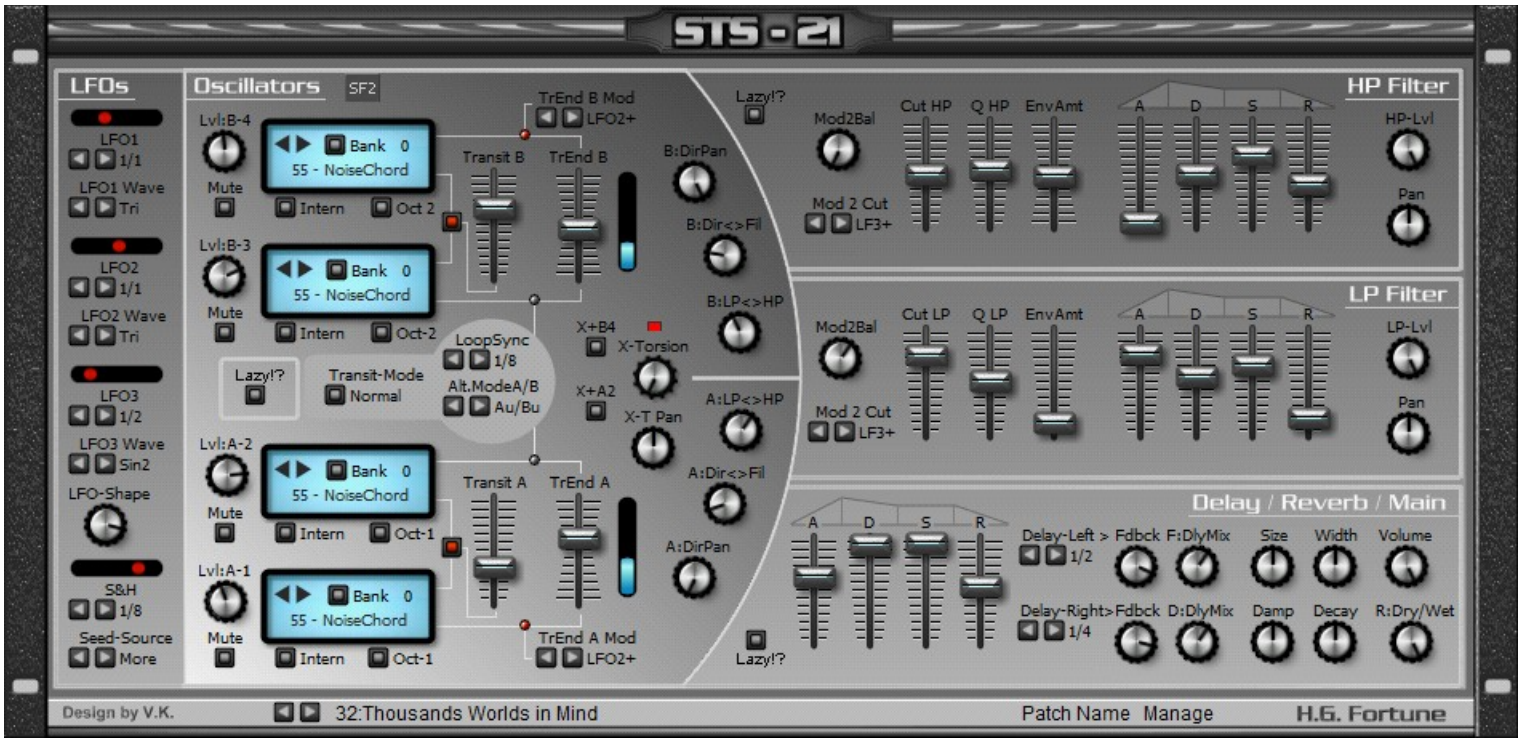
STS-21 Pro – 2011 (free)

The next generation Space Transition Synthesizer



This synthesizer is featuring the eXTended Wave-Transition method plus X-Torsion for absolute unique atmospheres, soundscapes, pads & textures. A very straight userinterface with 3 "Lazy"-Buttons for randomizing different sets of parameters so programming this synthesizer is incredibly easy. The Transition method adds a stunning new dimension and motion for an evolving sound changing completely it's characteristics.

