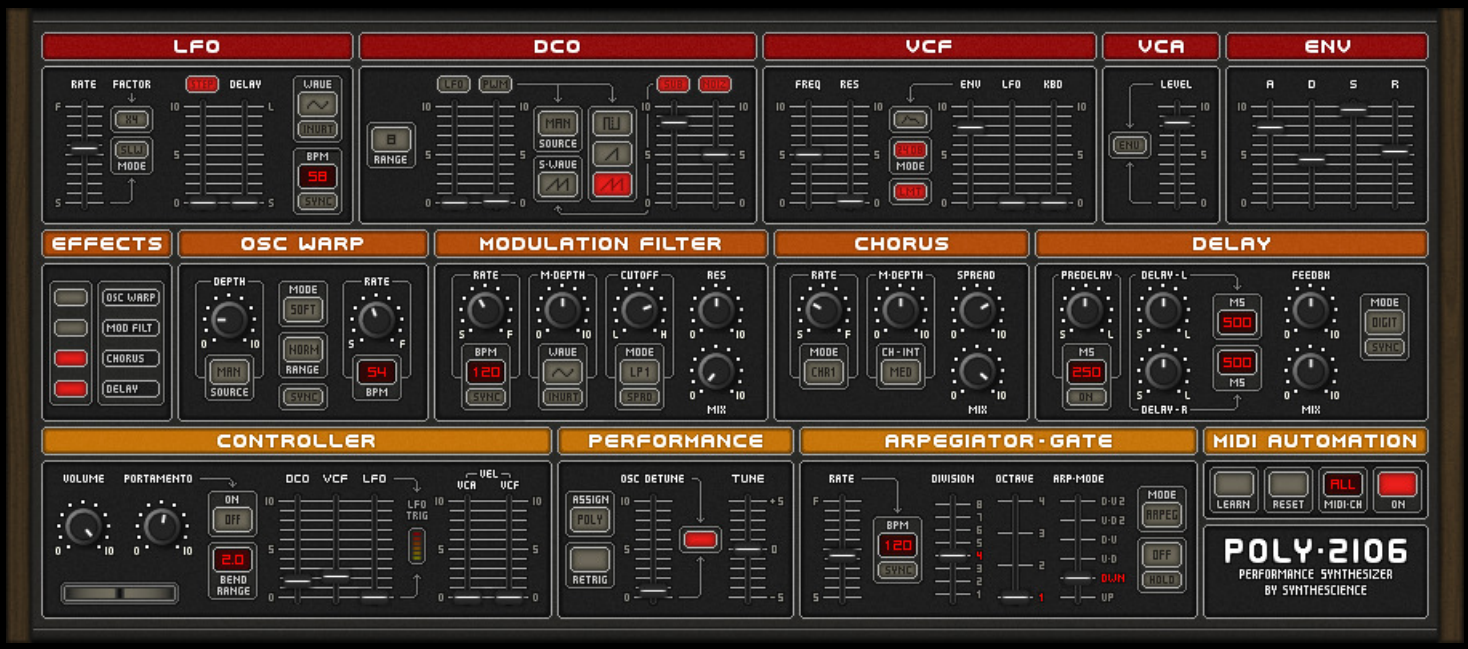
POLY 2106
OPERATION MANUAL



BY SYNTHESCIENCE

POLY – 2106 Operation Manual
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POLY - 2106
Operation Manual

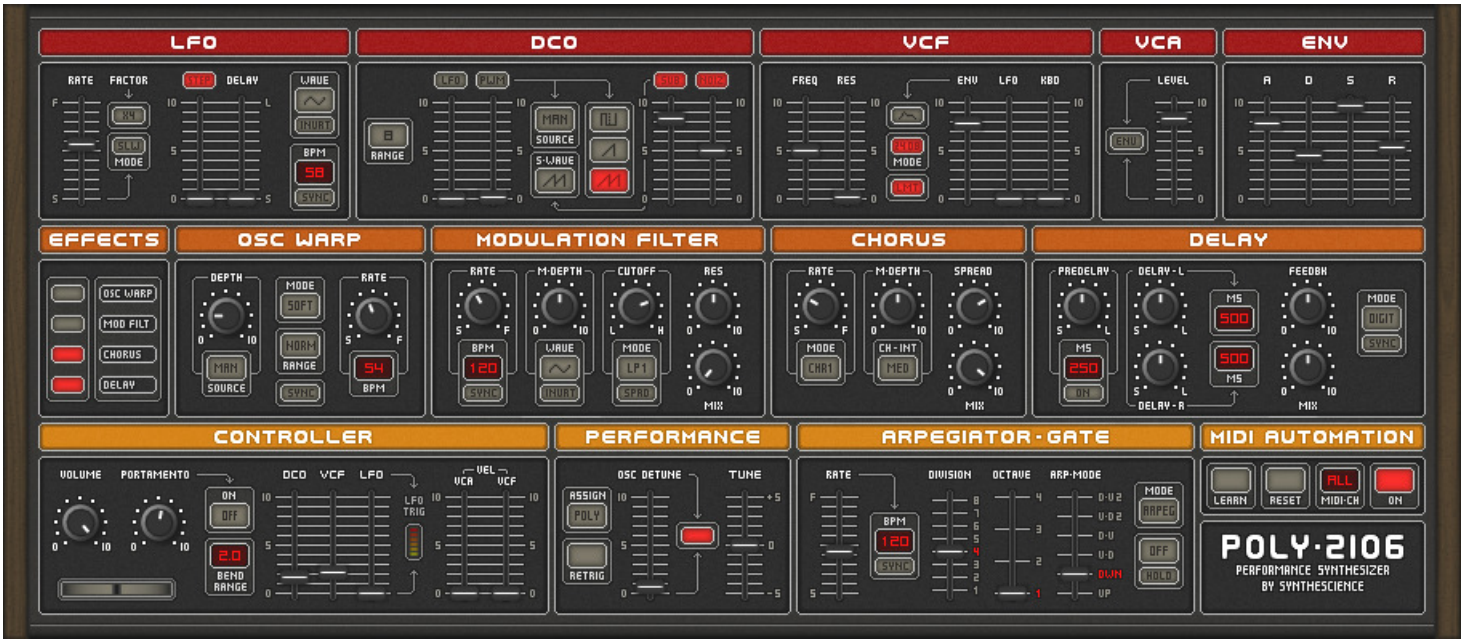
First of all congratulations and thank you for choosing the Poly 2106 synthesizer, the second official creation coming out from Synthescience studios in the space of three years since our first release, so as you may guess it's a project with a lot of hard work involved and nothing was spared in order to deliver to you a fine (and fairly complex) plugin, as such the reading of this manual is of great importance if you wish to unfold the true potential of this bestial machine, nonetheless we've prepared a nice bunch of presets for you to check out the real guts of this one of a kind synthesizer.

