

TubeOhm Super-Bruno-VIII
Manual
englisch V 1.10



Hi, Andre' here .

I am tired about this, but again. We , TubeOhm , lives from develop and selling Synthesizers. You get a well programmed Synth within 128 or 256 Sounds. We offer the complete system for really less money and offer also a support 4free. If you phone TubeOhm or write a mail, i am there !

For this price you normally can't buy a sample CD !!

Often i find TubeOhm Products in some un-social networks like... i think some of you know it.

So please, it takes a lot of time to prog a synth, and also much time to make the sounds.

We, my betatesters and i sit here hours and hours to realize a new Synth or updates.

This only works, if i earn enough money for living. And be sure, building Synts dosen't make you rich!

It is more or less so , that the refridgerator is full and i can pay my bills ! Not more , not less.

Maybe it is a kind of madness, but i like it and building synths gives me a deep satisfaction.

Specially if musicians give feedback and we discuss some new features or i get new suggestions.

So please , don't share our Products in the Internet. This kills my work complete.

Think about this , what happens if YOU work 3..4 month's, give your best , and than you are not payed. And some other guys make money with YOUR work !

All right on this BRUNO VSTi with the Samples are on TubeOhm.

Rent, copy and share it in any way is forbidden.

On the other end TubeOhm gives you the permission to use Bruno on any of your own PC's.

You can use Bruno for making professional Music in any way. No restrictions !

The Software comes as it is. It is well tested , but i can't give warranty that Bruno works on all PC's in all configurations.

We are not responsible for DATA loss, PC-Chrash or destroyed hardware like Speakers or Amplifiers.

You install BRUNO on your own risc.

If you buy Bruno and install it, you agree with this terms.

TubeOhm

04.12.2014

concept:

Bruno is an easy-to-use VST synthesizer with a powerful sound potential.

The aim is simply to create a fun machine that is fast to use.

All sound imaging parameters are directly on the main available.

In Bruno V III also samples can now be used.

By using the step-sequencer and arpeggiator a new automated sequences and now really funky arpeggios are possible.

The stereo delay generated automatically for ARP and STEPPER clock Exact delays.

On top of the sound can still be passed through a (also modulable) comb filter. The final chorus rounds out the sound.

Welcome to the magig sound carpet land.

The sound?

Bruno is different and he also sounds in another way. Many parameter dynamically access and organically into each other.

It can also sound 'normal', but then I can also take any other synth. The special feature of Bruno is the double clipping unit and the tube distortion. With these parameters, it is possible to roughen the sound to generate additional overtones or simply completely destroy the sound.

It sounds Bruno but never sterile but always alive and yes, he actually developed his own life.

In the development of Bruno I was surprised again and again the sounds you can get out of there.

To generate a private Bruno sound were implemented only the most essential parameters.

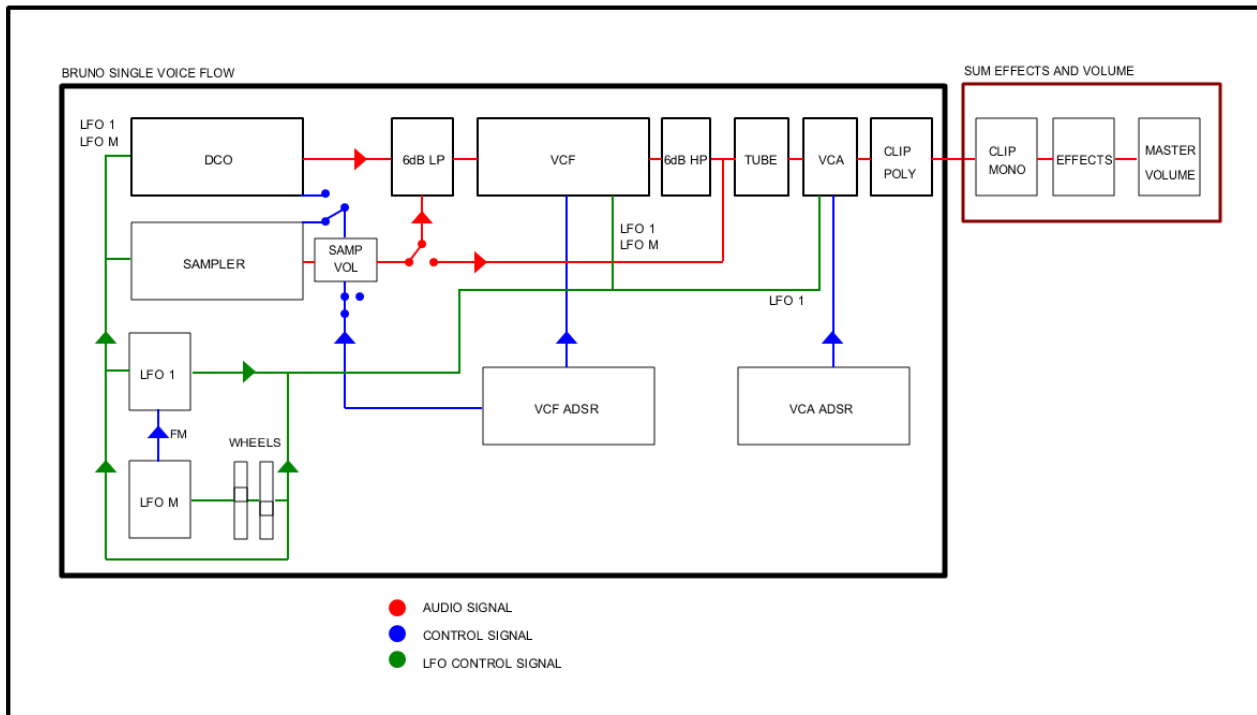
The magic word is (reduce to the max). Ring modulation or FM or Oscillator synchronization, as well as a pitch envelope is missing. But, you can generate these and similar sounds in Bruno, just with different parameters.