The basic features are:
Four digital PCM-wave oscillators powered by 256 selectable waveforms
X-Torsion function for osciillators
two "Transit(ion)"-modes
two resonant filters (24db Lowpass and 12 db Highpass)
three ADSR-style envelope generators
two LFO (bpm-synced)
one LFO with shapeable and even patternlike waveforms (bpm-synced)
one Sample & Hold (bpm-synced)
one LFO (bpm-synced) for alternate Transition mode
Stereo delay
Stereo Reverb
Added 2011: internal Patch select, Patch (re-)name & Manage,

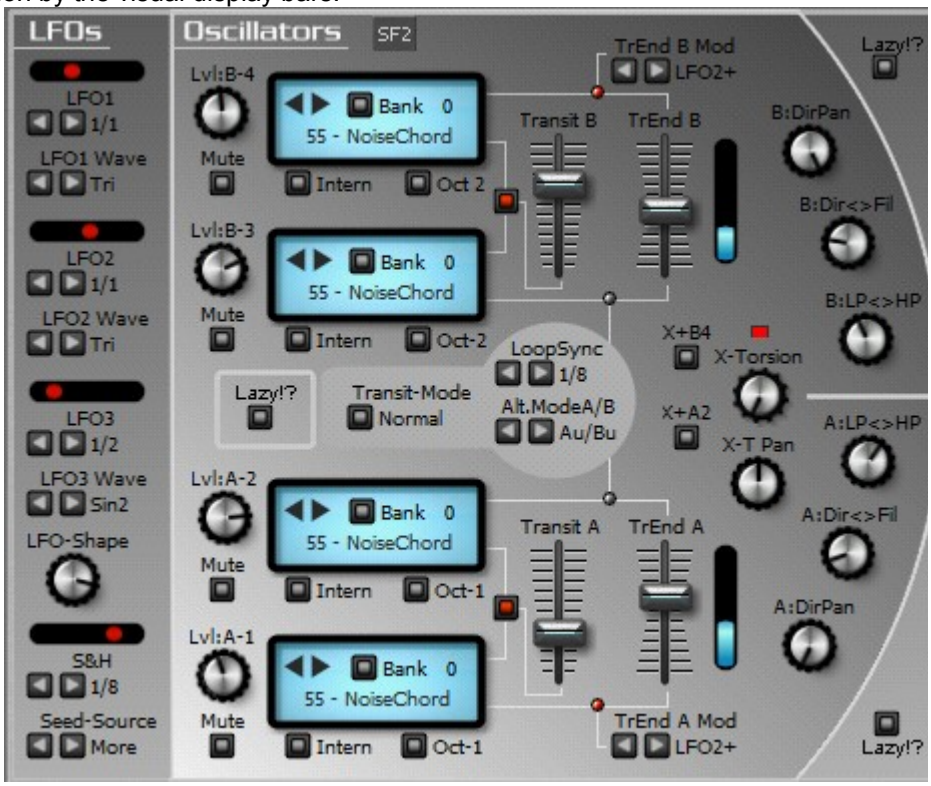
Although this is an amazingly "simple" structured synthesizer it gains its astounding sound from the Transition method between the oscillators.

