Quod FM
Manual

www.eskahome.at

What is it ?

A four time multitimbrale softsynth (VSTi) for Windows based on FM . And some more.

Wy does the World need this?

My intentions: bringing multitimbrality und microtuning to a userfriendly level and following my old Idea:
to split technically the composition (as setting) from performance (organising in time) .

Possible applications.
During produktion: Rapid sound search with " load on select" at the browser page.
Live: Quantize to scale and beat, chord pad, livechannel. The channelfader gives quick access to singleouts.
MidiDJing: midisequences may get scale and beat -reformated, notevents can trigger stops or retriggerevents

Special features.

Undertones: Subharmonics are not calculated the usual way as octaves but in the relation 1/n as known from the Trautonium. You can still get the octaves (1/2,1/4,...)

All control signals in the synths are BPM related, everything that is switched and the turning points of the envelopes are quantized to timebase.
Envelopes can be stretched with the slowdown controllers up to faktor 256 .

Incoming notes can be scalequantized seperate for every synth, quantizing can be changed dynamicly via the controlchannel . Scalequantizing affects also the S&H to pitchmodulation signal inside a synth. (algorithmic scalecorrected melody generation)

Notes, envelopes ect. get synchronized to the sequencer (PPQ) and , if choosen, quantized to beat.

Livechannel:Send incoming notes via **Controller 63** from the basechannel to the other channels. On Channelchange all notes will be set to release to avoid drones. A more "intelligent" way to achieve this will come..

Load on select: At the browserpage selected files are loaded directly, old data is buffered and can be restored before leaving the page. Running notes do not get stopped or restarted, parameterchange is written to the running note.

Chord Pads: A 16 x chord memory designed like a 4 x 4 fingerdrumpad. Pads can be played with the mouse or from midi .(Note 73-89). The 4 octaves below and-or Controller 88 transpose the output..

Retrigger: The last n incoming notes on a synth channel are remembered and can be played again with a button/notein.

CPU-Load Pentium.M 1,9GHz 15% -16 Voices . Core Duo 2,4 GHZ 5,3% - 16 Voices.

The demo version stops audio after ca. 10 minutes and shows a message. You have the usual choice: restart or register.
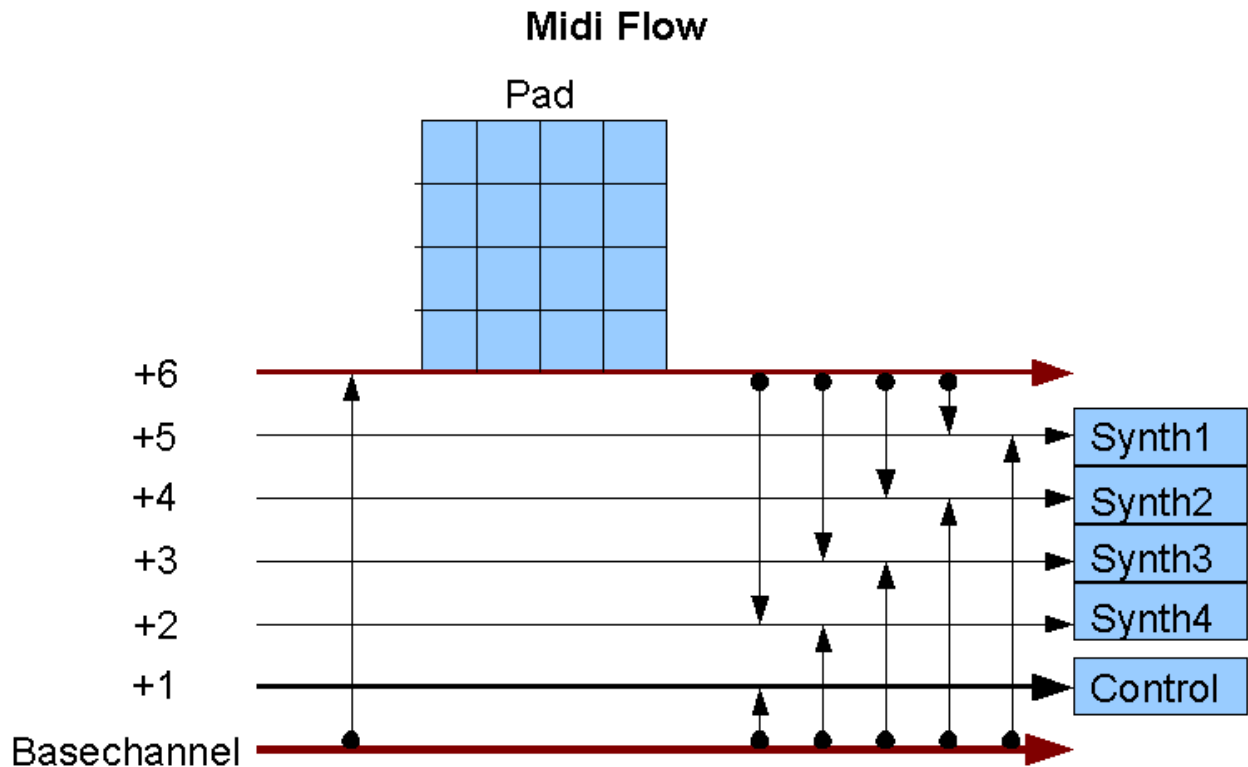
This Manual