I wish you much fun to explore Super Bruno V-III .

BRUNO IS BACK

TubeOhm 12.2014

Schematics:



Here's a brief description:

The signal of the DCO (Digital Controlled Oscillator) runs over a 6dB low-pass and is then fed to the actual VCF. Behind the VCF are additionally a 6 dB high-pass, the tube distortion, the VCA and in the end the poly clipper.

Why a 6 dB LP and HP?

Well, both 6dB filter together result in a variable bandwidth bandpass. These functions can, for example, the bass are thinned, or the high frequencies are cut.

Why poly clippers and why behind the VCA ??

For example, when a sawtooth is clipped, then I only get a circumscribed sawtooth, looks like a rectangle with a rising edge. How boring. It is different when the clipper is behind the VCA.

Firstly, the filtered waveform is now clipped >> and also the resonance. Even so I can produce a variety of sounds in conjunction with the ADSR control of the VCF.

Secondly, the clipping is again controlled by the VCA and the ADSR.

For example, the clipping begins at an amplitude of 5 volts. The VCA controls from 0-10 volts in the attack phase, then goes down to 3 volts and then remains in the sustain phase focuses on 3 volts.

What happened ??

Well, first, the signal is transmitted in the attack phase to a level of 5V. From 5 volt signal is clipped. In the decay phase of the signal travels down to 3 volts. Less than 5 volts, the clipping stops though! But as well as most of the filter starts to rotate in any way and increases various frequencies is that there is no static sound but a dynamic sound which is influenced by the VCA amplitude and the filter behavior.

What makes tube ?

Tube with a tube saturation stage is referred to simulating the behavior of a tube just before clipping.

At a low setting, the bass is much louder and the whole signal transparent.

At a higher setting, the signal will be massively distorted until soft and full of attitude.

These distortions also depend largely on the size of the individual oscillators as well as of the cutoff and resonance setting.

If the oscillators / sampler volume low, so there is only a bass / treble boost.

If the oscillators very loud then moves the tube simulation in the saturation and distortion tidy. And when the oscillators are quiet indeed but the VCF resonance has a high then the resonance is just distorted and there is a mixed product between the oscillator / Samplers Signal and the filter resonance.

This is also a good example of

" Access parameters dynamically and organically into each other ".

Basically you can say: When I work with TUBE distortion or clipping, the volume knob for DCO / Sampler decisive for the amount of clipping.

The VCF in conjunction with high resonance and the two 6dB filter are now used the clipping and distortion limit to different frequencies.

I can not describe it better, try !!

And where is the difference clipping POLY and MONO ?

As long as only one note is played, both clippers work about the same, BUT, the poly clipper works in each voice. So I always get the same sound, regardless of how many voices to be played.

The mono clipper works only after the merge of all votes in the SUM !!

Once a second voice sounds arise mixing frequencies of the two or 3..4..5 voices. The result sounds more brutal.

summary:

To program a sound so it's not enough just to play around a bit with the filter, No, all parameters such as volume of the individual oscillators / Sampler, clipping and distortion hang together somehow and influence each other. And that's the exciting part.

Well, that was to be a little warm with Bruno, and now let's look at the individual parameters.

Let's start with the LFO.

Bruno has 2 monophonic LFO's.

Both LFO's can be synchronized to the tempo and BPM have a switchable KEY ON PHASE.



The menu for setting the BPM synchronization of both LFO's is located in SYSTEM !!

The KEY ON PHASE (PHS) sets the LFO for each new key press to PHASE = 0 and allows a defined start running the LFO . So it always starts at phase =0!

Is KEY ON PHASE 'off' as the LFO is free.

This is particularly important in conjunction with the stepper / ARP for example beautiful modulated filter sweeps to generate. Therefore i need a free running LFO, otherwise the LFO would always start with phase 0 and if there is at a very slow modulation, you do not hear !! Furthermore, can the frequency control (FRQ), and by clicking on the waveform window toggles the LFO to a different waveform. By FADE you get a slow fade in of the modulation.