The Pro version incorporates loading of Soundfonts (see/use buttons next to label Oscillators) & wavefiles (up to 24 Bit),

The features of the STS-21 Synthesizer in detail

The sound-sources

Four **digital oscillators** have a set of 120 selectable PCM-waves (78 in free) as soundsources. Each oscillator has a **[Level:]**-knob and can be set to -2/-1/0/+1/+2 **[Oct]**aves.
The outstanding feature of this synthesizer is the adjustable transition from one wave to the next via the **[Transit >]** sliders and with the advanced system with adjustable **[End]**point plus modulation on this separate for each section. Modulation is affected after the transition has reached it's end (or upper oscillator) and if **End** setting is lower fallen back to this point. The **End** point is determined by the resp. TrEnd slider setting so in middle position both oscillator will sound equally.
Note: since version 2.1 the order of oscillators resp. sections has been changed from top to bottom to reflect the moving of transition by the visual display bars.



Notes: Switching between Internal (sound source), User-SF2 (load User soundfonts) and Wave (file loading) is available in the Pro version only. See appendix for addidional notes! Selection of internal waves via dropdwon list simply click on wave name (not on 'Waveselect').

New to the STS-21 is the mode selector for two transition types:
Normal is a combination of the known STS transition with the additional option to activate transition for osc section A and B seperately. Thus you can use e.g. Transition for section A and have section B as two normal oscillators playing without transition or vice versa. Switching off both transition the STS-21 is like 4 oscillator synthesizer.
Alternate is the new mode providing ***alternating and bpm-synced*** transitions between section A and B which is also synced to first keystroke or a new keystroke when no other keys are pressed - thus playing legato will simply follow tempo without retriggering the Startpoint. Both Transit > sliders are not used in this mode. The lit/unlit LED show what signal path is active in each mode.

You can also adjust levels of each osc-section (A & B) by knobs to go to direct out or filter by knobs **[A:Dir<>Fil]** & **[B:Dir<>Fil]** and also balance the output to filters between Hi-Pass and LowPass by the knobs **[A:LP<>HP]** and **[B:LP<>HP]**. Also you can determine a pan setting for each section's direct out by **[A:DirPan]**& **[B:DirPan].**

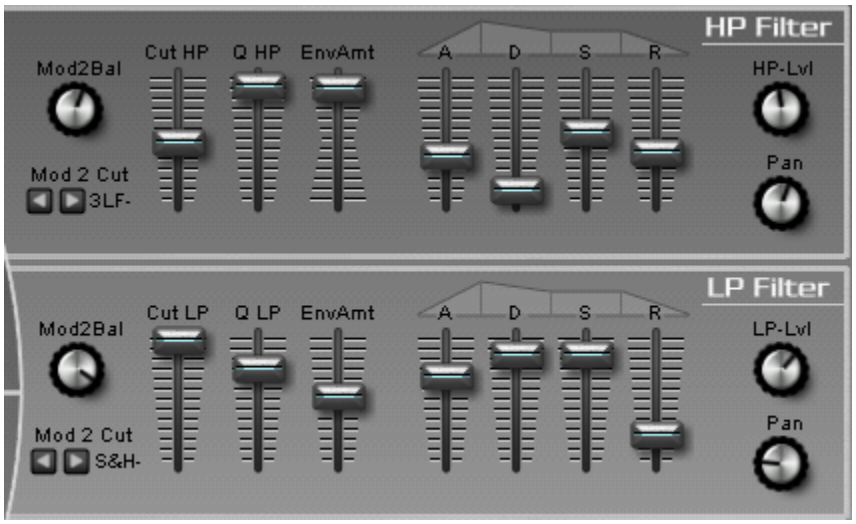
The X-Torsion is a variant of Ring- & Crossmodulation of the Oscillator-outputs. This signals goes directly to the outputsection and it's level is determined by the X-Torsion knob. Also You can add or remove Osc A2 and B4 to

be used within this function. Sometimes the effect of X-Torsion is more noticable if not all oscillators are used. Also it might occur at some wave-combinations that the effect is less prominent than with other combination. Finally it should be noted that in a few cases the output level of this function might lead to increase up to +4db - in such cases lower the the knobsetting of the X-Torsion knob. There is a Peak LED indicating overload in red.

