

NOVAKILL ANGSTKILLERmini



ANGSTkILLERmini is the first of **NOVAKILL**'s next generation of VST instrument plugins, based on the newly evolved **XE Platform**. All synths in this line have a very similar structure. The main difference between them is the oscillator used. In the case of **ANGSTkILLERmini**, it is an FM oscillator, featuring a "hidden" oscillator which uses a sine wave to modulate the main oscillator, or carrier.

The "mini" versions of these instruments are freeware. Full versions, featuring multiple oscillators, two LFO and a full Modulation Matrix will be available exclusively with **NOVAKILL**'s new album, **I HATE GOD**, available mid-2008.

WORKING WITH ANGSTkILLERmini

The goal with all the **killer** synths is ease-of-use, without sacrificing sound quality or flexibility. This synth uses a very basic form of FM synthesis, far removed from Yamaha's DX synths of the 80s. It simply uses a [hidden] sine wave generator to modulate the phase of the main oscillator, to create a more complex waveform. By controlling the amount of this modulation over time, it is possible to create interesting and sonically useful timbres without the use of the filter.

To see how it works, start with Patch 64 - **Initializer** and set up a looping MIDI pattern so that you can hear the changes as you make them.

To see how FM affects the sound, increase the **FM Depth** slider slowly, all the way up to 10.0. you should notice that the sound dips a little, at around 2.0, before becoming increasingly harsh. Switch on **x10** and the sound goes wild! Switch it off again and set the value to about 4.0, either by moving the slider or entering 4 into the text field directly. Now drag the third node on the first envelope down to zero, and slowly move it to the left until you can hear the effect it has on the timbre. Set a value that works with the MIDI pattern you have chosen, to create a bassline. Of course, what you are setting is the Decay time for the envelope. The marks on the envelope display's scale roughly equate to a value of one on a slider. I've set my Decay to about 4.

Now press the **EDIT** button to open the **Envelope Editor**. Here you can fine-tune your Decay value and select a slope for the Decay. Press the Decay button repeatedly to see how the different slopes affect the sound. When you have found the one that works, close the Editor. If you want to, you can pull the next node in the Envelope down to zero as well. You can also change the **VCA Envelope** in the same way if desired.

Next, turn the **X-Filter** on. The sound drops slightly. Move the "puck" on the **Filter Mix X-Y Pad** to see how each filter behaves with cutoff at maximum. Leave the "puck" at the bottom, left corner [**Low Pass Filter**], then reduce the **Cutoff** to zero and add some **Resonance** by moving the first "puck" to the bottom, about half-way across. Sound should stop because the filter is closed. Slowly raise the **ENV MOD** slider until you have a sound you are happy with [mine is at about 6.0]. You should now have a decent bassline running. You can add some Velocity and/or LFO modulation to either the FM or Cutoff

to give it more life. Press the **24dB** button to hear how it changes the character of the filter.

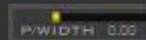
Lastly, change the Waveform of the Oscillator to **Sine** and press the **x10** button. Cool, huh!?! For something even more funky, try setting the LFO wave to **SINE**, then selecting **FILTER MIX-X** as the destination. As you raise the Depth slider, the filter will introduce more **Band-Reject** filter into the mix. Move the "puck" to bottom, centre and step through the Time values to see how it can be used to make your bassline even more interesting.

This is just the tip of the iceberg. Try each of the **WIDE** modes to see how they work. Notice that the LFO can also be used to move your sound back and forth across the stereo field. Try adding a little distortion to your sound. There is a lot of fun to be had here, just by playing around with the controls. Enjoy!

UI CONVENTIONS



SELECTOR - Use arrow button to increment through choices or click on the display for a drop-down menu.



SLIDER - Drag slider handle or enter exact value in the numeric field by clicking on the displayed value.



BUTTON [LED] - In the labelled state when lit.



X-Y PAD - See **X-FILTER** on Page 2



ENVELOPE - See Page 3

CONTROLS

FM OSCILLATOR

WAVEFORM	Select from Sine, Saw Triangle + Pulse
OCT	-2 to +2 octaves
SYNC	Sync waveform start position for all waves [use with Unison on]
MW->FM	Use a Modulation Wheel from a controller keyboard to set the FM Depth
P/WIDTH	Set pulse width [Pulse wave only]
ENV>PW	Modulate Pulse Width with the Envelope
UNISON	No. of Unison Voices
SPREAD	Detune Unison voices for a fatter sound
EDIT	Opens the Envelope Editor window. The Envelope can also be manipulated in the main display window [see ENVELOPES]
FM DEPTH	Depth of Envelope Modulation
x10	Multiply Depth value by 10 [good for Sine and Triangle waveforms]
VEL>FM	Effect of Note Velocity on FM

X-FILTER

The **X-Filter** features two **X-Y pads**. The first controls **Resonance** in the **X** direction [increasing to the right] and **Filter Cutoff** in the **Y** direction [increasing upwards]. The second mixes the four Filter Modes. Clockwise from bottom-left they are **Low-Pass**, **High-Pass**, **Band-Pass** and **Band-Reject** [notch].

Exact values can be entered into the **X** and **Y** numeric fields of the second pad only, by clicking on the displayed value and typing a new one.