LFO 1 has 11 different waveforms available.

Modulation destinations of the LFO 1 are

- 1) the PWM oscillator DCO
- 2) the tremolo of the DCO's and at the same time the sampler. Both the DCO and Samplers are the influences an LFO knob in the DCO section.
- 3) cutoff frequency of the VCA (LFO)
- 4) VCA ADSR (LFO)

LFO MOD has 7 different waveforms.

Peculiarity of LFO MOD.

The button FM LFO 1 can be modulated LFO1 in frequency by LFO MOD.



The LFO MOD is mainly used to modulate the DCO's and the cutoff modulations on the wheel. But it is possible to FIX a basic modulation of the DCO's set, regardless of the position of the modulations wheel.



The MOD DCO >> >>> CUT parameter describes how much the LFO modulation acts upon actuation of the modulations wheel on cutoff and the DCO.

The AT parameter is providing an aftertouch effect on cutoff and DCO.
 This, however, if DCO or MOD MOD CUT are already regulated on-.
 In principle, one can then control the modulation of cutoff and DCO using the MIDI keyboard aftertouch.

So, that was the LFO

Now we come to the DCO and the sampler.

Preliminary note. The DCO = digitally controlled oscillator, and the sampler to work together in parallel and use the same LFO pitch modulation and also together the clipping. Does that mean I turn CLIPPING in a VCO, so at the same time, the sampler is clipped. LFO pitch modulation at the DCO modulated at the same time the sampler.

the DCO
well, what have we here?



If the part you might think so look is so simple a sawtooth, a rectangle and a sub oscillator. Standard content. But it is not so!

First of all, it's not one sawtooth there are 5 !! then 2 x 2x a rectangle and the sub oscillator.
 The good old 'Super Wave' greets!

Parameter Description, from left to right.

OCT = OCTAVE sets the octave of the DCO's of +/- 5 octaves.

SAW = volume of the sawtooth

SQR = volume of the rectangle

SUB = volume level of the SubOscillator

**** Above by clicking on the blue wave display, can the waveform of the SubOscillator change.
 Are possible sine, square and sawtooth. ****



the switches



One of the most important parameters is PHS = phase synchronization of the oscillator.
 As mentioned above, Bruno works with 5 sawtooth.

People, please read!

With a sawtooth can not represent truly compelling strings. It lacks the phasing and simply the width of the sound. In a real orchestra plays so not one violin, but several. The violins with each other are always slightly detuned so I get this pad sound.

Will I simulate this with Bruno, I need more sawteeth, and these are best slightly out of tune. PHS is now off, run off the saw teeth 5, but with a different phase angle, not with different frequency !! In result I get a very soft, undefined sound!



Therefore, it enables the controller Detune and below the Detune control a small fader, the spread Fader

The detune knob tune the 5 sawteeth linearly by a certain factor.

Thus, the saw teeth detune linear and there is a drawback always the same phasing patterns. Is useful, but I was a bit annoyed but in the long run.

Now spread the fader comes into games. This spreads the detuning 'non-linear' and hence the upsets and also the Phasingmuster be animated.

OK? understood ??

Now you do not want to always build silky smooth strings but also requires a crisp times sawtooth.

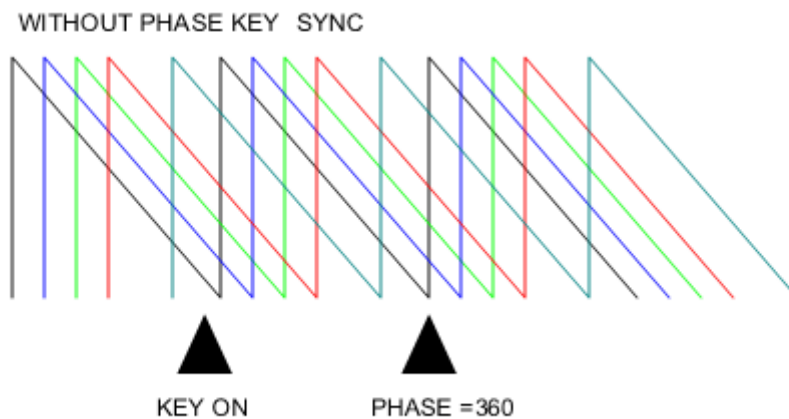
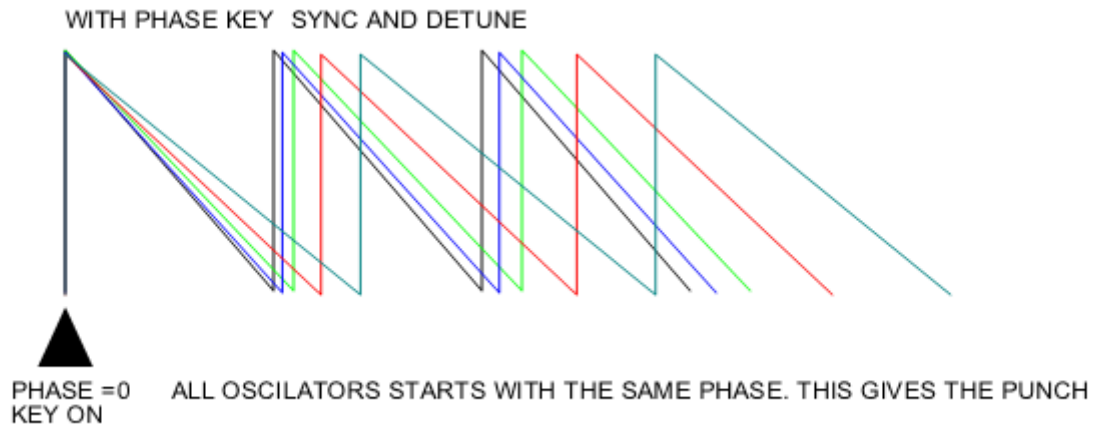
How is this achieved?