does not explain any synth basics, so it is currently not made for the absolute beginner.
Important is the midi-flow picture, as it shows the seven-channel basic struktur of the Quod-series.
Who likes to read manuals anyway . And yes, my first language is not english.

Install

Copy the QUODfm.dll, the QUODfm.ini and the QUODfm Folder to the folder \Vstplugins. Later the tunings and the preset folder can be placed anywhere on your HD. You can choose the directories with "Set Dir" at the browser page, the plugin will remember that. The Quod can have up to eight seperate outputs - or four stereo - keep that in mind. Mainout is always 1-2 .
To start just open the control page and play some presets with the pads.
Requirements: Win 2000 and up, a SSE kompatible Processor (PIII and up).

Midi Flow

Pad

+6				
+5				Synth1
+4				Synth2
+3				Synth3
+2				Synth4
+1				Control
Basechannel				

Quod FM is controled by seven midichannels , numbered upward from the basechannel.
Basechannel input can be sent without drones to the other channels.(Livechannel=Controller 63) .
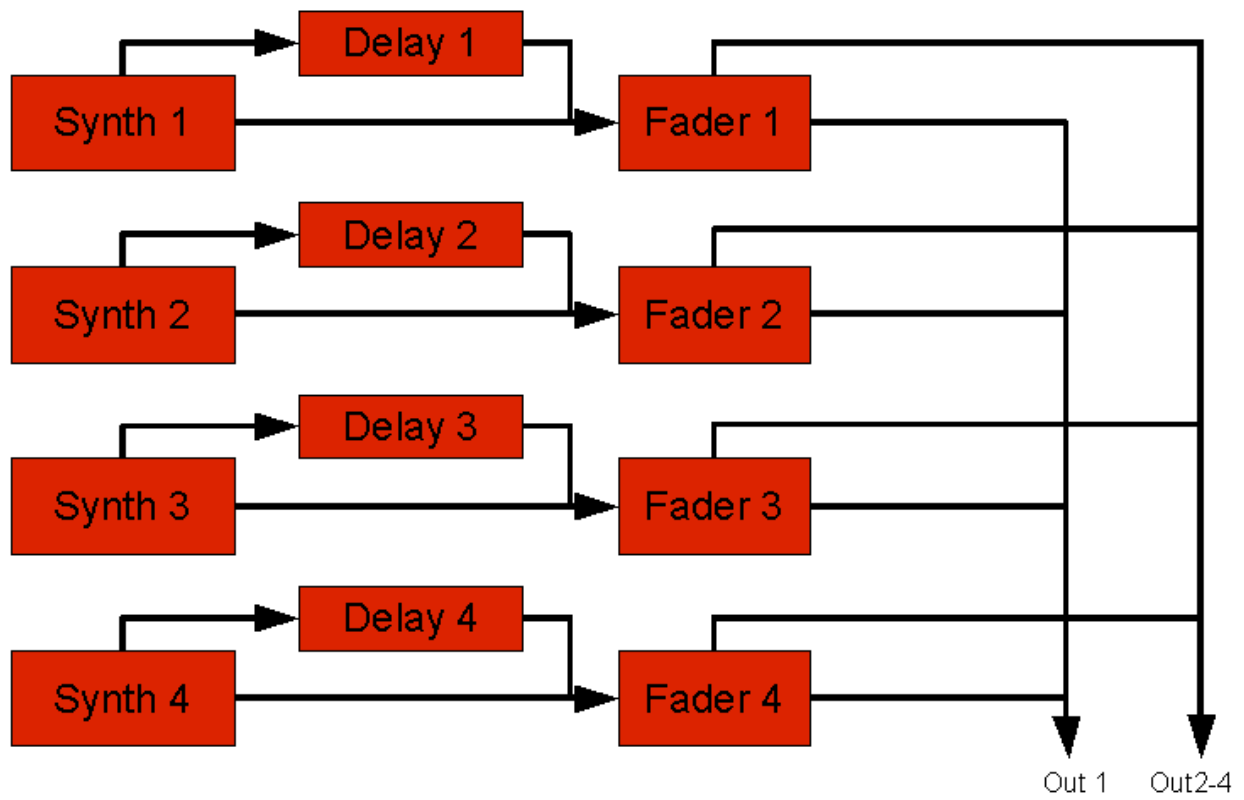You can still use te other channels for sequences etc..
At the controlchannel (BC+1) the Quod recieves all the controlchange messages for the synths and
the mix. Additionaly you can sent noteons to change the scalequantizing , to mute a synth or delay
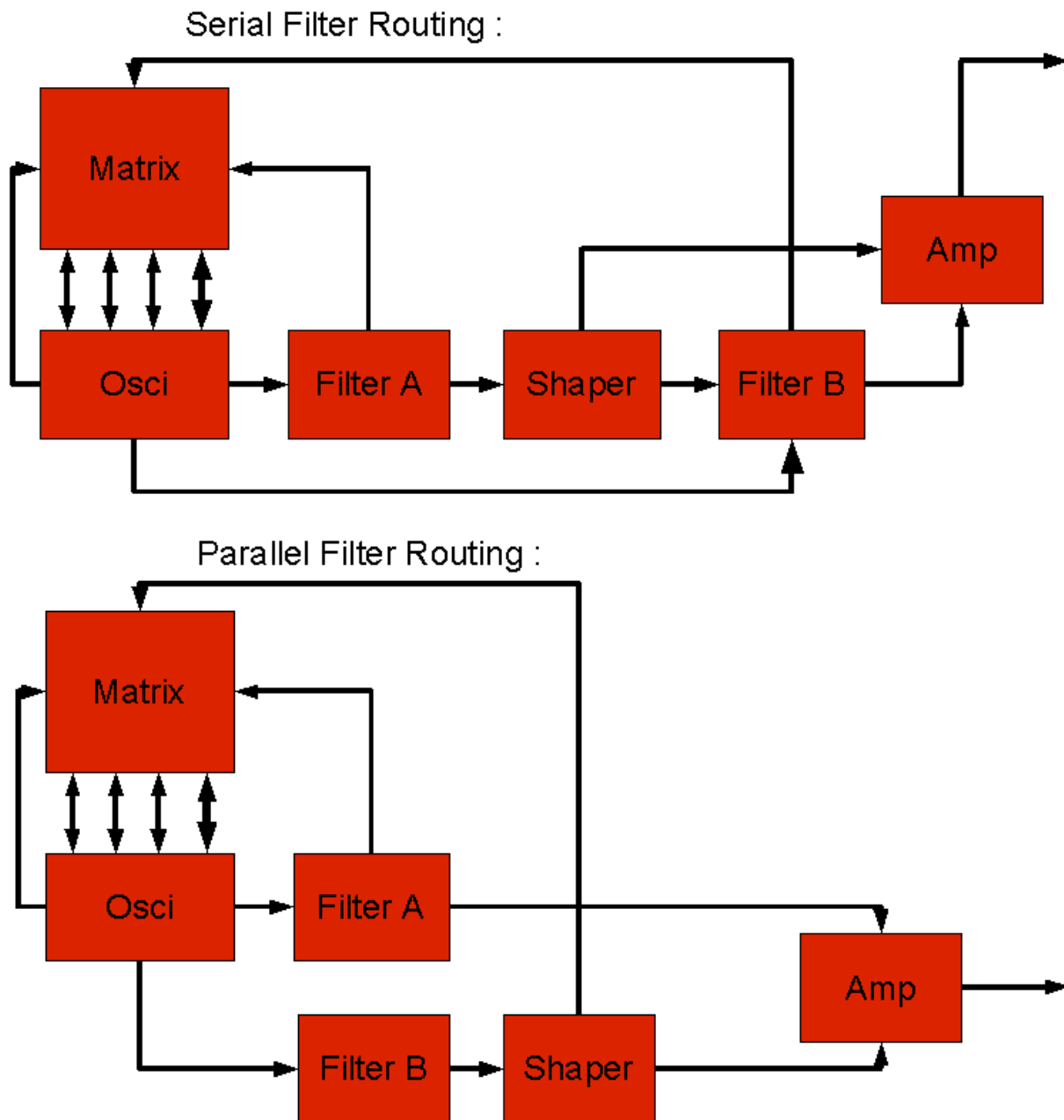and to retrigger collected notes.
The channels BC+2, BC+3,BC+4 und BC+5 are reserved only for synth noteinformation .
Channel BC+6 controls the pad, a 16x chordmemory accessing the four synths.
All channels can be played from the livechannel to, so you can for example, play live over a
multichannel sequence!