The **[Lazy?!]** knob in this section changes at random waves, Transit-settings, Mix-amount of the signal to Filter and direct output as well as the Mod-Amount to this Mix-setting. Level and Octave setting are not touched.

Filter section

The signal of digital oscillators can be routed to a 24 dB LowPass and/or 12dB High-Pass Filter both with resonance (Q). Cutoff frequency **[Cut]** and Resonance **[Q]** are adjustable for each filter separately with the respective sliders.



Both **[A] [D] [S] [R]** envelope generators let you adjust the way the filter works on the incoming signal with **A**ttack, **D**ecay, **S**ustain and **R**elease providing the shape on filtering. With the **[EnvAmt]** – slider you can adjust the amount of this modulation on the filter. You won't need Release here much or this envelope at all, as the modulations by LFO and S&H provide a far more interesting motion in sound. The Release is quite CPU-hungry.

As further modulation-source serves a selectable LFO (one with patternlike waveforms too plus Shape knob!) and a Sample & Hold generator synced to host-clock (see LFO section below). The **[Mod2Cut]** buttons activates the modulation-source to the respective destinations with an adjustable amount from the **[ModBal]** knobs balacing to EG-amount. (+ is normal modulation while - is inverted modulation.) In contrary to the prior released prototype the the number of LFO-mod sources has been increased even to combinations of two or three LFO.

The Output level of each filter can be adjusted separately by **[HP-Lvl]** and **[HP-Lvl]** knobs as well as the panorama setting by the **[Pan]** knobs.

The **[Lazy?!]** knob changes at random values of all sliders and knobs in this section.

LFO section

The LFOs provide a visual display to watch motion.
All LFO and Sample & Hold are bpm synced to tempo.

LFO1 and LFO2 are basically meant for the Transition function but can be used as mod source for filters too.

LFO3 is featuring patternlike waveforms plus Shape knob

The **S**ample **& H**old generator provides a random modulation signal like pulses at varying levels instead of a continous / forseeable modulation from a selected wave of the **LFO**. With the **[Seed-Src]** button you can change the characteristics of the S&H pulses: Less (peaks), More (peaks) and Up & Dn types for ascending or descending motion preferably at lower rates.

The Output-section

The output section provides an **[A] [D] [S] [R]** envelope generator for shaping the overall signal with **A**ttack, **D**ecay, **S**ustain and **R**elease.

A Stereo delay is synced to host clock with several selectable division-settings for left and rigth seperately. Also Feedback amount is adjustable separately for left and right.
[F:DlyMix] serves to adjust of the amount of filtered signal while **[D:DlyMix]** serves to adjust the amount of direct signal to the delay section.
The reverb is rather selfexplanatory. Use **[R:Dry/Wet]** to adjust the amount of reverb to the overall signal.

The **[Lazy?!]** knob changes at random values of sliders and knobs in all sections.

Hint: Using long release settings will increase CPU-usage - remedy: lower release at filter ADSR, lower release at ADSR in master section and raise delay MixLvl 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.

!! Patches from other/prior STS versions can't be used within the STS-21 Pro but is (for now) compatible to STS-21 free !!

Credits and further info

The STS-21 Synthesizer has been created by H. G. Fortune with Synthedit by Jeff McClintock.

Thanks go to:

Patches were kindly done by
Annabelle (ANN)
Dimitri Schkoda (DS or no sign)
Aron Elvar (AE)
Vera Kinter (VK) – also for doing the GUI Graphics
Phil Garrison (PG) [www.complexlogicrecordings.com]

This VSTi uses further modules by David Haupt and Lance Putnam

Another thanks go to Dr. Christian Gritzner for providing some synthesizers to be used as sample sources.

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official support forum on kvr: http://www.kvraudio.com/forum/viewforum.php?f=149

HGFortune Synthesizer on facebook (feel free to use I like ;-):
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Open group for users, fans, friends and supporters: on www.facebook.com
This is not a technical support forum but is for news, communication among users e.g. sharing ideas, images, videos and music.