PHS ON and Detune = 0 on !!!!

What happened? Phase ON means that all saw's with the same phase run by pressing the key.

Without the detuning they now behave like one ! Sawtooth. Now if you detune applies, then the saw teeth run first with phase 0 off and then begin to slowly alienate. I get first time a crisp punch and then a soft run apart of the waveforms.

Here a picture how it works

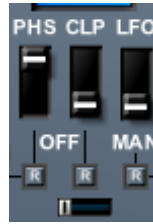


In the first picture you can see the saw teeth all at a touch of a button with the phase = 0 start running and then spread slowly. The first punch comes from the fact that add up after key press all saw's once, but mix later in the sound event and cancel each other.

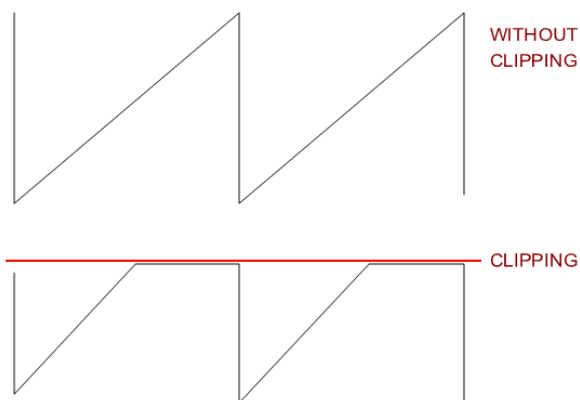
The second picture shows the behavior of the sawteeth with switched off phase.

Note: For crisp SAW's and bass and all kinds of percussion instruments, the phase ON should be. For strings and pad sounds the phase synchronization can be switched off!

And on it goes.



To the right next to the switch for PHS is the CLP switch. And including a small fader. CLP switches the 'AMPLITUDE-clipping' one! Oh God, what is that again ??



In the second picture you can see that is simply cut off the signal above a certain amplitude. Well, that may be so taken for granted, but we want to Bruno indeed understand why, so we should first think what that means.

In reverse, but it also means if I influence the volume of the oscillator, it klippt sometimes more, sometimes less.

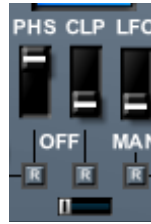
Remember the picture with the signal flow. The clipper is BEHIND the VCA. And what does the VCA? It controls the amplitude, the volume. Ahaaa !!

So I can CLIP once static and control over the volume of the waveform / sample, and dynamically with the VCA!

With the small fader below the CLP fader I can also further customize the clipping level.

Note: when I work with clipping, the clipping is controlled by the waveform volume and the VCA. Because behind the VCA usually a mixing shaft which is made of different components which in turn have caused amplitude increases by the filter setting, I get a dynamic distortion pattern. As I said, organic-dynamic.

and more



LFO 'MANUAL'. This refers to the pulse width modulation of the square wave signal. Is the switch to MAN, this is how the PWM mode manually by using the PWM slider. Now, if the switch is set to LFO, so the LFO 1 modulates the PWM. The strength of the PWM modulation can be influenced with the PWM slider again!



Detune we had already discussed in detail.

The LFO/ADF slider sets (left) the LFO 1 pitch modulation for the DCO and the sampler and (right) the pitch modulation fwith the FILTER ADSR.

The small switch above the Slider set the F-ADSR routing to 1:) only the DCO, 2:) only to the sampler, 3:) to both, DCO and sampler.

About the NOISE slider allows noise in the signal mix, the little slider below the NOISE selects one of 4 different types of noise from.

Now for the sampler.



The sampler expanded the tonal palette of Bruno dramatically.

