arp-Gate sections. The main area is where the user can control the global settings for the synth such as volume etc. The patch browser is where all banks and presets can be saved and recalled. The keyboard and mod and pitch wheels can be played using a mouse control.

### 4.1 The Patch browser

The browser allows loading, saving and general patch management functionality.



In the blue display area of the browser you have two rows of information. The top row shows the currently selected category. If you left or right click on the bank name, a drop-down list will appear where you can select any other category installed on your computer. These will include the standard categories, any additional expansions bought from Tone2 or categories you created yourself.

The bottom row shows the currently loaded patch. If you left or right click on the patch name, a drop-down list will appear where you can select any patch in the current category.

The bottom right of the BROWSER window serves as a parameter indicator. If you alter any parameter in Saurus' interface, the parameter name and value will be displayed here.



Along the bottom of the patch window are 5 buttons.

The program buttons cycle through all the presets loaded in the current bank. The bank buttons cycle through the various category lists in the bank loaded. The file button opens a dialog menu where you can load or save a sound, download more sounds, visit the Tone2 website, view the manual or initialize various sections of the synth.

## 4.2 Main section

Inside the main section you'll see several controls that have to do with general operation of Saurus: Volume, Pan, Glide, Unison controls and the psycho-Acoustic boost switch.

### Master voice mode selectors

Saurus offers both monophonic and polyphonic voice modes, the following modes are available:

- *Mono* - This mode sets the polyphony to 1 note (monophonic) which mimics the way the classic analog synthesizers of the past behaved. The envelopes are retriggered each time a new note is played.
- *Legato* - This mode is also monophonic but if a new note is played while an existing note is still being played it will glide to the new note without re-triggering the envelopes.
- *OldPoly8* - In this mode the Voice handling behaves similar to that on old 8 voice polyphonic synthesizers. If the note is already playing and the same note is triggered again the same voice will be used and the envelopes are retriggered in a soft way. The advantage of this mode is that the voice mix will be less 'muddy' when melodies are played in a fast way and the CPU usage is low.
- *Poly16* - Modern, polyphonic voice handling with 16 voices.

The maximum number of voices playing at the same time is 64 when 4x Unison is used together with Poly16 mode ( $64 = 16 \times 4$ ).

## Volume & RMS meter:

The volume knob controls the amount of output level send by the plugin, in the top right of the Saurus interface you'll notice an RMS meter which displays the average output power level.



When designing patches it is recommended to keep its level around 0dB. To do this you can adjust Saurus' volume to reach 0dB with three keys pressed in Polyphonic modes or one note in Monophonic mode.

## Unison controls:

The Unison section offers both a 2x and 4x Unison mode which layers multiple copies of the oscillator's sound. The Spread knob works in combination with the two Unison modes and allows you to select the amount of detuning and spread to applied to the different copies of the sound.



Note that With Unision mode activated the panning (Pan) control switches to controlling the amount of stereo separation in the unison instead of the standard left/right pan control. When Unison is off Pan will function as a standard panning control.

## Glide knob:

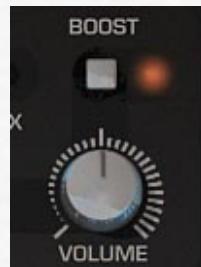
The Glide adjusts how much the current note's pitch glides to the next note's pitch, the default setting for this knob is zero (no glide)



## Boost control:

The Boost control found inside of the Volume section will switch on the Psycho

Acoustic feature which dynamically boosts frequencies giving an enhanced boosted sound without drastically changing overall output volume.



#### 4.3 Oscillator section



**OSC1 & OSC2** – These buttons cycle between the various waveforms available for oscillators 1 and 2, the current active waveform is highlighted.