Thanks to all who have helped and do support my work!

H. G. Fortune

Appendix 2 List of samples / updated Pro version (free) 2011 with 2 banks of 128 samples

bank 0

000 MovinJaws	032 CharmLoop	064 CS+Orch	096 MSawBras
001 Fat-5th	033 AlienSpectr	065 4Score	097 SawPad
002 AnLead	034 SpaceRide	066 BrassFake	098 SynSquarA
003 3FatOsc	035 FarHorizon	067 RealBrass	099 FM2Slow
004 AnFatSync	036 FroAndTo	068 ShiverBras	100 Metallic
005 DistSync	037 Tundra	069 Trumping	101 MetAtkF
006 MetalSync	038 InTheWoods	070 GongyFlute	102 FatQuyer
007 6T-SloSub	039 Rain&Crackle	071 FNV-Syn	103 Huuoouh
008 6T-Fatt	040 FX-OscStorm	072 CleanDigi-Z	104 ArcaNostra
009 6T-Horned	041 FX-Flash	073 FuzzDigi Z	105 Nocturnal
010 QQH-Waving	042 FX-Scrubber	074 FlowLoop	106 SpookBell
011 Digital X	043 FX-Riser	075 TalkLoop	107 SpaceBells
012 AuraWave	044 FX-U-F-O	076 MoltenBell	108 Bella Donna
013 MinAtmo	045 FX-Stopper	077 BigGongL	109 BellMagic
014 XtraOrchst	046 FX-Tumble	078 Interstellar	110 SynAthmoL
015 Symphonic	047 KS-Spectral	079 Overdrive	111 AsianMetal
016 OrcStrings	048 KS-Nebulous	080 Fat-CS-080	112 Mythosfer
017 BreathVoc	049 KS-EthnoBlo	081 MajesticBrass	113 ChoirString
018 HallVox	050 JapFlute1	082 Orkestra	114 BenVoxMet
019 TubeVox	051 HuanFlute	083 SyncedOsc	115 SwellStrs
020 VoxOouh	052 BottleVox	084 FogString	116 NoiseChoir
021 LowVox	053 CathOrg	085 MysticVox	117 FogChoir
022 Gregor-Oh	054 NoiseChord	086 FaintVox	118 KS-HumOhh
023 FakeVox	055 NoiseOne	087 Bassical	119 MinorAtm2
024 TubeBell	056 JetNse	088 KS-FatBras	120 InsideTube
025 BellPad	057 TubeNse	089 KS-Syncer	121 HauntedPia
026 BellWave	058 VoxyNse	090 ModChord	122 DXEP-Base
027 MovinBell	059 MetalNse	091 Chord2	123 JustAFlute
028 DropDown	060 OrganaVox	092 KS-Pudding	124 Florida
029 BongBell	061 DrawbarOrg	093 PPG-OrgVox	125 OutLand-2
030 PitchGong	062 FarFeesa	094 PPGVox	126 SparklyGls
031 ArcaneBells	063 FullPipes	095 Octavian	127 OmziFMyth