Audio Flow

Serial Filter Routing :

Matrix

Osci → Filter A → Shaper → Filter B → Amp

Parallel Filter Routing :

Matrix

Osci → Filter A

Filter B → Shaper → Amp

Synth Audio Flow

The pages.

Declarations. (Parameter groups).

Red bar: Parameter (Slider)
Blue bar below: Modulation impact.
- For smaller steps hold shift while editing..
Black letters with a black triangle at the right: Controlmatrix Menue. Right click.
Black letters with a red triangle at the right: Audiomatrix menue. Right click.

Black letters without triangle : Swich. Right click.
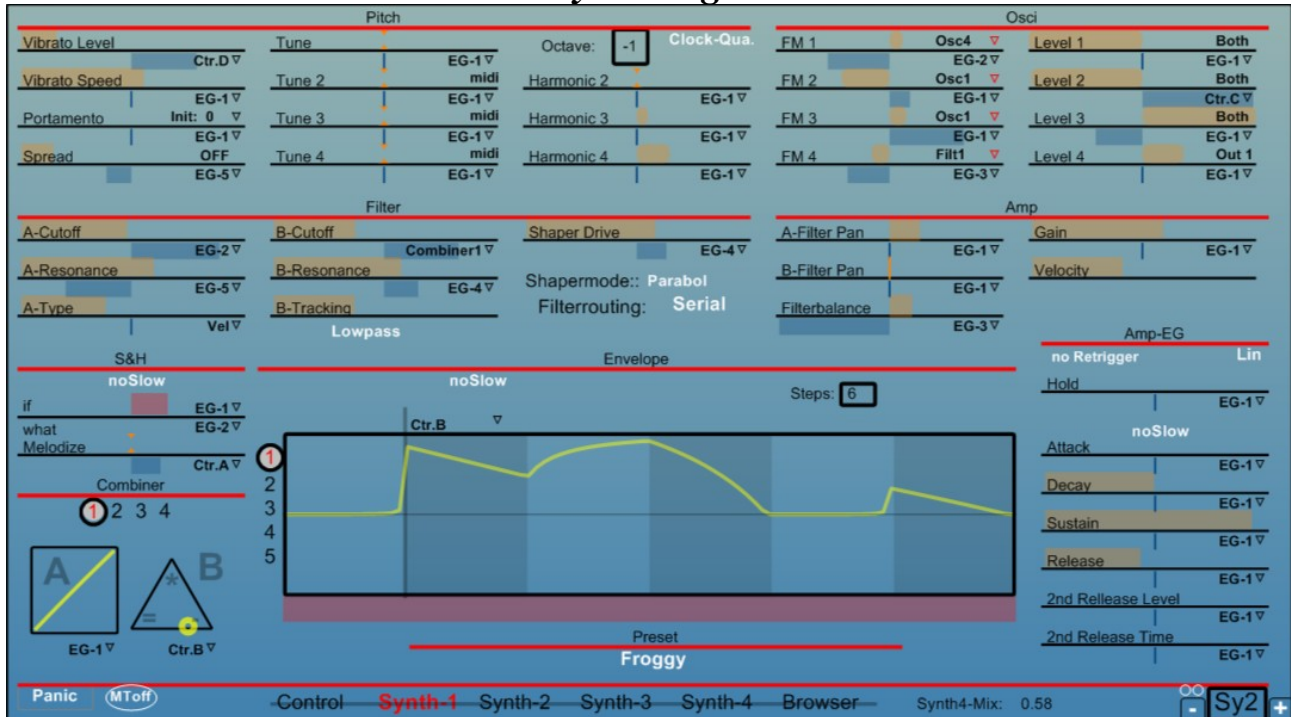White letters: A switch. Left click .
A number in white circle: switches the instance of an envelope, combiner.
Black number in a black box: Parameter.
White letters in black box: Action Pad, left click to trigger, right click to open the editor .
The 4x4 pads are played with the left mousebutton, the height inside the single pad defines the velocity. Right click on a field opens the editor. While editing with th left you can still change the pad with a right click.

