

Swamp XT Synthesizer

Timbre – Modulation Synthesizer



The basic features are:

- two digital oscillators running at a time to be selected from
- two PCM-wave oscillators powered by 128 different waveforms or
- two additive wavetable generators to create various waves from up to 31 partials
- one filter (24db Lowpass)
- four ADSR-style envelope generators
- X-Torsion, one Spook effect, one Gator (Gater) effect, XY Super Modulation
- four LFO (bpm-synced)
- one dedicated Pitch LFO (bpm synced)
- one Sample & Hold (bpm-synced)
- one bpm-synced Delay

This synthesizer features 'Timbre-modulation' - now what is it about. Well it is some way difficult to describe as it is processing each oscillator's waveform in a very unique way in changing i.e enriching or limiting the harmonic spectrum making the sound fatter, wider or narrower even til near dissolving it to some way distorted noise depending on the input wave. The input wave's characteristics are really important for what kind of sound you want to have.

While the prior Swamp had an oscillator routing to balance it's output between normal i.e. direct signal and timbre modulated signal which each could be balanced to go to direct out or to filter this has been straightened in Swamp XT: direct und timbre modulated signal can be balance mixed to one signal and the output of both oscillators can be balance mixed too. While the direct and filtered signal can be balanced at the amplifier stage of Swamp XT.

The features of that *Swamp thing* in detail

The sound-sources



There are two oscillators to select from two different soundsources each:

PCM wave soundsource powered by 128 waves each or an additive wavetable soundsources to create a variety of different waves from up to 31 partials. There are 18 inbuilt preset waveforms within the additive wavetable oscillator. The wavetable display can be switched off in order to utilize the XY SuperModulation Pad after having selected or set up a wave. User created waves are store per patch for each oscillator.

Both oscillators can be fine detuned to each other by Detune knob in shifting one osc up while the other one is shifted down at the same amout. An octave range may be selected from -2,-1,0, 1 and 2 by the Octave buttons and oscillator 2 has the option to set a semitone offset. Also there is a Mute button for each oscillator.

The output of each oscillator can be leveled by a button slider below knob for the HighPass filter. This highpass prefilter is right before the Timbre Modulation which itself can be set to a fixed manual setting or modulated by various sources (LFO, EG, S&H). the Timbre modulated signal can be mixed to the direct signal also with the option for manual fixed setting or modulation by selectable source. Both oscillator's output can be balanced by the Osc 1:2 knob also with option to modulate this by variuos sources.

There is the option to load other SF2 files for other waves as PCM soundsources. But you should be aware that Timbre modulation might effect certain kinds of waves less efficient than you might expect or even in a way it turns the wave more or less into some kind of noise. In general Timbre mod works just fine with any single cycle type of waveforms so this is where the additive wavetable oscillators came in really handy and with 31 partials it's not too much work to set it up. In manual mode of Timbre Mod. it might be possible in rare cases you might move over so called „dead spots“ with no sound which is due to phase-elimination as the phase is moved by a delay.

One remark acc. to the wavetable oscillators: these waves are built in an additive way from partials thus it is not like drawing a waveform. Just have a look at the inbuilt Pulse and Saw waves to understand the difference as the resp. waveforms drawn would look quite different as shown in this image:



A note on XTorsion which is some kind of Amplitude Modulation and it's signal is balaced mixed to normal signal into the HPF of osc 2 section. Using the same wave with same setting in both oscillators will hardly affect the sound but using a different octave setting will. Best results will be achieved in using quite different waves.

The Filter section



This is a resonant 24dB lowpass filter which can be modulated by its dedicated ADSR EG mixable to another selectable source like LFO and S&H. Also you might use Velocity to control the Cutoff of the filter with adjustable amount. The resonance (Q) of the filter is adjustable in two ways normal and fine with the latter using an offset so the knob can be used for an optimized finetuning of the upper i.e. most noticeable resonant part.

The Output section



The input for the output amplifier can be mixed between the filtered and unfiltered i.e. bypassed signal via the Byp:Filt knob. This balance mix can be modulated by a selectable source and the output signal be shaped by an ADSR EG.

The Color knob serves as Mini EQ to emphasize or remove lower or higher frequencies. With Saturator / Drive you might enrich the signal up to an overdrive effect. It should be noted that in using other sf2 files you might experience crackles at high Drive settings when playing chords. In order to avoid such simply lower main volume or lower the level of the resp. oscillator to at least about -5.

Spook provides a fairly flexible way to modify the sound adding e.g. some kind of 'metallic' color or even to some flanger like fx.