The PW knob next to the waveform selectors will morph from the current wave into another waveform, a description of all waveforms can be seen in the list below:

1. Saw - PW morphs to double saw
2. Square - PW morphs to Pulse and Peek
3. Trianguloid - A 4step Triangle-style waveform where PW morphs to 4-step Saw
4. Sinoid - A sinoid waveform; PW morphs to Square
  
5. Double square - Sounds similar to the PWM Sawtooth wave of the Alpha Juno. PW morphs to Double pulse
6. Comb - Sounds similar to the Comb wave of the Alpha Juno. Good for vocaloid sounds; PW morphs the vocal
7. Organ-stack - Several stacked waves which sound similar to the analog Farsivar Organs. PW morphs to double saw
8. Double pulse - PW morphs to square wave

**SUB 1 & 2** – The sub buttons cycle between the various waveforms available for sub oscillators 1 and 2, the current selected sub oscillator waveform is highlighted.

The sub oscillator waveforms are:

1. Sawtooth - 1 octave lower
2. Square wave - 1 octave lower
3. Inverted Sawtooth - 1 octave lower
4. Square wave - 2 octaves lower

5. 25% Pulse - 2 octaves lower
6. Sawtooth - 1 octave and sawtooth 2 octaves lower
7. Square wave - 1 octave and square wave 2 octaves lower
8. Triple saw - 2 octaves lower

PW – Adjusts the pulse width for the given waveform

MIX – Adjusts the mix amount between oscillator and sub oscillator.

TONE - Adjusts the tone control for this oscillator, which basically makes the sound for that oscillator darker or brighter which can give the oscillator more bite or control the higher harmonics for frequency modulation.

F/A Noise - The F/A Noise knob controls the amount of noise generated by either Frequency modulation (FM)or Amplitude Modulation (AM)  
The default setting for this knob is zero, turning the knob clockwise will increase the amount of Amplitude Modulation applied whereas turning it counter clockwise will apply and increase the amount of Frequency Modulation.

SYNC – Enabling the sync option will synchronize oscillator 2 to oscillator 1.

RING – This is the control for the amount of Ring Modulation to be used for both oscillator 1 and 2.

DETUNE – This is a control to adjust globally oscillator 1 and 2's fine tuning by +/- 100%

TUNE – This control adjusts the oscillators coarse tuning.

DRIIFT – The drift control available from the oscillator section will apply a certain amount of drift to the oscillators, allowing minor inconsistencies and resulting in a more authentic analog sound.

Note that it is recommended to switch off Drift if Oscillator Sync is enabled, if both are enabled it may lead to glitches and general degradation of how both features sound.

PHASE – this adjusts the starting phase of each oscillators waveform.

MIX 1 / 2 – This is the mix control for the amount of oscillator 1 and sub with oscillator 2 and sub.

#### 4.4 Filter section



**DRIVE** – This is the control to adjust the amount of extra gain to the oscillator audio signal before it enters the filters. It can change the characteristics of the filter completely.

**KEY** – This is a bi-polar control that determines how the note played on the keyboard affects the filter cut off frequency. At positive values above 0, higher note values will increase the cut off frequency. At negative values below 0, higher note values will decrease the cut off frequency.

**CUTOFF** – This is the cutoff control for the filter

**RESO** – The resonance of the filter

**ENV** – The filters envelope modulation amount. The values for the envelope itself can be set in the ADSR controls in the filter section.

**SOFT** – The control for non linearity and saturation in the filter. If “soft” is activated, the filter will sound more analogue and resonance will be less aggressive.

**FILTER SELECTION BUTTON** – This chooses the type of filters available in Saurus, these include

- I. 12dB Low Pass, a precise model of an analogue chamberlain filter with self oscillation and non-linearity with a little feedback. It has character which is similar to the MS-20
- II. 12dB High Pass, a precise model of an analogue chamberlain filter
- III. 12dB Band Pass, a precise model of an analogue chamberlain filter
- IV. 24dB Low Pass, a precise model of an analogue butterworth filter with self oscillation and non linearity.
- V. Notch filter
- VI. Formant filter

**FM** – This determines the amount of Frequency Modulation (FM) applied to the filter.

**FEEDBA.** - This is the feedback control for the filter, it controls how much of the signal is fed back into the filter.