Synth.Page

Pitch Block
Vibrato Level:
Exactly.

Vibrato Speed:
Vibrato Frequency.

Portamento:
Portamento is polyphonic. Up to the number of voices a synth uses notes start with an offset defined in the Init menue at the right side.

4+Spread:
Eight simple sinusoscillatores, detuned , added in pairs to the Oscis .

Tune:
Oscillator fine tuning.

Octave:

Base octave .

Harmonic:
Detuning for the oscillators 2-4 in overtonesteps. Subharmonics are not stepped in the usual way in octaves , they are shifted with faktor 1/n .You can still get the octaves by dialing 1(1/2),3(1/4),7(1/8)....The stepping is time quantized to timebase - clock or sample and hold controlled..

The oscis :
There are four phasemodulatable sinusoscillatores. Audiomatrix menue is at the right side of the FM fader above the controlmatrix menue and has a red arrow!
The osci output routing (to filter A, filter B or both) can be switched at the right side of the Level fader above the controlmatrix menue.
Sources are oscillators, filter inputs and filter/shaper outputs.(synth audio flow chart)

FM 1-4:
Phasenmodulation impact.

Level:
Level of the single oscillator.
You can change the routing to the filters seperate for each oscillator at the right side of the levelslider.(right click)

The filters :
Filter A is a 24dB moogfilter with a lowpass to highpass crossfader. Filter B is a 12dB six option Multifilter.
The Filters are serial to paralell switchable, a shaper is placed between them (serial) or after filter B (parallel). The shaper is switchable between saturator, a symmetric fold and a parabol mapping .

A-Cutoff:
Moogfilter cutoff.

A-Resonance:
Moogfilter resonance.

A-Type:
Moogfilter lowpass to highpass crossfade .

B-Cutoff:
Multifilter cutoff.

B-Resonance:
Multifilter resonance

B-Tracking:
Multifilter tracking

Shaper Drive:
exactly

Shaper Mode:
Choose saturator, fold or parabol.

Filter Routing:
Serial to paralell switch. Look at th audio synth flow chart.

Amp :

A-Filter Pan:
Moogfilter panning

B-Filter Pan:
Multifilter panning.

Filter Balance:
exactly.

Gain:
Synth output level.

Velocity:
Velocity to level impact.

Sample**&H**old**:**
The S&H is also synched to timebase. The " mechanics" are a bit more komplex, but doe make sense:

IF:
IF the choosen IF-controller is in the adjusted range *and a* a sync pulse arrives, the choosen WHAT-controller gets sammpled.

What:
The sampled controller.

Melodize:
MELODIZE sends the S&H output back to the scalequantizer. As this is voice-internal, the portamento is monophonic - Portamento slides from the preceeding note number, not from the init value.

Combiners:
There are four combiners, selectable with the white circular buttons.
Each combiner has two inputs. The left input is mapped over the adjusted curve and is computed with the right input. In the triangle you can crossfade between A(mapped), A(mapped)+B und A(mapped)*B . Right click the triangle to change addition (+) to substraction (-).

Envelopes:
Apart from the Amp-EG there are five envelopes, selectable with the white buttons 1-5. They are a bit different from normal EGs-
The curve is divided in slices, these are synchronized to sequencer PPQ but shuffle aware.
You draw the curveyness inside the slice field and, by going upper or lower this field, or pressing shift, you adjust the level.
The EGs have 64 steps max. Shuffling is aplied from the synth timebase. Right click the curve to define the startposition (grey bar), modulatiosource and impact straight above.
Looparea is below the curve.After release the envelope repeats from end of first loop to last step. Right click switches to loop release mode.

Amp-EG:
The amp-EG is a HADSRLR generator, retriggerable by timebase or S&H-IF , with linear or logarithmic output. *NoSlow* disables the slowdown controller influence.