The Synthescience Team.

Introduction.

The Poly 2106 initially started off as a recreation of a true object of desire from the fashionable 80´s that was once part of our studio, but that was just the initial kick that propelled a seemingly more enthusiastic project which culminated into a knob infested creation with a solid vintage backbone, so for a long time we didn't spare ourselves in the effort of breathing life into a machine which is a breed of everything we would like to see in a true performance synthesizer, something close to the vision of our personal nirvana that now we are ready to share to everyone, our only hope is that you too find it as much as rewarding as we did…

Front Panel Controls.



The controllers in the Poly 2106 may be operated in four different ways:

Circular or Vertical type controls – Vertical sliders (twenty eight in total), Knobs (twenty one in total), Sync factor x8 and Midi ch
Toggle controls –Switches (sixty five in total) except for Midi – Aut Learn and Reset switches
Momentary controls – Midi - Aut – Learn and Reset switches
Click controls (only active while clicked) – The Poly 2106 nameplate which shows additional information about the plugin (like plugin version and credits).

Description of Plugin levels:

The Poly 2106 architecture is split into three distinct levels:

1) Red Level– The main Synthesizer engine
2) Orange Level – The Effects stage
3) Yellow Level – Performance stage

Throughout the next pages we are going to dissect each of the three levels and his individual modules in surgical detail for you to be sure that nothing gets missed in between this huge forest of "knobs and switches"…

Red Level

The Synthesizer Stage

Where the sound generation and tone sculpting takes place…

LFO – Low Frequency Oscillator

The LFO is a dedicated oscillator of low frequency signals for modulating several parameters from the synthesizer like:
DCO Oscillator pitch,
Pulse Width Modulation of the square wave and
VCF Modulation.
Its controls are as follow:

Rate slider – Sets the rate of the Lfo from slow to fast. (In the range of 0.2 to 180 Bpm)

Mode switch – Selectable between SLW (slow) and MLT (multiplied).
When mode SLW is selected the range of the rate knob is confined between 0.2 to 180 bpm, on the other hand when mode MLT is select it gets multiplied itself by the value set in the Factor switch

Factor switch – Selectable in steps of: 1.5, 2, 3, 4, 5, 6, 7, 8, 9 & 10

Step switch – Engages on stepped mode on or off. The stepped mode modifies the waveform of the LFO from its original shape to a more well... "Stepped" one, (works fine on waveshapes like Sine and Triangular, a little less on Saw and barely noticeable on Square and S/H).

Step slider – When Step switch is on, this slider controls the amount of steps applied to the waveform.

Delay slider – Controls the time it takes for the LFO signal to reach its maximum amplitude, from 2 to 6000 ms.

Wave switch – A selection of five different waveforms are available, such as: Sine, Triangular (these first two provides a more "even" modulation), Saw, Square and S/H (short for sample and hold). These ones provide a more "peaked" modulation signal.

Invrt switch – Inverts the phase of the Lfo waveform, (turns it upside down)

Bpm display – Displays the rate of the Lfo in Bpm (beats per minute)

Sync switch – Engages on "Sync mode" where the Lfo gets synchronized to the host tempo. When active the Bpm display changes to Factor, allowing the selection of various division or multiplication factors at choice.

Factor display – The factor display presents various factors at choice for dividing or multiplying the host tempo such as: T:32, T:16, T:8, T:7, T:6, T:5, T:4, T:3, T:2, T:1.5, T:1, TX1.5, TX2, TX3, TX4, TX5, TX6, TX7, TX8 and TX16. To select simply point your mouse arrow and move it upwards (faster) or downwards (slower)

DCO – Digital Controlled Oscillator

The main sound source of the Poly 2106 generates three different waveforms plus an extended sub oscillator (with five different selectable waveforms) and a noise oscillator.
Its controls are:

Range – The pitch of the DCO is selected here in 3 available steps: 16 = Low, 8 = Normal and 4 = High

Lfo switch – Turns the Lfo function (for pitch modulation of the DCO) on or off.

Lfo slider – When Lfo switch is on, this slider adjusts the depth of the pitch modulation effect over the Dco

Pwm switch – Turns the Pulse Width Modulation (of the square wave) on or off.
*(To better understand the concept of a Pulse wave lets say that in a square wave when the top and bottom portions of the same are unequal the result is called a pulse wave, sort of an asymmetric square wave that when compared to a regular square is increasingly thinner in tone, somewhat reminding the tonal colour of a reed instrument.