## 4.5 Envelopes

There are two envelopes in Saurus that are directly tied to the relevant section they appear in, the Amp Envelope in the global section, and the filter envelope. But Saurus offers an additional envelope called Aux (Auxiliary). This can be used for further modulation of various parameters which can be assigned to the envelope inside the modulation matrix.

*What is an Envelope?*

*An envelope generator allows a synthesizer to mimic acoustic instruments' properties of changing volume and timbre over time. Traditionally, an envelope generator produced a control voltage that varied over time which could be used to automatically change the filter cut off or amplifier volume. There are many different types of envelopes but the most common one is known as an ADSR which is an acronym for Attack, Decay, Sustain and Release which describes the four controls of the envelope.*

*Attack – Is a time value which states how long it takes for the envelope to go from zero to maximum peak when a key is pressed.*

*Decay – is a time value which states how long it takes for the envelope to drop to the sustain level.*

*Sustain – Is a level value which states the highest value while the key is being held down after the Attack, Hold and Decay stages.*

*Release – Is a time value which states how long it takes for the envelope to drop back down to zero after the key has been released.*

## 4.6 LFOs

There are two LFO's available within Saurus. Both are freely assignable from within the modulation matrix and can be used basically anything from modulating the filter cutoff to modulating an oscillator's waveform (LFO>PWM)

LFO WAVEFORM BUTTON – This cycles the waveform for the LFO to be used. The available waveforms are :

- I) Triangle
- II) Square
- III) Saw
- IV) Ramped random



Note: Additional LFO waveforms (Like a sinoid or smoothed versions) can be created by using the filter (X) function in the matrix.

FREQ. - This controls at which frequency the LFO runs; the LFO speed

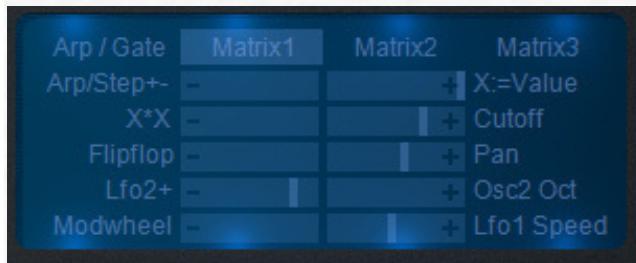
BPM – This will synchronize the LFO's frequency to the host.

PHASE – This will adjust the starting position of the LFO's waveform, when the knob is turned completely to the left it the LFO will be free running.

## 4.7 Modulation Matrix

The MOD MATRIX or Modulation Matrix is a system that allows you to flexibly assign different modulators (such as LFOs or envelopes) to different destinations (such as the filter, amplifier or even other modulators).

There are three modulation matrix pages available, each offering 5 different assignable modulation options.



To use the mod matrix the procedure is very simple :

1. Choose a modulator (modulation source) in the drop-down menu. This is what causes the modulation or changing effect
2. Choose a target (destination) in the drop-down menu. This is what gets affected by the modulation or changing effect.
3. Drag the slider in the center of the bar left or right in a negative (left) or positive (right) direction to increase or decrease the values.