bank 1

000 [Cpl]Arcanasque	032 [Orc]Blasomatrix	064 [Syn]BariSync	096 [Syn]SawsWet
001 [Cpl]Aphrodisia	033 [Orc]Bowed	065 [Syn]BellPadBreath	097 [Syn]SawyPulse
002 [Cpl]ArcaNostra	034 [Orc]BowedStrs	066 [Syn]Belltronic	098 [Syn]ShredSync
003 [Cpl]AtckSphere	035 [Orc]BroadBras	067 [Syn]BigSaw	099 [Syn]Simplify
004 [Cpl]BellCave	036 [Orc]ClassicStrn	068 [Syn]BriteBras	100 [Syn]Slurper
005 [Cpl]Cinematic	037 [Orc]Ensemblon	069 [Syn]BriteFive	101 [Syn]SoftDigiBell
006 [Cpl]DarkRealms	038 [Orc]EthnicVoc	070 [Syn]Claviculi	102 [Syn]SoftyPad
007 [Cpl]DigiPad2	039 [Orc]Fanfare	071 [Syn]DigWaveX	103 [Syn]SquawSaw
008 [Cpl]DigiString	040 [Orc]FarFeesa	072 [Syn]FullPoly	104 [Syn]Stringz
009 [Cpl]EerieVox	041 [Orc]Frankenhorn	073 [Syn]FogHorn	105 [Syn]ThinSaw
010 [Cpl]Enigmatic	042 [Orc]gOrgantic	074 [Syn]GoodLow	106 [Syn]TurblinHi
011 [Cpl]FemBreath	043 [Orc]Gorgue	075 [Syn]GrowlSpit	107 [Syn]TurblinLo
012 [Cpl]GlassBlojob	044 [Orc]Ham'n'Egg	076 [Syn]HiPassed	108 [Syn]Voices
013 [Cpl]GlassyZone	045 [Orc]HeavyOrgl	077 [Syn]HollowSaw	109 [Syn]WarmAnalog
014 [Cpl]Grumbling	046 [Orc]LongAhhh	078 [Syn]HvyBrite	110 [xFx]Chicadas
015 [Cpl]Guevercin	047 [Orc]LongOoouh	079 [Syn]HvySyncFZ	111 [xFx]Clocks-rev
016 [Cpl]H2O-Phone	048 [Orc]NoVocal	080 [Syn]HybridBras	112 [XFx]Demons-r
017 [Cpl]NTropic	049 [Orc]OrganaVox	081 [Syn]LiteSync	113 [xFx]FantaBars
018 [Cpl]SoftAtkPad	050 [Orc]Organox	082 [Syn]LowXsaw	114 [xFx]FantaB-rev
019 [Cpl]Unexpected	051 [Orc]OrgueStr	083 [Syn]MedSyncFZ	115 [xFx]GlissHarp
020 [Cpl]VocNoVox	052 [Orc]RealViolins	084 [Syn]MChordy	116 [xFx]HarpGliss-rv
021 [Cpl]VoxObscura	053 [Orc]SadFemale	085 [Syn]Narronics	117 [xFx]Haunted-rev
022 [Cpl]VoxPlus	054 [Orc]SmokeH2O	086 [Syn]Nasalic	118 [xFx]Realms
023 [Cpl]WideDigi	055 [Orc]Stringelized	087 [Syn]Nopia	119 [xFx]ResoBubble
024 [Orc]AaaOhhhs	056 [Orc]Superstr	088 [Syn]OmniSaw	120 [xFx]SamUnhold
025 [Orc]AirVoice	057 [Orc]Synphony	089 [Syn]OpenJaws	121 [xFx]SeaSide
026 [Orc]ArtVox	058 [Orc]UnOrganic	090 [Syn]OscarSync	122 [XFx]S'n'H-Blipps
027 [Orc]Asianic	059 [Orc]Voxodont	091 [Syn]Overhome	123 [xFx]StormWind
028 [Orc]Aspiration	060 [Orc]VStrings	092 [Syn]PepeGoes	124 [xFx]UnNatural-r
029 [Orc]Bellatrix	061 [Orc]WideStrngs	093 [Syn]ProphetSaws	125 [xFx]Voegelei
030 [Orc]BestAttack	062 [Orc]XtraOrchst	094 [Syn]SawsOff	126 [xFx]VX-Storm
031 [Orc]BigOrchStr	063 [Syn]AtkOpnBrass	095 [Syn]SawsSoftwide	127 [xFx]WaterStream

Appendix on Soundfonts SF2 and wave files

General note: place all SF2 and wavefiles you want to use into the subdir which has been created by the STS (e.g. C:\somewhere\VSTplugins\HGF\STS-xx\ ) you can also have subdirs there. The VSTi will automatically point to this STS subdir so it is more convenient to load files from there.