Pwm slider – When Pwm switch is on, this slider controls the amount of Pulse Width Modulation into the square wave.

Source switch – Next to the Pwm switch and Pwm slider (below the first arrow) is the source switch which selects the source of the Pulse Width Modulation that affects the square wave. The available sources are: Lfo, (pulse width is controlled by the lfo signal) Manual (Pulse width is controlled by the Pwm slider) and Env (pulse width is controlled by the envelope generator signal)

Square/Pulse wave switch – Is the first selectable waveform from the set (below the second arrow) turns the Square/Pulse wave on (highlighted in red) or off

Saw wave switch – Turns the Saw wave on or off.

Hexa Saw wave switch – Turns the Hexa Saw wave on or off. (You will like this one...)

Each of these three selectable waveforms has their own sound colour; the first one **Square/Pulse** has more of a hollow and “reedy”sound when compared to the remaining two. The second one, **Saw** has a fuller, more brassier tone and finally **Hexa Saw** sounds like a pile of Saw waves stacked together for a even insanely richer and fuller tone, remindful of the trademark Supers** sound that contaminated the trance music scene since the middle 90´s.

S-Wave switch – This is the switch that selects the Sub Oscillator waveform, a set of five different waveforms are available to be chosen for the Sub Oscillator and they are:
Sine, Triangular (these two being the less bright and neutral of the set), Saw, Hexa Saw and Square.

Sub switch – Turns the Sub oscillator on or off.

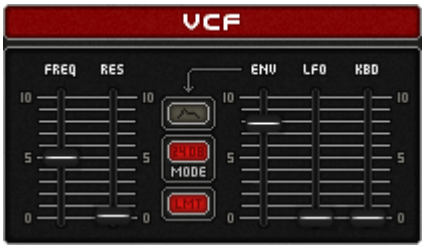
DCO – Digital Controlled Oscillator (continued…)

Sub slider – When Sub switch is on, this slider controls the volume of the Sub wave.

Noiz switch – Turns the Noise oscillator on or off.

Noiz slider – When Noiz switch is on, this slider controls the volume of the Noise oscillator.

VCF – Voltage Controlled Filter



The filter of the Poly 2106 is based around a Low pass filter selectable between 12 to 24db, the kind of filter that fits straight into the subtractive synthesis concept, it cuts or emphasises the harmonic content from the oscillators, Creamy, Fat and Punchy just like a good "espresso"
Its controls are:

Freq – This slider controls the cutoff point of the VCF, the more it is moved towards the lower position, the more high frequency content of the signal is removed or filtered until fading away completely, on the other hand moving the slider away from the lower position makes the high frequency content of the signal to reappear again.

Res – This slider emphasizes the frequencies around the cutoff point set by the Freq slider, as it is raised, more of the harmonics present in the signal are emphasized creating a more electronic and characteristic synthesizer tone. At higher values it is also capable of self oscillating (depending from how low the Freq slider is set).

Env slider – Controls the modulation intensity of the filter with the signal of the Envelope generator.

Env Polarity switch –Two modes available, normal and reversed (inverts the signal from the envelope generator).

Mode switch – Allows the selection of two distinct filter flavours, 12db with a more smooth and broader feel and 24db with a more deep and punchy taste.

LMT switch – The LMT switch turns on or off the internal filters limiter, useful to avoid high volume level peaks when the Resonance slider is set at maximum value.

Lfo slider – Controls the amount of LFO modulation over the VCF.

Kbd slider – Adjusts the keyboard tracking of the filters modulation, which is when the keyboard controls the filters frequency, at maximum level (after carefully tuning the Freq slider and setting Res to max) it is possible to obtain a tuned pitched behaviour from the filter itself.

VCA – Voltage Controlled Amplifier

The VCA is used for controlling the volume or amplitude of sound usually by the signal from the Envelope generator
Its controls are:

Env/Gate switch – Switch able between Env (the amplitude of sound is controlled by the envelope) or Gate – (the sound starts when you press a key and stops when depressed)

Level slider – This slider controls the overall volume of the VCA.

ENV – Envelope Generator

The Envelope Generator outputs control signals which affects the VCA and VCF therefore controlling the volume and tone colour of the synth, it can also be a source of manipulation for the Pulse width modulation of the square wave, its controls are:

A (Attack) slider – Determines the time required for the signal to reach its maximum amplitude once a key is pressed (the higher is set then more time it takes to reach its full value).

D (Decay) slider – Determines the time required for the control signal to drop from its maximum (set by the Attack slider) to sustain level. Notice that if sustain is set at a high level then the Decay will have no noticeable influence over the envelope signal.

S (Sustain) slider – Determines the level of the sustain portion of the envelope.

R (Release) slider - Determines the time required for the control signal to fade out once a key is released.

Orange Level

The Effects Stage

Where all the twisting turns into a vertiginous vortex of tone…

EFFECTS

The Effects section of the Poly 2106 splits the frontier between vintage to a more actual production ready scenario, four carefully designed and fully tweakable effects are at your disposal to take full advantage of these powered enhancing tools. This section only deals with switching them individually on or off.

Osc Warp switch – Turns the Oscillator Warp effect on or off

Mod Filter switch – Turns the Mod Filter effect on or off

Chorus switch – Turns the Chorus effect on or off

Delay switch – Turns the Delay effect on or off

(As said before this section only takes care of the individual switching for each effect, the next pages features a thorough description of the editing section of each of them)

OSC WARP

The Osc. Warp opens the door to FM (frequency modulation) on the Poly 2106, it affects every of the standard DCO waveforms excluding only Multi Saw and Noise.
Shimmering as well as clangourous, metalized pitch demented tones can be easily cooked here. Let's take a close look at its controls and features.