### Source menu options:

**Off** : Default matrix source is set to off

**Vol Env** : The Volume envelope will be used as modulation source

**Filt Env** : The Filter envelope will be used as modulation source

**Aux Env** : The Auxiliary envelope will be used as modulation source

**LFO1+-** : LFO1 in bipolar mode as modulation source, this uses LFO1's negative and positive values

**LFO2+-** : LFO2 in bipolar mode as modulation source, this uses LFO1's negative and positive values

**LFO1+** : LFO1 in unipolar mode as modulation source, only uses LFO1's positive values

**LFO2+** : LFO1 in unipolar mode as modulation source, only uses LFO1's positive values

**Arp/Step+** : Applies the arp's velocity steps as modulation source using only positive values

Off	Random	X*X
<b>Vol Env</b>	Flipflop	Sqrt(X)
Filt Env	WhiteNoise	Filter(X)
Aux Env	PinkNoise	Limit(X)
	Impulse	Key
Lfo1+-	Decay4ms	Velocity+
Lfo2+-	Decay8ms	Velocity--
Lfo1+	Decay16ms	Modwheel
Lfo2+	Decay32ms	Pitchwh.
	Arp/Step+	Afterto.
Arp/Step+-	Decay64ms	Breath
	Decay0.1s	Foot
Gate+	Decay0.2s	MainVol
Gate-	Decay0.5s	Express.
	Decay1s	Hold
VoiceOut	Decay2s	CC16
	Decay4s	CC17
Const	Decay8s	CC18
	Decay16s	CC19

**Arp/Step+-** : Applies the arp's velocity steps as modulation source using both positive and negative values

**Key up** : Applies a On/Off Gate modulation; i.e, on key press its value is 1, on release it's 0

**Key down** : Applies a Off/On Gate modulation; i.e, on key press its value is 0, on release its 1

**VoiceOut** : Applies the amount of active Voices value to modulate

**Constant**: Applies a constant value to modulate, the amount is set by the value slider

**Random** : A random value will be used to modulate

**Flipflop** : An on/off value will be used as modulation source; could for example be used to pan from left to right on keypress

**WhiteNoise** : Uses white noise as modulation source

**PinkNoise** : Uses pink noise as modulation source

**Impulse** : A short impulse is used as modulation source; could for example be applied to sharpen the attack portion of a sound

**Decay4ms > Decay16s** : Decay will use an internal envelope to modulate, options are envelopes that run from 4 milliseconds to 16 seconds.

**X\*X** : Uses the X multiplied by X value modifier as modulation source

**Sqrt (X)** : Uses Squareroot X value modifier as modulation source

**Filter (X)** : Uses the filter X value modifier as modulation source

**Limit (X)** : Uses the Limit X value modifier as modulation source

**Key** : Uses the played note value as modulation source

**Velocity+** : Uses the postive Velocity values to modulate

**Velocity+-** : Uses both the positive and negative Velocity values to modulate

**Modwheel** : Uses the Modulation Wheel as modulation source

**Pitchwheel** : Uses the Pitch Wheel as modulation source to modulate

**Aftertouch** : Uses the keyboard's incoming aftertouch values to modulate

**Breath** : Responds to breath controller (CC#2) as modulation source

**Foot** : Responds to Foot switch controller as modulation source

**MainVol** : Responds to Main Volume controller (CC#7) as modulation source

**Express** : Responds to Expression controller (CC#11) as modulation source

**Hold** : Responds to Hold pedal (sustain) on/off (CC#69) as modulation source

**CC16 > CC 19** : Responds to CC#16 to CC#19 (continuous controllers) as modulation source

**Destination menu options:**

**Off** - The default selection; no modulation destination is selected

**Volume** - Selects the Master Volume control as destination

**Pan** – Selects the Master Panning control as destination

**Spread** – Selects the Unison Spread control as modulation destination

**Cutoff** - Selects the Filter Cutoff as modulation destination

**Reso** - Selects the Filter Resonance as modulation destination

Off	Osc1 Tone	Lfo2 Speed	Matrix4
Volume	Osc2 Tone	Vol A	Matrix5
Pan	Osc1 Noise	Vol D	Matrix6
Spread	Osc2 Noise	Vol S	Matrix7
	Osc Detune	Vol R	Matrix8
Cutoff	Osc Ring	Filt A	Matrix9
Reso	Osc Fine	Filt D	Matrix10
FM	Osc1 Fine	Filt S	Matrix11
Drive	Osc2 Fine	Filt R	Matrix12
Feedback	Osc Semi	Aux A	Matrix13
FilterEnv	Osc1 Semi	Aux D	Matrix14
	Osc2 Semi	Aux S	Matrix15
Osc1 Tune	Osc Oct	Aux R	
Osc2 Tune	Osc1 Oct	X:=Value	
Osc Mix 1/2	Osc2 Oct		Matrix1
Osc1 PWM	Osc Pitch		Matrix2
Osc2 PWM	Osc1 Pitch		Matrix3
Osc1 Mix	Osc2 Pitch		
Osc2 Mix		Lfo1 Speed	