Delay can be switched on/off and delay time is linked to several bpm related settings. Feedback and delay level are adjustable. Pan (L P R or DP) works in two ways: normal or with delay to opposite direction (see image showing the latter case and the label being used as switch)

Remark: I did make the Attack of Filter and Amp EG more 'snappy' in extending their range below what is actual meant to be 0 which works fine in most cases but it might occur that under certain conditions you may experience some kind of 'Key-clicks' then simply raise the Attack slider a little til those clicks are gone.

The Global Modulators



There is pitch related LFO (PLFO) for use with Mod Wheel but this LFO can also be selected elsewhere. Next to this is an SLFO which is a very slow LFO up to 24 bars for one cycle. LFO1 and 2 are more conventional LFO. LFO3 and LFO4 offer a set of some more complex waveforms with its rate (or speed) to be adjusted by a dedicated knob. Sample & Hold has different modes selectable as sample source and also a knob for variation for the sample source. Also there is a knob for Portamento (time) and a button to switch it on or off.



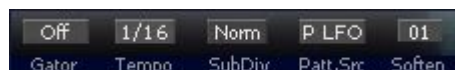
ADSR EG 3 and 4 are like the LFO monophonic modulators i.e. triggering the Gate of the EG comes into effect on 1st keypress with no other key held down along.

XY SuperModulation



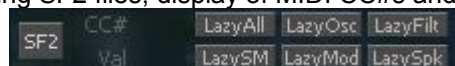
The **X/Y Supermodulation** features 5 fixed destinations and 3 slots for selectable destinations. Auto Mode uses a dedicated selectable mod source for X and Y axis each. While the amount can be adjusted by AutoAmt knobs to positive and negative amount. Also you may select the axis to be used on the destinations even with inverted amount too. Also you can determine the amount of modulation from 0 to 10 for each destination. As this modulation control is meant not as a static control rather than as being in motion via Auto Mode On or by moving the 'joystick ball' manually by mouse or external MIDI device.

The Gator effect



For lovers of trancy gate effects this one has been added. Basically an LFO using a pulse wave to gate an audio signal this one is placed in front of the delay effect for more variety. Also there are subdivisions for Tempo: normal, triplets and dotted notes. Soften allows to smooth the attack/release of the gate. Instead of having fixed patterns I did add a mod source named Patt Src. which in fact modulates pulse width of the LFO so length of pulse is modified for more vivid and varying rhythmical gate patterns. As a thumbrule: tempo of Pattern Source should always be slower than Gator speed. Sources PW F1 to F3 provide a fixed pulse width of about 50%, 66% and 75%. Gator **On S** syncs i.e. restarts the LFO on 1st keypress without any keys held down along, while **On F** does not sync instead the LFO runs free.

This is quite obvious: button for loading SF2 files, display of MIDI CC#s and values plus the Lazy buttons.



Some additional hints:

Using long release settings will increase CPU-usage - remedy: lower release at filter ADSR, lower release at ADSR in master section and raise delay Lvl instead. So in most cases a release just below half way up of the slider will be sufficient to get a fading on the sound. Also fast LFO settings at many destinations consume a lot more CPU than one efficiently set at the most significant target which is in fact in most cases sonically even more efficient for a more pronounced sound.

As of MIDI implementation all relevant and assigned MIDI CCs are shown on the GUI as soon as a slider, knob or switch is moved with the current value shown too..

General hint: When moving a knob or slider you can also press <Ctrl> on the PC-keyboard for fine adjustments. Known bugs: loading a single patch program (*.fxp) to first program number (and only there) may change the waveform of the oscillators. This does not apply when loading a patchbank file (*.fxb)!

Credits, thanks and further info

The Swamp Synthesizer has been created with Synthedit by Jeff McClintock with further modules by David Haupt, Peter Schoffhauzer, Kelly D. Lynch, Etric van Mayer et al.

Preset patches were kindly done by: **Dimitri Schkoda (DS or no sign)**, **Lloyd McKay (lk)**, **HiEnergy (HK)** and **Bob ODonnell (BM)**

H. G. Fortune
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www.hgf-synthesizer.de

The ten voice version of Swamp XT Pro is available via Paypal or ShareIt see: www.hgf-synthesizer.de

The **Free Version of Swamp XT** is limited to 3 voices instead of 10, no SF2 load, only one additive wavetable osc.