Depth knob – Adjusts the deepness range of the frequency modulation over the DCO

Source switch – Selects the source used for modulation with six different options to choose:

1) Man – The depth knob controls the overall extension and deepness of effect.

2) Auto – The control signal is taken from the dedicated Lfo, the auto rate is set in the Rate knob (or if in sync mode the Factor display), modulation depth is set with the Depth knob.

3) Env – The control signal is taken from the Poly 2106 ENV, modulation depth is set with the Depth knob.

4) Vel – The control signal is taken from the velocity applied to any key (or keys). It's by far one of the quirquiest modes available and here's why. When in Poly mode you strike a key (or keys) at a certain velocity and hold, the next key pressed will affect the overall response of the velocity all by the same, seems strange? Let's call it a peculiarity.. Oh and modulation depth is as usual set with the Depth knob.

5) Aftt – The control signal is taken from aftertouch (or pressure applied to the keys) and modulation depth is set with the Depth knob.

6) P-Bnd – The control signal is taken from the Pitch Bend signal (works the same either at negative or positive values), modulation depth is set with the Depth knob.

Mode switch – With three modes available, Soft; Hard1 & Hard2 each one bears its own fingerprint as we are going to explain;

1) Soft – This one is the more harmonically balanced of the bunch and hardly falls out of pitch, whatever you modulate it gently or deeply it remains consistent but yet harmonically rich at the same, one of our favs..

2) Hard1 – (Not to meant to be confused with hard on, lol) This one has more of an "untamed" like you know… character attached and if modulated a little bit hard it makes the oscillator falls out of tune easily generating tones with that ring modulated feel, nevertheless it can be tweaked to pitch stability as easy.

3) Hard2 – Pretty much the same as Hard1 on "extended mode".

Range switch – With three modes available, Low; Normal & High, it sets the pitched range of the Osc Warp tones. Set it to Low for more grungy subsonic deep tones, Normal for more tonal balance and High for more of a blistering screaming attitude.

OSC WARP (continued...)

Rate knob – Controls the manual Rate of the Osc Warp internal Lfo, ranging from 0 to 300 Bpm. (only noticeable when Source switch is dialled at “Auto” mode and Depth slider set a little bit above the low position).

Bpm display – Displays the value in Bpm (beats per minute) set by the Rate slider.

Sync switch – Allows the Osc Warp internal Lfo to be synchronized with the time set in the host tempo. Notice that when “Sync” is active (highlighted in red) the Bpm display is substituted by a new display named “Factor” which is where you can dial into the division or multiplication factor for the synchronized tempo. (Also notice that when “Sync mode” is active the Rate slider influence is automatically ceased)

Factor display – The factor display presents various factors at choice for dividing or multiplying the host tempo such as: T:32, T:16, T:8, T:7, T:6, T:5, T:4, T:3, T:2, T:1.5, T:1, TX1.5, TX2, TX3, TX4, TX5, TX6, TX7, TX8 and TX16. To select simply point your mouse arrow and move it upwards (faster) or downwards (slower)
(Again it is only noticeable when Source switch is dialled at “Auto” mode and Depth slider set a little bit above the low position).

MODULATION FILTER

From the start it seemed a good idea to have a second optional and full featured multimode filter stage on our Poly 2106. if not just to simply broaden up the sonic palette of our beloved synth and believe us it fits very well indeed. You will notice that once you start tweaking it back and forth, how juicy it is… lets learn something more about.

Rate knob – Sets the manual Rate of the Modulation Filter internal Lfo, ranging from 0 to 300 Bpm.

Bpm display – Displays the value in Bpm (beats per minute) set by the Rate slider.

Sync switch – Allows the Modulation Filter internal Lfo to be synchronized with the time set in the host tempo. Notice that when "Sync" is active (highlighted in red) the Bpm display is substituted by a new display named "Factor" which is where you can dial into the division or multiplication factor for the synchronized tempo. (Also notice that when "Sync mode" is active the Rate slider influence is automatically ceased)

Factor display – The factor display presents various factors at choice for dividing or multiplying the host tempo such as: T:32, T:16, T:8, T:7, T:6, T:5, T:4, T:3, T:2, T:1.5, T:1, TX1.5, TX2, TX3, TX4, TX5, TX6, TX7, TX8 and TX16. To select simply point your mouse arrow and move it upwards (faster) or downwards (slower)

M-Depth knob – Sets the Modulation depth of the internal Lfo over the Modulation Filter.

Wave switch – Features five different waveforms to choose from and that will give shape to the modulation pattern of the Modulation Filter internal Lfo, being them: Sine, Triangular (these first two provides a more "even" modulation), Saw, Square and S/H (short for sample and hold). These ones provide a more edged modulation signal.

Invrt switch – Inverts the phase of the Modulation Filter internal Lfo waveform.

Cutoff knob - Sets the center frequency (frequencies that are passed or cut) that is applied to the filter, values range from low to high. Notice that the behaviour of the Cutoff knob is directly related to the kind of filter that is selected in the Mode switch.

MODULATION FILTER (Continued…)

Mode switch – Featuring five different filter qualities to choose from such as:

1) LP1 – Classic 24Db Low Pass resonant filter – The lower the cutoff point is set, the more high frequency content is removed.