**FM** - Selects the Filter FM control as modulation destination

**Drive** - Selects the Filter Drive control as modulation destination

**Feedback** - Selects the Filter Feedback control as modulation destination

**FilterEnv** – Selects the Filter Envelope control as modulation destination

**Osc1 Tune** - Selects OSC1's Tune control as destination

**Osc2 Tune** - Selects OSC2's Tune control as destination

**Osc Mix ½** - Selects the Oscillator1 / Oscillator2 Mix control as destination

**Osc1 PWM** - Selects OSC1's Pulse Width Modulation (PWM) control as destination

**Osc2 PWM** - Selects OSC2's Pulse Width Modulation (PWM) control as destination

**Osc1 Mix** - Selects the Mix control for Oscillator1 / Sub-Oscillator1 as destination

**Osc2 Mix** – Selects the Mix control for Oscillator2/ Sub-Oscillator2 as destination

**Osc1 Tone** - Selects OSC1's Tone control as destination

**Osc2 Tone** - Selects OSC2's Tone control as destination

**Osc1 Noise** - Selects OSC1's Noise control as destination

**Osc2 Noise** - Selects OSC2's Noise control as destination

**Osc Detune** - Selects the oscillator Detune control as destination

**Osc Ring** - Selects the Ring modulation control as destination

**Osc1 Fine** - Selects OSC1's Fine tune control as destination

**Osc2 Fine** - Selects OSC2's Fine tune control as destination

**Osc1 Semi** - Selects OSC1's Semi notes control as destination

**Osc2 Semi** - Selects OSC2's Semi notes control as destination

**Osc Oct** - Selects the Master Octave as destination

**Osc1 Oct** - Selects OSC1's Octave as destination

**Osc2 Oct** - Selects OSC2's Octave as destination

**Osc Pitch** – Selects the Master Pitch as destination

**Osc1 Pitch** - Selects OSC1's Pitch control as destination

**Osc2 Pitch** - Selects OSC2's Pitch control as destination

**LFO1 Speed** - Selects LFO1's Frequency control as destination

**LFO2 Speed** - Selects LFO2's Frequency control as destination

**Vol A** - Selects the Volume Envelope's Attack control as destination

**Vol D** - Selects the Volume Envelope's Decay control as destination

**Vol S** - Selects the Volume Envelope's Sustain control as destination

**Vol R**- Selects the Volume Envelope's Release control as destination

**Filt A** - Selects the Filter Envelope's Attack control as destination

**Filt D** - Selects the Filter Envelope's Decay ccontrol as destination

**Filt S** - Selects the Filter Envelope's Sustain control as destination

**Filt R**- Selects the Filter Envelope's Release control as destination

**Aux A** - Selects the Auxiliary Envelope's Attack control as destination

**Aux D** - Selects the Auxiliary Envelope's Decay ccontrol as destination

**Aux S** - Selects the Auxiliary Envelope's Sustain control as destination

**Aux R** - Selects the Auxiliary Envelope's Release control as destination

**X:=Value** – Selects the X:=Value destination

**Matrix1 -> Matrix15** – Sets the modulation destination to matrix position 1 through 15

**Osc1 Vol** - Selects Osc1's volume control as destination

**Osc2 Vol** - Selects Osc2's volume control as destination

**Noise Vol** – Selects an internal noise generator as destination

#### 4.8 Gate & Arpeggiator

Saurus also features a dedicated Gate which can be used to modulate volume or any other option within Saurus' modulation system.