Hold:
Holdtime in 1/32.

Attack:
Attacktime , nonlinear, BPM synched, max 2 bars.(4/4)

Decay:
Decaytime , nonlinear, BPM synched, max 2 bars.(4/4)

Sustain:
Sustainlevel.

Release
Releasetime , nonlinear, BPM synched, max 2 bars.(4/4)

2nd Release Level:
exactly

2nd Release Time:
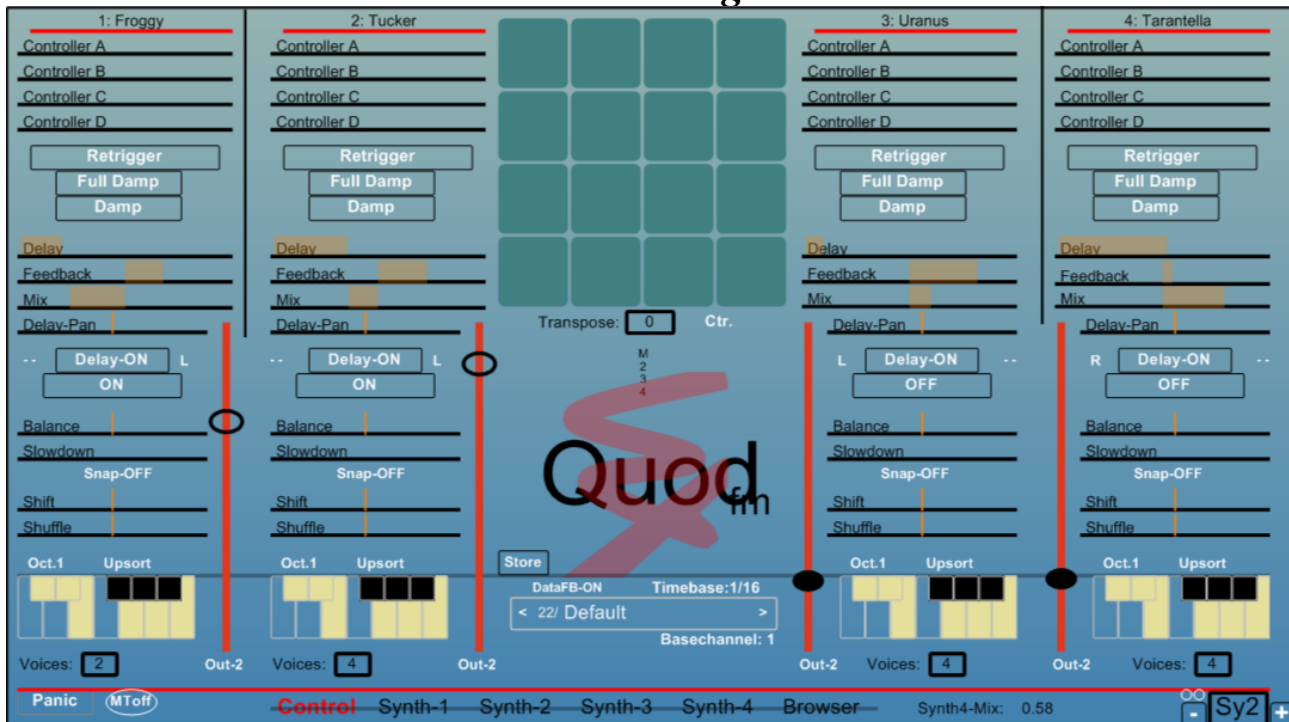2nd Releasetime , nonlinear, BPM synched, max 2 bars.(4/4)

Preset Name:
Click on the preset name opens the save dialog.
Click right to rename the preset.
(Loading via the browser page)

Control Page

Mixer Strips

This is the mixing section of the VSTi . Also midi stuff is administrated from here.
Midicontrollers are only accepted at the Controlchannel. (Basechannel+1)

The four controllers A-D are sent to the synths .

Retrigger:
Repeats the last n (right click to edit) played notes.

Full Damp:
 All note off for this synth..

Damp :
Puts all notes of this synth to release state and finishes hold state.

Delay:
Delaytime in 1/64.

Feedback:
exactly

Delay Panorama.
exactly

Mix .
Delay Mix.

DELAY ON.
Right click to choose the remote midinote.