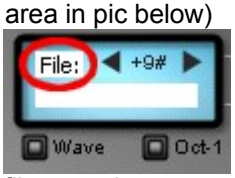
Note on SF2-files:

Although you can use basically any SF2 around there are two limitations: the internal SF-Player does support only one layer from an SF2-preset or instrument (the bottom one as seen in Vienna) and the synthfunctions of the SB-hardware are not supported as a specific SB soundcard is not needed.

Notes on Loading wave files

it is possible since Ver 1.4 to load wavefiles (loops supported) directly into the STS serving as oscillators/soundsource. from V2.1 wavefiles up to 24 Bit are supported.

To load a wave file click on '**File:**' (see marked area in pic below)



You can also set an own rootnote for the wave files now in steps to 11 halftones up using left/right arrows.

Anyway this feature is useful for testing wavefiles within the STS so you can do a quite easy selection of waves to be gathered into an SF2 file later as it is more convenient to switch between different waves rather than loading a wave from somwhere on your harddisk. Also this setting is stored und restored when loading that SF2 on next sartup again.

HINT: When storing a patch the location of the wavefiles loaded is stored as well in order to reload these when switching to that preset. So You should keep in mind that deleting wavefiles used within presets will lead to an error-message! **Due to this it is more advisable to use single patches stored as .fxp rather than complete banks stored as .fxb.** Worst case might be when loading a complete bankfile (.fxb) with stored information of files now deleted will lead to a whole bunch of errormessages. Now You know about it so it is up to You to take care in advance. So SF2 files are a better solution in handling a whole bunch of samples.

The STS wave file capability **is obviously not made to play drumloops, basslines or melodic loops** used typically by programs like Magix Music Maker (tm) although there might be a few (better: very few) exceptions as always are.

Best results will be when using looped instrumentsamples, FX-sounds or samples alike those used within the STS. Ideally waves to be played should be tuned to C (best is C4 or C5) in order to correspond to the MIDI-keys on a keyboard. It is best to use monosamples, stereosamples can used but will be processed as mono-signals. Stereosound is done at the outputsection.

MIDI-Implementation of Continuous Controllers (CC) for sliders & knobs

=CC# (recognized data valid from 0-127)

A:		LP:		Amp	
Dir:Fil	= 11	Cut	= 70	A	= 90
LP:HP	= 12	Q	= 71	D	= 91
ModSrc	= 13	A	= 72		
DPan	= 14	D	= 73	Fdbck L	=92
		S	= 74	Fdbck R	=93
B:				FDlyMix	=94
Dir:Fil	= 15	EnvAmt	= 75	DdylMix	=95
LP:HP	= 16	Mod2Src	= 76		
ModSrc	= 17	Mod2Bal	= 77	Reverb:	
DPan	= 18	Lvl	= 78	Size	=102
		Pan	= 79	Width	=103
Transit A	= 19			Damp	=104
Transit B	= 21	HP:		Decay	=105
End A	= 22	Cut	= 80		
End B	= 23	Q	= 81	LFOs	
Mod A	= 24			1 Sync	=106
Mod B	= 25	A	= 82	1 Wav	=107
		D	= 83	2 Sync	=108
Wav 1	= 26	S	= 84	2 Wav	=109
Wav 2	= 27	EnvAmt	= 85	3 Sync	=110
Wav 3	= 28	Mod2Src	= 86	3 Wav	=111
Wav 4	= 29	Mod2Bal	= 87	3 Shape	=112
		Lvl	= 88	SH Sync	=113
Wave-Lvl1	= 116	Pan	= 89	SH Wav	=114
Wave-Lvl2	= 117				
Wave-Lvl3	= 118				
Wave-Lvl4	= 119				

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