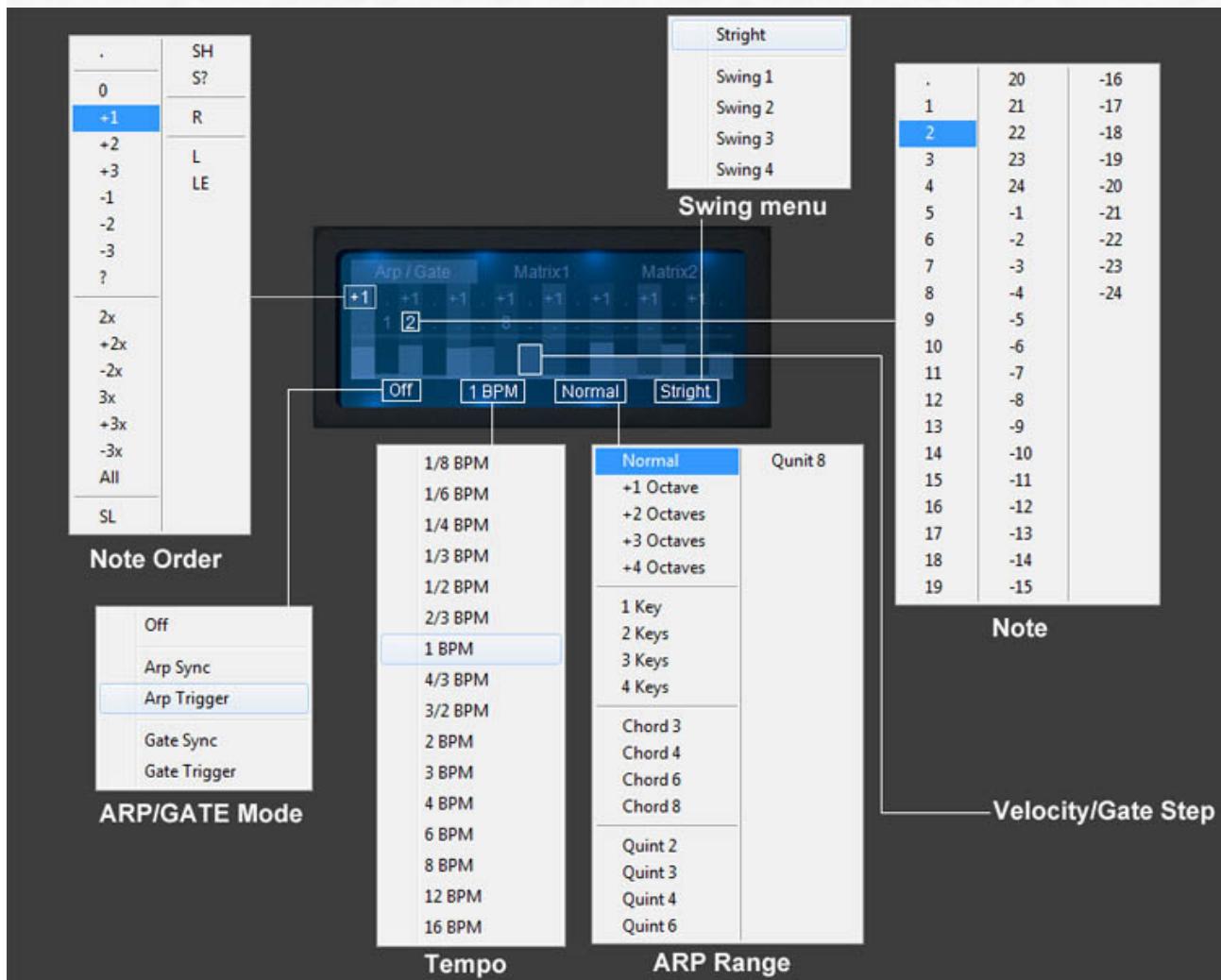
When the Arp/Gate menu is switched to one of the Gate modes the steps will function as a modulation value provider, meaning that each step will output a specific value, these values can then be routed within the Modulation Matrix to setup a Trance gate or drive other types of modulation.