Gate
Delay gate: Delay is switched off when the last note is finished..You can easily build a switched cluster with this. Then it seems the synth is not reacting the way you expect!

L-R-M
Left, right, mono. Dely input selection.

Channel ON.
Right click to choose the remote midinote.

BALANCE :
Lowers the left or right channel level.

SLOWDOWN
 Divides timebase by 1 to 256.

Shift
Shifts the sync. point of the noteon quantizing 50% back or forth.

SHUFFLE :
Shifts every second pulse of the timebase. Timebase menue is in the shufflefield.(right click)

With the keyboard you can select the notes t shift . At the right side above you can choose the algorithm for this , left side choose the octave for note control.

Voices
Defines th number of voices the synth uses. As the VSTi is SSE-optimized, the CPU processes voices in blocks of four, so you should choose a multiple of four.

The *vertical red fader* adjusts the output level of the synth and routs to the apropriate single out if you cross the grey line.You can choose the second output below the fader.

The pad

The pad is modelled after a 4x4 fingerpad and can be an interface for such, but you can play with the mouse as well..
It sends up to four notes within a definable velocityrange to the synths, so it is also a Chordmemory. The height within a single pad defines the click velocity..
Midiinputnotes are **73** bis **89**. The four octaves below 73 are used to transpose the output and also retriggers pressed pads. You can also transpose via **Controller 88 .**
Right click on a pad to edit . In the semitransparent Editor you can still rightclick a pad to change. Setups can be loaded and saved.
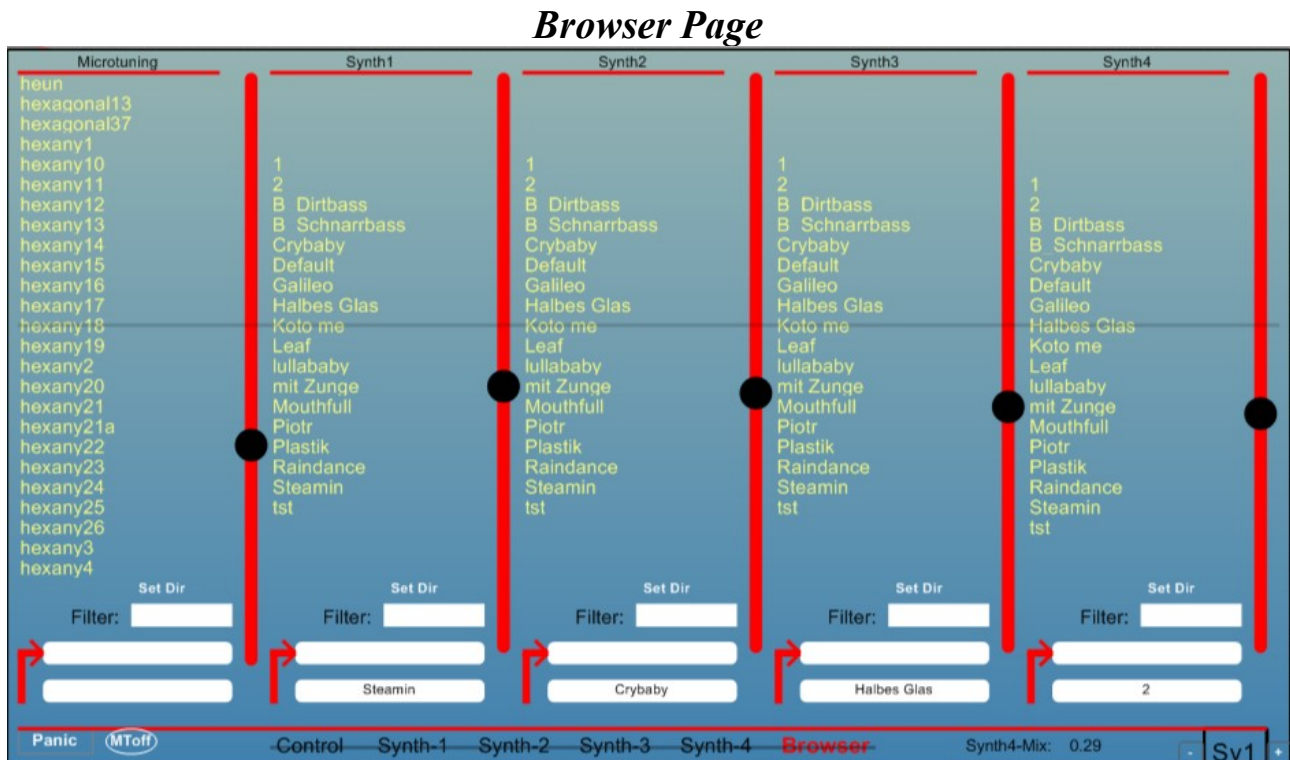
Below the pad

There is a VU-meter for each output. VU color changes to blue when the limiter(separate for each output again) reacts.