2) LP2 – Classic 12Db Low Pass resonant filter, offers a broader and more open kind of filtering than LP1

3) BP – 12Db Band Pass resonant filter – Only the frequency bands surrounding the cutoff point are let to pass, the others are cut.

4) HP – 12Db High Pass resonant filter – The higher the cutoff point is set, the more low frequency content is filtered and more of the high frequencies pass.

5) BR – 12Db Band Rejection non resonant filter – Special character, smoother and lighter type of filter that apply rejection around a certain portion of the high frequency content surrounding the cutoff point.

Spread switch – Depending from the values set in the M-Depth and Cutoff knobs, the Spread function allows the filter modulation signal to bounce or jump across the stereo panorama with a delightful stereo effect.

Res knob – This knob dials into the resonance applied to the centre frequencies set by the cutoff knob (excluding only the Band Rejection filter which is a non resonant type)

Mix knob – Mixes the Dry and Wet signals, useful for dialling into the balance of effect desired.

CHORUS

This is just the kind of effect that simply we couldn't leave behind in a synth of this calibre, offering four different chorus types to cover all the bases for when you're in need of some extra lushness. Lets move on to its controls and features:

Rate knob – Sets the rate of the Chorus effect from slow to fast.

Mode switch – Allows for the selection of four distinctive chorusing modes such as:

1) CHR1 – Regular stomp box like chorus type with a mild warm sound.

2) CHR2 – A more pronounced chorus type with a heavier modulation feel (as found on some revered 80´s era polysynths)

3) CHR3 – Very much like CHR2 but Heavier!! (Some of those revered 80´s era polysynths used to have two chorus modes available, so think of it as being the second one…)

4) ENS - Modelled after the Ensemble effects found on some older strings machines, this one exudes "Vintage" by every meaning of the word.

M-Depth knob – Sets the modulation depth of the Chorus effect.

CH-INT switch – Together with the M-Depth knob, it allows the selection of three scalable steps of intensity for the effect: Soft, Medium and Hard. (Will work for CHR1, 2 & 3 but not for ENS)

Spread knob – Adjusts the stereo spread of the Chorus effect (helpful on broadening up further the spaciousness of the effect)

Mix knob – Mixes the Dry and Wet signals, useful for dialling into the balance of effect desired.

DELAY

At the end of our effects chain arrives the Delay, but this one feature loaded for endless fun...
If you want to propel your sound into some sort of "spacious dimension" it is here for that tweaking trip…

Delay-L knob – Sets the delay time for the left channel from 1 to 1000 milliseconds (time is displayed in the corresponding MS reader)

Delay-R knob – Sets the delay time for the right channel from 1 to 1000 milliseconds (time is displayed in the corresponding MS reader)

Predelay knob – Sets the time for the predelay, from 0 to 500 milliseconds (displayed in the corresponding MS reader).The predelay is an optional delay line which is placed before the two main delays, left and right providing (when active) an additional rhythmic element into the entire delay equation.

Predelay on/off switch – Switches the predelay line on or off.

Feedbk knob - Sets the feedback or repetition rate of the effect, with values from 0 to 10. Set this to 0 (or near 0) for short repetition rates (or for slapback style delay when using short delay times) or increase the values for a more echoey style effect.

Mix - Adjusts the balance between the unprocessed and processed sound or in other words the dry/wet balance, ranging from 0 (only the dry signal is heard) to 10 (the dry and wet signals are mixed in equal proportions i.e. 50/50 providing an overall balanced sound from the effect.)

Mode – The delay mode selector allows the user to select between five distinct delay modes such as:

1) Digit – The Digital sounding delay (and the cleanest of the bunch…)

2) LP1 – A delay with smooth decay, interpolated with a non resonant low pass filter in the feedback chain.

3) LP2 - Similar to Lp1 this mode is a more drastic type and closely resembles the older analog delays based on the infamous Bucket Brigade Delay chips or BBD for short, where in each repetition the delayed signal looses some part of its original harmonic content and accumulates resonant peaks over each repeat, generating a delay sound with a dirtier & darker character.

4) BRT – The delay repetitions are interpolated with a non resonant band reject filter providing a thinner decay over each repetition cycle.

5) HPS - The delay repetitions are interpolated with a non resonant high pass filter providing an even thinner decay over each repetition cycle.

DELAY (Continued…)

Sync switch – Synchronizes each of the delay stages: Left, Right & Predelay with the time set in the host tempo. Notice that when "Sync" is active (highlighted in red), each and every "MS" display is substituted by a "Factor" display, its in that display that the division or multiplication factor is set, also when "Sync" is active any manual values set in the Predelay, Delay-L and Delay-R knobs simply cease their influence over the delay effect. Let's illustrate this:

Notice the three "Factor" displays, each for: Predelay, Delay-L and Delay-R.
Now let's show the available factors for each:

Factor (Predelay) – Allows only for multiplication factors (on a Beats per minute basis), available factors are: TX1, TX1.5, TX2, TX3, TX4, TX5, TX6, TX7 and TX8. To select simply point your mouse arrow and move it upwards (faster repeats) or downwards (slower repeats).

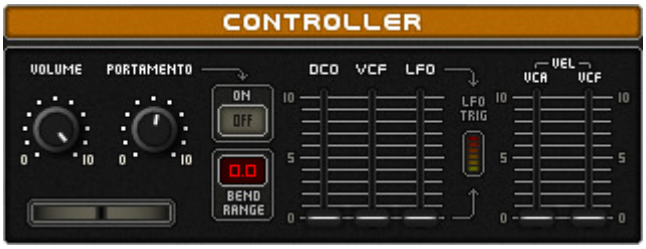
Factor (Delay-L & Delay-R) – Allows for the following factors to be chosen: T:2, T:1.5, TX1, TX1.5, TX2, TX3, TX4, TX5, TX6, TX7 and TX8. To select simply point your mouse arrow and move it upwards (faster repeats) or downwards (slower repeats).