The step values can be edited by click-holding one of the small rectangle shaped steps and dragging them up or down to in/decrease their value.

Note that when in Arp mode these same steps can still be used for Gate and/or modulation purposes, the main difference between the Arp and Gate mode is that in Arp mode the Arpeggiator is also active.

Saurus ships with some very good Trance and modulation gate presets, just open the patch manager and browse to the Gate category to hear some examples.

## Arpeggiator



Saurus has an incredibly powerful arpeggiator with several unique features like the ability to program chord steps, release steps, step velocity and many other ways to program the perfect arp sequence.

A description of all arpeggiator menu options is found below:

**ARP/ GATE mode menu** - This menu is used to set the Arpeggiator / Gate mode

- **Arp Sync:** Enables the arp; synchronized to song
- **Arp Trigger:** Enables the arp; retriggers on key press
- **Gate Sync:** Disables the arp and uses the gate only; synchronized to song
- **GateTrigger:** Disables the arp and uses the gate only; retriggers the gate on key press

**BPM menu** - (Default 1BPM) The tempo function sets the speed for the arpeggiator in multiples of the tempo of your host program. Whole divisions of the tempo (default is 1 BPM – the ARPEGGIATOR's tempo which is the same as the host's tempo). 2 BPM is twice the host's tempo. 8 BPM is eight times the host's tempo, etc. Divisions of the tempo e.g. 2/3 BPM is two thirds of the hosts' s tempo.

**ARP Range menu** - The ARP Range menu is used to set the range of notes used by the arp. When set to normal it will default to playing the current played note only, other settings will generate additional notes based on the menu's current setting and which notes are played.

**Note Order menu** - This menu is used to set the preferred note order

- . - no note is played
- +1 - Plays one note higher
- +2 - Plays two notes higher
- +3 - Plays three notes higher
- -1 - Plays one note lower
- -2 - Plays two notes lower
- -3 - three three notes lower
- ? - Plays a random higher/lower note
- 2x - Doubles the note for that step
- +2x - Doubles the note for that step and plays two higher
- -2x - Doubles the note for that step and plays two lower
- 3x - Triples the note for that step
- +3x - Triples the note for that step and plays three higher
- -3x - Triples the note for that step and plays three lower
- All - Plays all current held notes on this step
- SL - Restart note reorder from lowest key
- SH - Restart note reorder from highest key
- S? - Restart note reorder from random key
- R - Triggers the envelope's release phase
- L - Run arp sequence till here and loop
- LE - Run arp sequence till here and stop (one shot)

**Note menu** - The Note menu is used to set which note should be played on this step, a dot (.) denotes that the currently played note should be used, all other choices in this menu denote semi notes up/down.

**Swing menu** - The Swing menu is used to set the amount of swing used in the arp playback (Default Straight)

To create a more 'human' feel to the arpeggiator, you can increase the amount of 'swing' from 0 (no swing) to 99 (full swing). The swing feature alternately delays and rushes the arpeggiator steps to add feel.

**Velocity / Gate menu** - The Velocity/Gate section consists of a step sequencer that you can use to set the amount of velocity per step. This is used in conjunction with the Modulation Matrix in which the velocity should be assigned to the preferred modulation target.

#### 4.9 Effects

Saurus contains three major effects that can be used globally. These are :

- I) Chorus – a stereo chorus effect with speed and depth controls, the mix amount controls the ratio of dry signal to wet signal.
- II) Reverb – a reverb effect with size and damping controls to fine tune the reverb amounts and its effect.
- III) Delay - A synchronized delay (To host's tempo) with controllable mix amounts and feedback amounts.
- IV) Tube – This controls the amount of analogue tube warmth to be added to the signal.



## 5. Modulation Matrix: the new value modifiers

New in Saurus is the option to use a modifier on the source value, this allows for a smoother control over the original source often giving better results than using direct modulation.