Appendix:

List of 128 waveforms used:

000 [ASo]AbstractArc	032 [ASr]InHrmDrill 4	064 [Syn]BigClassic	096 [XFx]Encoder
001 [ASo]AlienQuark	033 [ASr]InHrmSync	065 [Syn]BigSaw	097 [XFx]Flashy
002 [ASo]ArcaneLoop	034 [ASr]Jaws	066 [Syn]BlueSync	098 [XFx]Ghoulzone
003 [ASo]FM-BellyF	035 [ASr]Slow	067 [Syn]Brasstrin	099 [XFx]Hammering
004 [ASo]H2O-Phone	036 [ASr]Square	068 [Syn]BriteBras	100 [XFx]Infernal-rev
005 [ASo]Nothync-H	037 [ASr]Sympho	069 [Syn]Chordy	101 [XFx]InTension
006 [ASo]OutWired	038 [ASr]SyncedOsc	070 [Syn]DigWaveX	102 [XFx]Jungle
007 [ASo]SharpWob	039 [ASr]SynE04	071 [Syn]Drawbar	103 [XFx]Labyrinth4
008 [ASr]BellCave	040 [ASr]SynH03	072 [Syn]GrowlSpit	104 [XFx]Monkish
009 [ASr]CaveMaze	041 [ASr]SynH20	073 [Syn]HollowSaw	105 [XFx]NoiseFume
010 [ASr]DarkRealms	042 [ASr]SynZ13	074 [Syn]Overhome	106 [XFx]NoizMetal1
011 [ASr]DeepAbyss	043 [Cpl]DigiAtck	075 [Syn]Punched	107 [XFx]NoizMetal2
012 [ASr]Digitronic	044 [Cpl]DigiPad2	076 [Syn]SawsLotsOf	108 [XFx]NoizOne
013 [ASr]DistSync	045 [Cpl]DoublePad	077 [Syn]SawsSoftwide	109 [XFx]NoizTube
014 [ASr]FM-D035	046 [Cpl]EerieVox	078 [Syn]Sawyorg	110 [XFx]NoizWatery
015 [ASr]FM-F055	047 [Cpl]FullBrite	079 [Syn]SawyPulse	111 [XFx]OutSpace
016 [ASr]FM-F057	048 [Cpl]FullPad	080 [Syn]ShredSync	112 [XFx]RadioBad
017 [ASr]Fulldrive	049 [Cpl]GhostBreath	081 [Syn]Slurper	113 [XFx]RainCrackle
018 [ASr]IceCold	050 [Cpl]GhostChoir	082 [Syn]SoftyPad	114 [XFx]RoughBras
019 [ASr]India 2	051 [Cpl]GhostSpectr	083 [Syn]Strings	115 [XFx]RoughDigi
020 [ASr]Inharm-015	052 [Cpl]Infernal	084 [Syn]StringSect	116 [XFx]Scrapyard
021 [ASr]Inharm-032	053 [Cpl]Inferno	085 [Syn]Stringz	117 [XFx]ShiftinThru
022 [ASr]Inharm-045	054 [Cpl]MultiMorph	086 [Syn]Synced	118 [XFx]SloMind-r
023 [ASr]Inharm-213	055 [Cpl]MysticVox	087 [Syn]ThinSaw	119 [XFx]S'n'H-Blipps
024 [ASr]Inharm-282	056 [Cpl]Myths 1	088 [Syn]Wahish	120 [XFx]SomeWind
025 [ASr]Inharm-IX	057 [Cpl]PepeGoes	089 [XFx]Al Ham Bra	121 [XFx]SpectralDrv
026 [ASr]Inharm-V	058 [Cpl]Sitaric	090 [XFx]Aliens-r	122 [XFx]StepFlow
027 [ASr]Inharm-VI	059 [Cpl]SpaceAbyss	091 [XFx]BellMaze	123 [XFx]Suspense
028 [ASr]Inharm-XI	060 [Cpl]SynVocPad	092 [XFx]BellNoiz	124 [XFx]SyncInto
029 [ASr]InHrmDrill 1	061 [Cpl]VocNoVox	093 [XFx]CaveDrops	125 [XFx]TalkMaze
030 [ASr]InHrmDrill 2	062 [Syn]AtkDroney	094 [XFx]Demons-r	126 [XFx]Thundery
031 [ASr]InHrmDrill 3	063 [Syn]BigBroad	095 [XFx]DistOrgan	127 [XFx]Woodland

ASo = waves from prior Swamp (as of last edition SE for 'Beat' magazine);

ASr = replacement waves of better quality (similar in character to a lot waves in prior Swamp waveset);

Cpl = more complex waves;

Syn = fairly typical synth waves, less complex;

XFx = FX sounds

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