Yellow Level

The Performance Stage

Set the controls for the heart of the “sound”…

CONTROLLER



This section is where you set new levels of controllability into the overall synthesizer's behaviour allowing for more expressiveness in your performance…

Volume slider – Sets the overall volume of the Poly 2106

Portamento slider – Portamento works as a slide or glissando type of sound between one pitch to another, the higher the value, the more time it takes to slide.

Portamento On switch – Three steps are available to control the Portamento function:

1) OFF– Disables the Portamento function.

2) LGAT – Portamento functions in legato mode, that is if you strike a key and without releasing it strike a new one you will get a slide from one to another, otherwise it will have no effect.

3) AUTO – Portamento will always work automatically and independently from whatever you play legato or not.

Pitch bend wheel – When you move the Pitch bend wheel in you controller (master keyboard) the Pitch bend wheel of the Poly 2106 moves accordingly to left (negative values) or right (positive values), with this control signal it is possible to have control over the DCO pitch and VCF cutoff point, regarding the position set in the DCO and VCF sliders.
(Also may influence the OSC WARP tone if P-Bend is set in the source switch, see page 10)

DCO slider – Sets the range of pitch bending for the DCO, ranging from 0 to 12 semitones. The semitones range are displayed in the "BEND RANGE" display and is controlled by the Pitch bend wheel in positive (left direction) or negative (right direction) values.

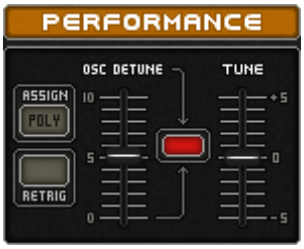
VCF slider – Sets the degree in which the Pitch bend wheel affects, or modifies the cutoff frequency of the VCF.

LFO slider – Whenever you use the Mod wheel, a control signal is outputted and it is with this signal that LFO modulation over the DCO pitch is achieved. The LFO slider allow you to control the intensity of the signal over the DCO pitch modulation, furthermore the signal intensity can be visually checked in the LFO TRIG display right next to the Lfo slider (regarding the rate and shape of the modulation, this one is set in the LFO stage, refer to page 4)

VCA VEL slider – Adjusts the degree in which the velocity information (how fast you strike a key) has influence over the volume of the VCA.

VCF VEL slider - Adjusts the degree in which the velocity information (how fast you strike a key) has influence over the Frequency or cutoff point of the VCF.

PERFORMANCE



Yet another set of key features
That influences the Poly 2106
Behaviour...

Assign switch – This switch affects the polyphony of the Poly 2106, when set for POLY the synth works in full eighth voice polyphony, the default mode, great for pads and chordal work (that irrevocably puts on some stress over the Cpu), otherwise when set for MONO the Poly 2106 works as a monophonic instrument which in turn is better suited for detailed basses and leads.

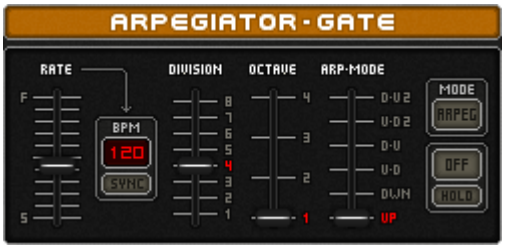
Retrig switch - Retrigger Envelopes (on VCF and VCA) when playing legato (you hit a note before releasing previous). Works when Assign switch is set on MONO (grey – off, red – on).

Osc Detune slider – Sets the detuning intensity over the DCO oscillators, regard that it only works when the small detune switch placed right to the Osc Detune slider is on (highlighted in red). It's really great to "thicken up" the synthesizers tone and absolutely insane when using the Multi Saw waveform. (Refer to page 5 on the DCO chapter)

Osc Detune switch – When on (highlighted in red) allows the Osc Detune slider to affect the DCO detuning, otherwise not.

Tune slider – Sets the main tuning of the DCO in an amplitude of +/- 1 semitone. Leave it set in the middle position or 0 for concert pitch.

ARPEGIATOR – GATE (ARPEGIATOR MODE)



The Arpegiator – Gate stage is a switchable two mode performance tool, in the first mode (selectable by means of the Mode switch) is a full fledged arpegiator and in the second mode a choppy rhythmically addictive Trance Gate.

Before delving further into the controls description, let's say that the Poly 2106 arpegiator is a full featured, performance oriented tool, which allows the user to step through a sequence of notes automatically related to the chord shape that is played. (Sounds great!!)
In the early eighties, arpegiators where a welcomed popular feature found in synthesisers, nowadays they are back on demand and we simply feel naturally obliged to fit one into the Poly 2106. Now a tour over the controls:

Rate slider – Sets the manual rate of the Arpegiator (in Bpm – Beats per minute), ranging from 30 to 240Bpm.

BPM display – Shows the value in Beats per minute which is set by the Rate slider

Sync switch– Allows the user to Sync the Arpegiator to the host tempo (ideal to keep the timing just right) – If this function is active, it automatically bypasses the tempo set by the Rate slider and the BPM display is substituted by a Factor display.

Factor display – The Factor display presents various factors at choice for dividing or multiplying the host tempo such as: T:4, T:3, T:2, T:1.5, T:1, TX1.5, TX2, TX3 and TX4. To select simply point your mouse arrow and move it upwards (faster) or downwards (slower)

Division slider – Ranging from 1 to 8, it subdivides the beat into eight steps levels from **1** (the slowest) to **8** (the fastest).