This new modifier approach uses four new modulation sources called: Filter(X), X\*X, Sqrt(X) and Limit(X) X=Value, as well as a new destination target called X=Value



As an example, let's say we want to use LFO1 to modulate the cutoff, however instead of the direct LFO1>Cutoff ModMatrix option we'll use a modifier to do this:

- \* The first thing to do would be to assign a modulation source to our destination X=Value.
- \* Go into the modmatrix and on the first line assign LFO1+- to the destination X=Value, set the slider for this to +80
- \* Next we'll assign one of our modifiers to the Cutoff; on the second matrix line assign Filter(X) to cutoff and set its slider to +70.

You may have to increase the LFO rate a bit but you should now hear the LFO filtering the cutoff by using our Filter(X) modifier.

*What Filter(X) in this case does is apply a low pass filter to the value of X, in other words in the first line we declared that the LFO1+- function was X and on the second line we told Saurus to use the Filter(X) modifier to further modify X's value.*

There are currently four modifiers available:

- Filter(X) - Filters values, very handy to use with for example trance gates to shape the type of volume gate used.
- X\*X - Can be used to further shape modify envelopes, for punchier envelopes for example.
- Sqrt(X) - Also very good to further shape modify envelopes with.
- Limit(X) - Can be used to limit a the amount of modulation by clipping its value within a certain range set with the value slider.

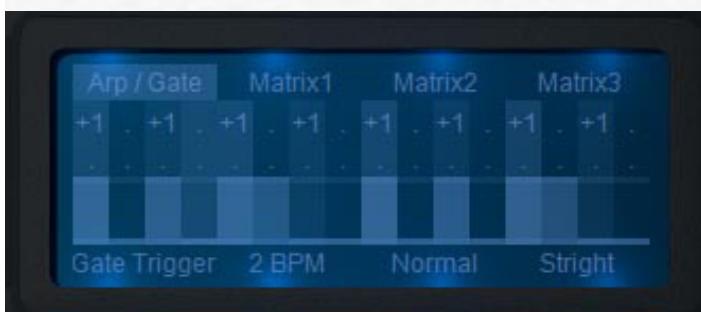
Another example would be to use the X:=Value modifier to program/adjust a Trancegate.

Next to the usual Gate > Volume Modulation Matrix way of setting up a trancegate Saurus now also includes the option to use a value modifier on your trancegate.

The advantage of using a modifier in this case is that it will allow you to manipulate the type of gate, e.g. a smoother or harder type of volume cut.

The following steps will describe how to set this up:

1. Open Saurus
2. In the File menu select INIT ALL to reset all synth features to their default state
3. The first thing we want to do is to setup our Gate, Inside the ARP section click on the Arp/Gate label to show the arp and gate, at the bottom left of this section click on the off label to open the menu; in this menu select Gate Trigger, what this does is use the Gate section triggered on key press.
4. For this example let's go for a classic type of gate, you can see the gate's layout in the picture below, you'll also note I've set the amount of BPM to 2, no particular reason it just sounds better.



Next we'll setup the Modulation Matrix:

5. Click on the Matrix1 label to display page 1 of the ModMatrix
6. Let's begin by routing our modulation source to the X:=Value modifier, on line 1 select Arp/Step+- as our modulation source, for our modulation destination we select X:=Value, set the value slider to 100+
7. The next thing to do is to assign a type of modifier to the intended destination, in our case that would be the Volume. Go to line 2 of the matrix, select Filter(X) as the mod source and Volume as the destination, set this slider to 80+.

Play a note on your keyboard and you should now hear the volume being gated, the nice thing about the modifier being in between the Gate and Volume is that we use the modifier's value slider to adjust our gate, give it a try by moving the second slider from left to right and you'll notice that the gate will change from a hard volume cut to a smoother volume cut.

What the Filter(X) in this case does is apply low-pass filtering to the values used for the gate.

Below you'll see a picture of our Matrix setup:



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