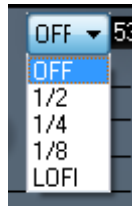
He has 127 samples on board, but it can also create your own waveforms are invited. Functions from left to right.

OCT octave = tunes the sample +/- 5 octaves.

Semi tune the sampler in semitones = 1..12.

FINE-Tune allows a finer tuning of the sample .

Above you can see FINE left of the waveform name a TEXT switch.
This is set to OFF.



By clicking on the font is a POP-UP menu opens. This can change the sample rate of the sample.

OFF = no changing the sample rate

1/2 = (with a 16 bit sample) now works with the sample 8 bit

1/4 = now at 4 bit

1/8 = 2 bits

LOFI = 1 bit ***** In LOFI MODE can cause upsets of the sample and also pops the LOOPS. The detuning can be regulated with FINE.

Is just LO-FI.

The setting of the LOOPS

Bruno has been 127 samples with built-LOOP points and therefore looping automatically.

I will start to quickly install a separate sample so it usually has no loop points.

Cut your own Sample in an external Wave editor so, that it runs in loop without clicks and pops

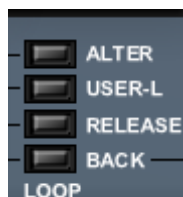
Then, the switch USER L = User loop must be turned on for your own samples.

Now the loop is played from beginning to end and then repeat.

ALTER = Alternate play the sample forward, then backwards again and again forward, etc.

For people who now in samples can set loop points (a suitable program for this example is WaveRobot of SCYLIVE) there is still the RELEASE function.

You can not just looping a complete sample but only a part of it.



As an example, this sentence: " ----- BEGIN----- LOOP ----- END "

In this example, the word 'LOOP' looped.

Release is turned off and the key is played following happens.

The sample runs from start, the first word is " Begin " .

Thereafter, the word " LOOP " as long as the button is held repeatedly on the keyboard. Even after the key is released, the sampler plays the word " LOOP 'until the VCA is fade out completely.

Now the loop function " RELEASE " is switched on:

As in the first example because the sampler and start playing once the word " BEGIN " and then the word " LOOP " as long as the button is held on the keyboard.

If the button is released, then moves the sample until the Word " END 'and plays it once.

BACK = the sample plays backwards.

These were the loop functions.



So, let's see what the sampler has to offer.

SELECT SAMPLES = selects one of 127 samples.

VCF ENV on = the VOLUME of the sampler is controlled by the VCF envelope.

VOLUME = controls the overall volume of the sample.

The button above the volume controller routes the sample signal either through the VCF and both 6dB filter or directly to the VCA without a filter interference.

Summary: own samples can be influenced in the direction of play and in the Loop behavior. In addition, the volume of the sample can be controlled dynamically using the FILTER ADSR. The last thing you have, is the option to route the sample through the VCF and both 6dB filters or filter directly without influencing from the VCF to the VCA.

Load your own samples

To load your own samples in condition to Bruno is that all required samples are in a sample directory !! This is absolutely imperative NECESSARY.

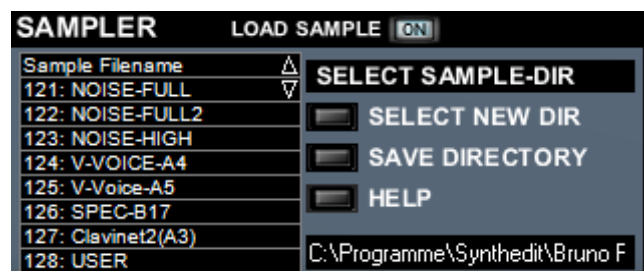
By default, the sample directory is located in

\\BRUNO-III\BRUNO-III\SAMPLES\

Important !! In this sample directory your own samples must be add !!!

Then you click on the button " LOAD SAMPLE "

This opens a new panel:



In this window, the samples will be invited and, if necessary, a new redirect path be entered for the entire sample directory.

Stay away from the buttons, not wild ckick on the buttons !

First, we would like to invite an own sample.

Procedure.

First, we copy the sample in the sample library.

\\ BRUNO-II \ BRUNO-II \ SAMPLES \ <<< in here !!

We then scroll with the arrows left in the list on the position of the 127. This should still be free.

Have we reached position 127 so we click with the mouse directly on the 127 text field.

It opens the Windows Browser and now the sample can be selected.

Load it, OK, ready !!

Now the window over the sample load BUTTON is closed again.

Then I selected the sample 127 with the " Sample Select button " from.

Now, this sample should be playable on the keyboard.

If the position 127 shows " EMPTY ", **people you have previously only copy the sample in the sample library !!!**

The redirect path

Sometimes you want to move the complete sample library to a different location on the hard disk.

That works with redirect.

Procedure.