To input the (just bought) **serial** : right click the logo. Thank you.

Below that you find the VST presetmanager , the basechannel parameter, the datafeedback switch, master shift and the timebase adjust.

VST presets are here "Combis" with all control, pad and synth data . Combi changes have to be stored with the store button, otherwise your changes will be discarded by changing the combi preset.
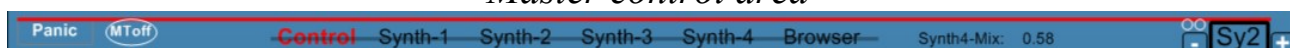
Browser Page

To understand the browser think tetris.
When opening the browser the current microtuning and the four presets are written in the bottom line. Selecting a file is loading it directly - you should hear it - and shows the name in the next line above. If you do not like what you hear, you can restore the old file by sending it up with the red arrow. Leaving the browser page fixes all settings, next time you open you find the selected files in the bottom line. Presets need for change ca. 0.3-0.7 seconds. The Audiogap is covered by setting the delay level to max, even when switched off!

Set Dir:
Set directory. The path will be remembered and written into the ini-file, that resides in your plugin directory .

Master control area

This area at the bottom is always visible. From here you can switch the six windows, view parameter values and adjust the livechannel. Panic button and microtuning master switch is also

here.

Panic:
Stops all voices of all synths and clears all delay buffers. (Controller 123)

MToff:
Switches the microtuning . This is stored within the Combi .

Control-Synth1-Synth2-Synth3-Synth4-Browser.:
Page chooser.

To the right side the parameter-value display..

At the right corner you find the livechannel chooser.(**change the controller with right click**)
Click the two circles at the left to switch livechannel-to-pageselect-synchronisation.

Midi Controller List

Channel=Basechannel+1

Destination	Nr.	Remarks
Synth 1- Volume	13	
Synth1 - Shuffle	14	
Synth1 - Slowdown	15	
Synth1 - Pan	16	
Synth1 - Mix	17	
Synth1 - Delay Pan	18	
Synth1 - Feedback	19	
Synth1 - Delay	20	
Synth1 - Controller D	21	
Synth1 - Controller C	22	
Synth1 - Controller B	23	
Synth1 - Controller A	24	
Synth2 - Volume	25	
Synth2 - Shuffle	26	
Synth2 - Slowdown	27	
Synth2 - Pan	28	
Synth2 - Mix	29	
Synth2 - Delay Pan	30	
Synth2 - Feedback	31	
Synth2 - Delay	32	
Synth2 - Controller D	33	
Synth2 - Controller C	34	

Destination	Nr.	Remarks
Synth2 - Controller B	35	
Synth2 - Controller A	36	
Synth3 - Volume	37	
Synth3 - Shuffle	38	
Synth3 - Slowdown	39	
Synth3 - Pan	40	
Synth3 - Mix	41	
Synth3 - Delay Pan	42	
Synth3 - Feedback	43	
Synth3 - Delay	44	
Synth3 - Controller D	45	
Synth3 - Controller C	46	
Synth3 - Controller B	47	
Synth3 - Controller A	48	
Synth4 - Volume	49	
Synth4 - Shuffle	50	
Synth4 - Slowdown	51	
Synth4 - Pan	52	
Synth4 - Mix	53	
Synth4 - Delay Pan	54	
Synth4 - Feedback	55	
Synth4 - Delay	56	
Synth4 - Controller D	57	
Synth4 - Controller C	58	
Synth4 - Controller B	59	
Synth4 - Controller A	60	
Pad - Transpose	88	Transpose Pad -Output without Retriggering
Synth1 - Shift	66	shift sync position
Synth2 - Shift	67	shift sync position
Synth3 - Shift	68	shift sync position
Synth4 - Shift	69	shift sync position
PANIC	123	Stops all notes & clears buffers

Thank you - have fun.