Octave slider – Sets the octave span range of the arpeggio. For example **1** arpegiates only the notes being played, **2** arpegiates the notes being played plus the same notes one octave higher, **3** arpegiates the notes being played, plus the same notes up to two octaves higher and **4** as you guessed arpegiates the notes being played plus the same notes up to three octaves higher.

Arp-Mode slider – The arpegiator mode features six different patterns or playing directions to choose from, such as:

UP – Up
DWN – Down
U-D – Up & Down
D-U – Down & Up
U-D2 – Up & Down variation
D-U2 – Down & Up variation

ARPEGIATOR – GATE (ARPEGIATOR MODE – continued…)

Arpegiator on/off switch – Turns the Arpegiator function on (written on and glowing red) or off (written off and grey)

Hold switch – When this function is on, it allows the notes being played to be memorized by the Arpegiator and played indefinitely (or until you switch this function or the On/Off switch to off). You just have to play the chord shape once for it to be repeated over and over, and if you hit another chord shape, it will continue to follow…

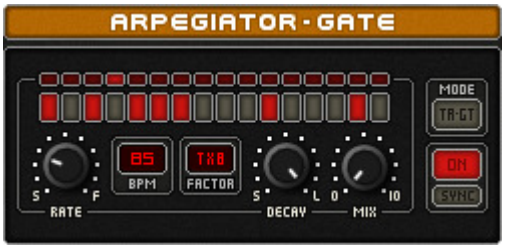
Before closing the Arpegiator chapter, let us say that in order to play the Arpegiator in a intelligible manner, it is advisable to set the attack range of the envelopes to short values, specially at higher speed rates, however at slow speed rates you can set the attack range of the envelopes to longer values but its all a matter of try until you feel what's best for you and your performance…

Mode switch – The Mode switch is selectable between two modes:

ARPEG – The Arpegiator mode (as we are being presented so far).

TR-GT – The Trance Gate mode (that follows right on…)

ARPEGIATOR – GATE (TRANCE GATE MODE)



This is now the second mode, already announced as the "choppy rhythmically addictive Trance Gate…" And honestly it cannot be truer than that because once you put it in action; the groove generated may get you glued on the keyboard for indefinite time… Now let's learn a little bit more out of it…

16 Step On/Off Pattern – Each of the sixteen patterns (or steps) can be individually turned on or off, for that, use your mouse to turn them on or off. When a segment is on (highlighted in red) it open up the gate to let pass a portion of the sound (otherwise it stays muted). Notice that each segment corresponds to a quarter note beat

Rate knob (Manual Rate) – Sets the time in Bpm (Beats per minute) of the Trance Gate.

BPM display – Displays the tempo set by the Rate knob, or alternatively the tempo set by the host (when Sync switch is on)

Factor display – Here you can set the speed factor multiplication affecting each pattern, values selectable from: TX1 (equal to a quarter note beat), TX2, TX3, TX4, TX6, TX8, TX12 and TX16. To select simply point your mouse arrow and move it upwards (faster) or downwards (slower)

Decay knob – This slider affects the decay time of each step pattern, ranging from short (the sound decays fast and therefore becomes more sharp or accentuated) to long (the sound takes more time to decay). For example if you had a row of two or more consecutive steps activated, with a short decay value you are likely to discern something like a pulse between each, however with a long decay time it would sound as if they are linked together, with no discernible accentuation in between them.

Mix knob – Mixes the Trance Gate "processed" sound (at 0 position for full effect) with the "straight" unprocessed sound (the closer to 10, the more straight sound passes on).

Sync switch – Allows the synchronization with the host tempo (the host tempo is displayed in the BPM display). When active the Rate knob is automatically disabled.

On/Off switch – Turns the Trance Gate on or off.

Mode switch – The Mode switch is selectable between two modes:

ARPEG – The Arpegiator mode

TR-GT – The Trance Gate mode (the one we are presently exposing)

MIDI AUTOMATION

The last module from the Performance stage where automation of each parameter from the Poly 2106 is possible.
(With for example a dedicated external hardware controller or some other source available)

Learn – Click on this for enabling the learn function (activated by means of clicking or moving the slider, knob or button in the master controller). When active, the "LEARN" word just above the switch changes from white to red, until the change in controller takes place. (After the change is set it gets back to white again)

Reset – This resets the Poly 2106 to its default controllers.

Midi – Ch – This chooses the appropriate midi channel that will control the synthesiser functions, Selectable between All, (all midi channels from 1 to 16) and 1 to 16. This makes possible to switch to a specific midi channel to control the synthesizer functions. To select the appropriate channel, simply click and drag the mouse over the controller

On – This enables the midi automation for the Poly 2106, active when highlighted in red. Disabling it turns the automation off, however is still possible to automate the effects functions from within your host sequencer.

The following pages follow a thorough description of each and every Midi controllable parameter from the Poly 2106 by sections.