LP24	Switch the Low-Pass Filter from 12 to 24dB/octave mode
MW	Use a Modulation Wheel from a controller keyboard to set the Cutoff value
ENV MOD	Modulate the Cutoff using the FM Envelope
VEL MOD	Use Note Velocity to modulate the Cutoff value

VCA

EDIT	Opens the Envelope Editor Window. The Envelope can also be manipulated in the main display window [see ENVELOPES]
VOLUME	Master Volume control
WIDE1	Add a short delay to one channel to spread the sound in the stereo field
WIDE2	Invert one channel to create space in the centre of the mix

MONO Monophonic operation [no Unison]

RETRIGGER Retrigger all envelopes for each new note - Mono mode only

VEL>VOL Effect of Note Velocity on Volume
GATE>VOL Gate Effect to Volume [Trance Gate]

PORTAMENTO Portamento time [Legato only]

LFO

PHASE	Alter the start position of the LFO wave
SYNC	Restart the LFO for each note
WAVE	Select the LFO waveform - 19 available
ROUND	Set Pulse Width [Pulse Wave only] or soften the Random 2 Wave [reduce clicks]
TIME	Set the LFO period [synced to tempo]
DELAY	Add LFO modulation gradually over time
DESTINATION 1-2	Select LFO destination [Slider sets modulation depth]

INVERT Inverts the LFO modulation [good for off-setting Destination 1 & 2]

MW Use a Modulation Wheel from a controller keyboard to set the modulation depth

EFFECTS

The GATE effect can be used to modulate several parts of the synth signal - Oscillator **Pitch** [use with **S&H**], **FM Depth**, **Filter Cutoff** and **Volume** [from a dedicated slider in the **VCA** section]. Create a pattern from the 16-button grid and set up the other parameters for a different type of modulation.

DIVISION	Set the speed at which the pattern plays, relative to host tempo
TIE	Tie adjacent, active steps together into a single, long step
RESET	Reset the pattern for each new note
DECAY	Set the envelope decay for each step
S&H	Sample & Hold adds random strength to "on" value of steps for "human" feel

OVERDRIVE Mixes distorted and dry signal

MW Use a Modulation Wheel from a controller keyboard to set Overdrive Mix

GLOBAL

ABOUT Toggle the About/Welcome screen

ENVELOPES



The two envelopes in this instrument are slightly different. The **VCA Envelope** is a straightforward **ADSR** jobbie, whilst the **Modulation Envelope** has an extra segment before the Sustain level is reached.

Both envelopes use a similar editor window. It offers a larger window for more accurate settings, as well as buttons to change the interpolation [slope] of each segment. Both large and small windows allow the editing of the envelope by clicking on the points and dragging them. The maximum envelope time is fixed, i.e. The first and last points cannot be moved on the X-Axis, and is set to provide roughly the same time as having all sliders on maximum if the envelope were slider-driven. For shorter envelope times, the visual "slack" is taken up by the horizontal line denoting the sustain segment, which gets longer or shorter, depending on the other settings.

It is possible to zoom and pan horizontally within the Editor Window [but not the smaller display]. Simply click and drag, away from any envelope points, to pan left or right. Hold the **SHIFT** key whilst dragging to zoom.

There are buttons to change the slope of each segment [only in the Editor window]. Press repeatedly to cycle through the four modes - Linear, Exponential, Logarithmic and "S" Curve.

NOTE: The first and last points for each envelope can be moved in the **Y**-Axis. This can be handy for the **Modulation Envelope**, as the envelope can start/end with any value, however for the **VCA Envelope**, it is advisable to always ensure that the last point's value is zero [or the sound will continue indefinitely].

MIDI CC TABLE

FM OSCILLATOR

PARAMETER	CC	PARAMETER	CC
WAVEform	21	SYNC	22
OCTave	23	Mod Wheel to FM	24
Pulse WIDTH	25	ENvelope to PW	26
FM Depth	27	VELocity to FM	28
x10	29		
UNISON Voices	10	Unison SPREAD	11

X-FILTER

PARAMETER	CC	PARAMETER	CC
On/Off	12		
CUTOFF	13	RESOnance	14
X-Mix	15	Y-Mix	16
ENvelope MOD	17	VELocity MOD	18
LP24 On/Off	19		

VCA

PARAMETER	CC	PARAMETER	CC
WIDE 1 On/Off	41	WIDE 2 On/Off	42
MONO On/Off	43	RETRIGger On/Off	44
VELocity to VOL	45	GATE to VOL	46
PORTamento	05	VOLUME	07
Attack	70	A Slope	76
Decay	71	D Slope	77
Sustain Level	74		
Release	75	R Slope	79

MODULATION ENVELOPE

PARAMETER	CC	PARAMETER	CC
Attack	60	A Slope	66
Decay	61	D Slope	67
Break-Point	62		
Slope	63	S Slope	68
Sustain Level	64		
Release	65	R Slope	69

LFO

PARAMETER	CC	PARAMETER	CC
SYNC	50	PHASE	51
WAVEform	52	ROUND	53
TIME	54	DELAY	55
DESTINATION 1	56	Depth 1	57
DESTINATION 2	58	Depth 2	59

GATE EFFECT

PARAMETER	CC	PARAMETER	CC
DIVisions	91	DECAY	92
Sample & Hold	93		
Destination 1	94	Depth 1	95
Destination 2	96	Depth 2	97

OVERDRIVE

PARAMETER	CC
Wet/Dry Mix	100

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