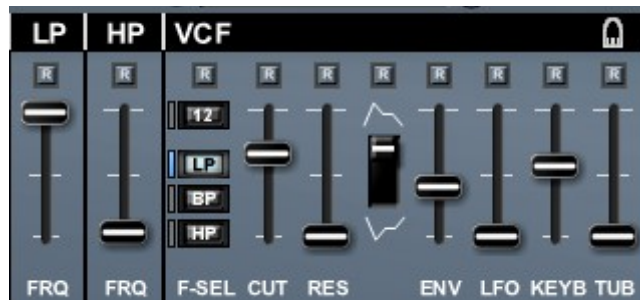
Copy the entire sample folder in a directory of your choice. click on

press the " SELECT NEW DIR ". The Windows browser opens and you can easily select the new sample directory. Click directly on a sample in the folder and load it..

Then please 'click' SAVE DIRECTORY ', and now the new folder as the default folder is saved for the samples. Bruno writes a text file " REDIRECT.TXT " with the new path, and this is now permanently stored.

That was the sampler:

the VCF



Bruno has 2 correction filter and a main filter.

The two correction filters are as 6dB low pass and high pass filter implemented as 6dB.

The LP filter located before the main VCF and the HP filter behind the actual VCF filter.

With the LP filter the hard resonances can be mitigated, the HP filter is used to mitigate the sometimes powerful bass.

Extreme settings cause the filter combination as a band-pass filter to work.

These filters are static and can only be influenced via the LP and HP slider in frequency.

The actual main filter, the VCF is designed as a switchable 12/24 dB filter.

It has an additional 3 filter modes. LP = low pass, band pass = BP, HP = High Pass.

CUTOFF determines the frequency of the filter, RESO, the quality of the filter. The switch in the middle inverts the VCF ADSR control signal.

With ENV = VCF ADSR influencing, the VCF ADSR is regulated the cutoff frequency of the filter.

LFO is the modulation depth of the LFO 1 to the cutoff frequency.

Keyb = KEYBOARD TRACK, follows the cutoff frequency of the note on the keyboard is played.

Minimum = the cutoff frequency is not changed even if the high notes.

Default is CENTER, in this setting the cutoff frequency follows the note played.

Maximum = the ratio cutoff frequency for the played note is doubled.

TUBE is a tube simulation and works with a non-linear characteristic.

Moderate settings, the signal in the bass and the treble louder and more transparent. Maximum setting distorts the signal.

The VCF ADSR envelope generators and -VCA VCA-ADSR



Bruno contains 2 envelope generators which are designed equal.

A determines the ATTACK or settling

D is the DECAY or even the time that is needed to get from maximum attack level to the sustain level.

S is the SUSTAIN or holding level.

R is the RELEASE and determines how long the sound after the key is released fades.

The TIME switch the entire envelope is stretched in time, that is slowed down.

the VCA

is the left button on the square wave, the VCA is switched on and off without the VCA envelope. CLP is a SUM clipping. It cuts the entire audio signal with all voices. Unlike the poly clipping at two notes played non-harmonic tones mixing and violent distortions are generated.

The system parameters



Bruno is 12 voice polyphony.

In the System menu individual voices FINE tune can be pitched. A double mode allows you to stack the votes of each other. Then Bruno is only six voices poly but sounds much richer. About the DET = MODE DETUNE the entire bottom six votes over the top six voices are detuned.

Left near the 12 buttons, the switch switch on the FINETUNE.

The SINGLE MODE

In this MODE Bruno operates 12 Polyphonic. The audio is monaural and route to the EFFECTS

The DUAL MODE

Bruno operates in 2x six parts. The voices are placed one above the other.

Depending on the setting, the audio signal in mono or stereo is fed to the effects.

DET is a fine tuning and detunes the upper 6 voices against the lower 6 voices.

SEMI SEMI DUAL D = pitch of all the upper parts in semitones.

SPRD is the STEREO function.

SPRD = OFF, all voices work MONO

SPRD = LR, the bottom six voices are in Panorama left, the top six voices are in Panorama right.

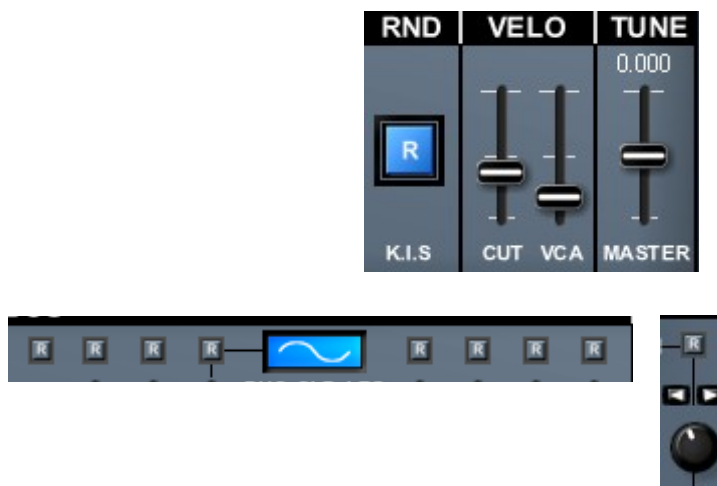
SPRD = LMR, in addition to the left-right combination of the voices will put all voices as mono signal together in volume placed in the stereo center

The MONO VOICE MODE

MONO = Bruno works now only on MONO mode with one Voice. but it can be up to 6 voices overlapped and are annoyed by DET.