POLY-2106 MIDI Controller List
By Sections

LFO
10 lfo rate
NRPN 1 lfo mult. factor
11 lfo mode - slow / multiplied
12 lfo shuffle
13 lfo shuffle on/off
14 lfo delay time
15 lfo wave selector
16 lfo wave sel. phase
17 lfo host sync sw
NRPN 2 lfo sync division factor

DCO
18 dco range selector
19 dco lfo modulation
20 dco lfo modulation on/off sw
21 dco pwm
22 dco pwm on/off sw
23 dco pwm source sel
24 dco sub wave selector
25 dco sub wave level
26 dco sub wave on/off sw
27 dco square wave on
28 dco saw wave on
29 dco multi saw on
30 dco noise level
31 dco noise on/off sw

VCF
64 vcf freq slider
65 vcf res slider
66 vcf env phase sw
67 vcf 12/24 db selector
68 vcf limiter sw
69 vcf env range
70 vcf lfo mod
71 vcf kbd track

VCA
72 vca env/gate sw
73 vca level

ENV
74 eg attack
75 eg decay
76 eg sustain
77 eg release

EFFECTS
78 osc warp on/off sw
79 mod filter on/off sw
80 chorus on/off sw
81 delay on/off sw

OSC WARP
82 osc warp depth
NRPN 3 osc warp source selector
NRPN 4 osc warp mode selector
NRPN 5 osc warp range selector
83 osc warp auto rate
84 osc warp rate sync sw
NRPN 6 osc warp sync rate factor div

MODULATION FILTER
85 mod filter rate
86 mod filter depth
87 mod filter cutoff
88 mod filter res
89 mod filter mix
90 mod filter host sync sw
NRPN 7 mod filter sync division factor
NRPN 8 mod filter wave sel
91 mod filter wave inv sw
NRPN 9 mod filter filt. selector
92 mod filter spread sw

CHORUS
93 chorus rate
94 chorus mod depth
95 chorus spread
96 chorus mix
NRPN 10 chorus mode selector
NRPN 11 chorus intensity sw

DELAY
97 delay - predelay time
102 delay - predelay on/off sw
103 delay time left
104 delay time right
105 delay feedback
106 delay mix
NRPN 12 delay mode selector
107 delay sync sw
NRPN 13 predelay sync division factor
NRPN 14 delay left sync division factor
NRPN 15 delay right sync division factor

CONTROLLER
07 main volume
05 portamento time
NRPN 16 portamento mode
108 dco pitch bend range
109 vcf pitch bend range
110 lfo mod wheel range
111 vca vel range
112 vcf vel range

PERFORMANCE
113 poly/mono mode sw
114 retrigger env. sw
115 osc detune range
116 osc detune sw
117 main tune

ARPEGIATOR - GATE
118 arpeg/gate selector sw
NRPN 17 arpeg. rate
NRPN 18 arp. div. factor
NRPN 19 arpeg. octave range
NRPN 20 arpegiator mode
NRPN 21 arpeg. on/off
NRPN 22 arpegiator hold
NRPN 23 arpeg. sync to host sw
NRPN 24 arpeg. sync division factor

NRPN 25 t.gate man rate
NRPN 26 t.gate decay
NRPN 27 t.gate mix
NRPN 28 t.gate on/off sw
NRPN 29 t.gate sync to host sw
NRPN 30 t.gate multiply factor
NRPN 31 tg step 1
NRPN 32 tg step 2
NRPN 33 tg step 3
NRPN 34 tg step 4
NRPN 35 tg step 5
NRPN 36 tg step 6
NRPN 37 tg step 7
NRPN 38 tg step 8
NRPN 39 tg step 9
NRPN 40 tg step 10
NRPN 41 tg step 11
NRPN 42 tg step 12
NRPN 43 tg step 13
NRPN 44 tg step 14
NRPN 45 tg step 15
NRPN 46 tg step 16

POLY-2106 Presets List

Basses – 001 to 017

001 - Barbie String Bass
002 - Bass Guts..
003 - Basstone Electro
004 - Blunted Bass
005 - Heavyweight Bass
006 - Mufled Tri Bass
007 - Rip Saw Bass!!
008 - Salt Bass
009 - Sequentiated Bass
010 - Sequent. Sawboost
011 - S/H Monolog Bass
012 - Sub Sines
013 - Sub Woofa..
014 - Technotron Bass I
015 - Technotron Bass II
016 - Teluric Bass
017 - Zawinul 2600 Bass

Strings – 018 to 024

018 - 80s Strings Pad
019 - 80s Strings Pad+
020 - 2106 Signature Strs
021 - Shine on you... Strs
022 - Solina Special..
023 - Solina Strings
024 - Strings Delight

Pads – 025 to 045

025 - 2106 Voices
026 - Ayla´s Gate
027 - Barbie Aqua Chords
028 - Bouncy Octaves
029 - Brokened Pad
030 - Carpet Pad Magic
031 - Filtered Motion S.S.
032 - Filtered Superstring
033 - Gated und Filtered Ready
034 - *JUMP* HALEN
035 - Keys from the past..
036 - Lfo Mystic
037 - Lfo Mystic II
038 - Modulation Festival
039 - Movin Pad
040 - Ogran Pad
041 - Pulverized Chords
042 - Semifiltered Pad
043 - Slow Poly..
044 - Trem-o-Poly..
045 - Voco morph pad

Stabs – 046 to 053

046 - Klavier 2106
047 - Lollipop Darude
048 - P.Bnd Filtered Stabs
049 - Sandstorm Stabs
050 - Superstring Stabs
051 - Superstring Stabs+
052 - Superstring StabX
053 - Technotron Str Stabs

Leads – 054 to 061

054 - Grainy PW Lead
055 - P.Bend Feedbk Lead
056 - QuasiSync Lead
057 - Seven Days Phrasing
058 - Shine on you.. Brass
059 - Squarified Lead
060 - Straight Saw lead
061 - Vintage Brass

Arpegiated – 062 to 064

062 - 2106 Bell Arpegio
063 - Arpeged Tone
064 - That Big Arpegios..

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