The number of votes is set via the button 'VOICES'.

RANDOM, VELOCITY and TUNE



The RANDOM FUNCTION button and K.I.S

Well, did you ever wonder why determined over almost every knob / slider and switch is a small R switch.

R is RANDOM. With the small R switches the respective controls for the actual random function be armed. The trigger is then the great blue RANDOM button.

A simple example.

The little 'R' button above the SAMPLE SELECT button is on.

Now I press the big blue randomize button, a random sample is loaded.

If, for example, the R button above the cutoff frequency is switched, the controller receives a random value after pressing the blue RND button.

Do you understand ?? With the R-switches so I can choose the controllers which are influenced by the RANDOMIZE function. This is called Random selectable function and allows you to create completely new sounds, depending on the number of the selected functions.

New sounds at your fingertips. K.I.S stands for "keep it simple"

VCA and VCF VELO

These two controls the effect of velocity on the filter CUT and the VCA is set.

Tune is the Mastertune the whole instrument.

The stepp-sequencer and arpeggiator

Preliminary note, with the switch INACTIVE / ACTIVE, the sequencer/ARP is enabled !!

It can be played in either the Bruno stepper or the ARP. But not both at the same time!

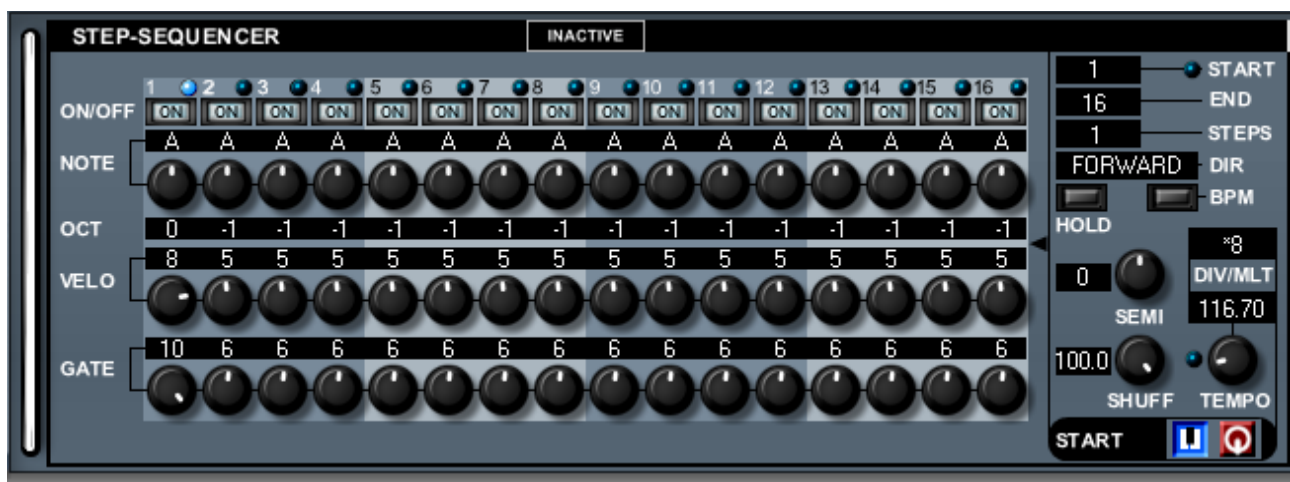
The sequencer has 2 playback modes.

1 :) is the blue button next to START turned off, so the sequencer will play the selected sequence.

A transposition by a MIDI keyboard is not possible.

2 :) shows the blue button on the keyboard as a symbolic sequence and the red START button is on, via a connected MIDI KEYBOARD in pitch can be transposed.

Warning, the NOTE of the sequence is always 'A'. Is played on the keyboard the NOTE 'A' is the sequence so the notes at the correct pitch again. Will I play the sequence in a different pitch so should be moved with SEMI the sequence in the pitch i need!



The stepper is designed as a MIDI device and controls BRUNO internally via MIDI. Furthermore, the stepper and the ARP is the MIDI signal externally from around ,to control hardware synths or other software synths.

The settings from left to right:

ON / OFF switch off /ON astep

NOTE adjusts the touch a button or directly into the Text Box.

VELO is the velocity of the individual steps

***** So that a velocity is heard, the Velo must switch on un BRUNO.

GATE determines the note length. Even as applicable, the sound has a long RELEASE works naturally with the note length not. For this gate effect, the release time of the sound must be very short !!

The pannel on the right side

START sets the starting point of the sequencer.

The end point END.

*** START END 1 and 16 is the sequencer starts at STEP 1 and runs through STEP 16 and repeats.

STEPS is the number of STEP-step method.

*** STEP = 1 = the sequencer plays 1,2,3,4,5,6,7,8,9 until end STEP and repeated.

*** STEP = 2 = the sequencer plays 1,3,5,7,9, until the end Step and repeated.

*** STEP = 3 = the sequencer plays 1,4,7,11 ... until the end Step and repeated.

DIR sets the playback direction of the stepper.

HOLD = ON, the sequence is also played when the Key in the MIDI keyboard is lift off !

BPM sync the tempo for DAW.

SEMI transposed the entire sequence in halftone steps up or down.

SHUFF is a shuffle function which each step straight 2,4,6,8,10,12,14,16 delayed by the specified factor.

TEMPO sets the tempo of the sequencer. This tempo can also be changed via DIV / MULT . This works also if the sequencer is synchronised.

The red button starts the sequencer when the blue button shows a small keyboard picture, the blue button exits Transpose mode to the FIXED mode and starts the sequencer alone.

the ARPEGGIATOR



About ACTIVE / INACTIVE the ARP is enabled.

The following functions are available:

OCT, the ARP plays the sound alternately in OCTAVE 1, or 1 and 2 or 1.....2 and the third OCTAVE.

RYTHM provides a rhythmic pattern. If all switches to ON so the ARP plays like a normal ARP. By turning off individual steps are rhythmic patterns are played.

GATE adjust note length of each note, if *** release is set to be short in BRUNO on the sound.

INT / BPM set the tempo of internally HOST synchronization.

PLAY / HOLD holds the notes

NOTE / CHORD either playing single notes in the selected rhythm, or play the full chord, so all notes at once, in the set rhythm.

SHUFFLE delayed every step 2,4,6,8 straight to the set value.

DIR = red knob determines the direction of the ARP's

Tempu adjust the internal tempo. This can be shared with DIV / MULT or multiplied by the set value. It works also with BPM SYNC.

The red START button starts the ARP.

The EFFECTS, delay, Room, comb filter and Chorus

the delay:



Bruno contains a -stereo delay at which the right and left channel can be set separately. A HUMAN-MOD button modulates both delays with a slow sine. Thus, the delay does not sound so static, with short delay times there is a chorus of similar effect. The filter button cuts in L the full heights, to let the signal at H unchanged.

TIME is used for manual setting delay time when BPM SYNC is off.

However, as soon BPM SYNC is turned on, the delay fixed times that of the BPM and the setting of the BPM SYNC controller 1 / 2, 1 / 4 ... are dependent.

The TIME control is then switched off.

FEED sets the number of delay repeats.

MIX mixes the original signal with the delay.

Below the MIX knob is the stereo SPRD fader.

Is this on the left, so work both delays in the -stereo center, it sounds MONO.

In the right position works Cannel 1 on the left and Cannel 2 on the right channel.

This value is infinitely variable.

ROOM

Room is a simple reverb. This can be turned on and off.

MIX is doing the reverb on, the decay is the reverb length.

The comb filter.



The comb filter is executed in stereo and works like a phaser.

It can be modulated or also work as static.

MOD-F is the modulation frequency. This works in conjunction with the PAN = PANORAMA regulator and the DEPTH FUNCTION.

If the DEPTH knob is on the left STOP, the LED to the right of the controller is off, and the comb filter operates statically, without modulation.

BASE thus indicates the fundamental frequency of the filter, SENSE is the feedback of the filter.

*** in static mode using BASE and SENSE and the sound can be again changed drastically. In the comb filter up to 16 allpass filters work that may reduce the phase of individual frequencies or raise. MIX mixes the original signal with the filter.

Chorus



Bruno has a three-stage chorus.

Is STG 1 to as the chorus works stage and provides a subtle chorus signal.

In STG 2 = 2 stages, the chorus signal is stronger.

1 and 2 are STG switched = 3 stages, a significant chorus signal is generated.

The filter function attenuates left stop from the raised frequencies, only the low frequencies, there are now affected by the chorus. Filter clockwise, the high frequencies are affected by the chorus.

MIX mixes the chorus with the original signal.

known problems.

1:) In a few sounds, after patch changing, it can be that you will hear some clicks. This is because the sound must initialize all Voices at first for the new sound. These clicks should be away after playing a few notes. 8..12 notes.

2:) Clicks in double mode, using the chord Function in the ARP. Remember, than Bruno had in double mode only 2x 6 voices. Increase the latency in your Soundcard to 120 or 256 samples.

3:) the TEXT Window for the Samples shows >EMPTY< !
Copy your Samples into the default Sample folder and do the redirect path procedure again. Don't forget to save the redirect path. Save gives a refresh and all Sample load again into the Sample memory.