

Minimax Model for Dino Park

User Manual V1.0

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1. General

1.1 Welcome

Thank you for choosing DinoPark and joining the MakeProAudio Community.

CreamWare set the standard for analog modelling and emulation in the late 90s with pristine sound quality and meticulous sound replication of the most revered analog classic synths.

The DinoPark ‘Minimax’ presents the original CreamWare “faithful” modelling emulation with all its unparalleled quality in a new exciting and accessible form.

Please don't hesitate to provide us with feedback and share your Dino Park music making experience.

ENJOY!

The MakeProAudio Team



1.2 Document Version

Software Version: 1.0

| Document Version | Date | Changes |
|------------------|------------|-----------------|
| 1.0 | 12.08.2019 | Initial Version |

1.3 Product Overview

Minimax is an accurate emulation of one of “the synthesizers that started it all”. Its sound and ease of use made this instrument an all time classic and its layout became a role model for many other synthesizers. Its sound is famous with its powerful oscillators its musical filter and the quick envelopes.

For Minimax, the CreamWare Team remodeled all components faithfully after the original’s circuitries based on algorithms that are free of any aliasing. So Minimax handles even the most complex Modulations, filter FM or Oscillator-Modulation. Moreover, the nice thing about it, Minimax will always sound like the original.

We have also extended the sonic creative possibilities of the original Minimax with additional effects routing capabilities. Additionally – the Original had only one beautiful voice, desperately waiting for others to join. Now it’s all in your hands – you can choose between playing monophonic or polyphonic with 10 voices – it’s up to you.

1.4 Key Features

- Ten voice virtual analog subtractive Synthesizer modeled after a vintage classic
- 3 Oscillators with 5 Waveforms and range controls per voice
- Mixer with switchable routings and feedback
- Noise Generator with white and pink noise
- 24 dB resonant Low Pass ladder filter with dedicated ADS(R) envelope
- Oscillator 3 can be switched to LFO range for filter cutoff and pitch modulation
- Integrated feedback loop for extra distortion
- Chorus/Flanger & Dual Channel Delay Effects with extensive controls including phase & feedback

2. Plugin Functionality

2.1 How to install

Installing the VST Plugin for your DinoPark Synth Model is super easy. Just copy the plugin files to your VST plugin folder. You may have to rescan the plugins folder with your DAW to make the plugin appear in the list.

Standard VST Folder location on Mac OSX

To unhide the “Library” folder on OSX just open finder and select the “Go To” menu while holding the option key. This will make the link to the folder visible. From here on find the subfolder “Audio/Plug-Ins/VST” and copy the *.vst files.

Standard VST Folder location on Windows

There is no fixed standard folder for VST plugins under Windows, so depending on the Software that you use there are certain potential paths where you could place the files. Please use the one that’s common to your system and gets scanned by your DAW and copy the *.dll files to the location.

Potential plugin folder locations:

- C:\Program Files\Common Files\VST
- C:\Program Files(x86)\Common Files\VST
- C:\Program Files\VST
- C:\Program Files\Steinberg\VstPlugins
- C:\Program Files (x86)\Steinberg\VSTPlugins

2.2 Main Menu



Main

Click the button to show the main panel with the synthesizer controls.

Add

Click the button to show the add panel with effects and additional synthesizer controls.

Plugin Active

This field displays the connection status of your DinoPark hardware. If the model on your DinoBoard matches with the VSTi editor the field lights up in green. If the field is not illuminated check your USB connection or recall a preset to load the corresponding synth model on your DinoBoard.

Keyboard

Click this button to show the internal MIDI keyboard in the bottom of the user interface.

Mixer

Click this button to show the mixer controls in the bottom of the user interface.

Presets

Click this button to show the preset management section and the MIDI monitor in the user interface.

2.3 Keyboard



Keyboard

The keyboard is directly wired up to the currently loaded synth model.

Octave

Use the dropdown to change the octave of the keyboard by +/- 3 Octaves.

All Notes Off

Click this button to send an all notes off command to the synth model.

2.4 Memory Section

Use the memory section to control your patch data.



Save Preset to Disk

Clicking this button will open a save dialog from your operating system. Choose the destination on your disk the preset file will be saved to.

Load Preset from Disk

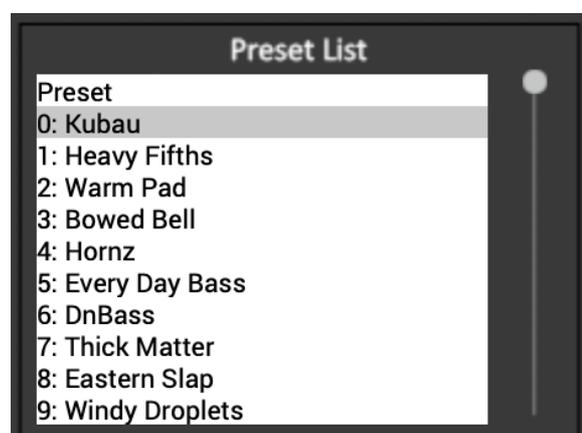
Clicking this button will open a loading dialog from your operating system. Choose a file (please use files with the extension *.mpapreset) from your disk to be loaded to the selected slot in your preset list.

Bank Panel

Displays the name of the bank currently visible in the preset list

Patch Panel

Displays the number of the currently selected patch. Use the +/- buttons to switch to other patches.



Preset List

Displays the patches that are in the current bank.



Recall

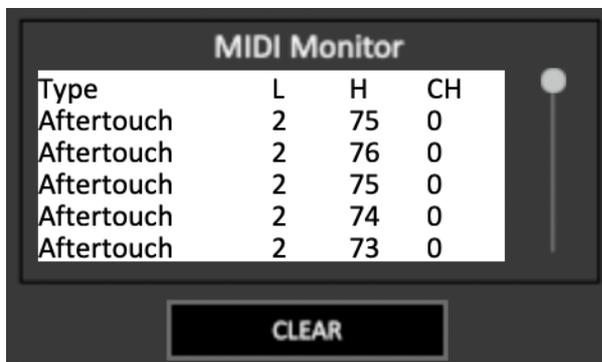
Loads the currently selected patch to the UI and any connected DinoPark units.

Overwrite

Overwrites the currently selected patch with the values set in the UI or on your DinoPark unit.

2.5 MIDI Monitor

Displays the MIDI data generated by the plugin that is sent to your device. Use this section for debugging purposes.



Type - Type of MIDI message

L - Controller number

H - Controller value

CH - MIDI Channel

Clear

Clears the display of the MIDI Monitor.

2.6 Mixer Section

In the Mixer section you can control levels, bass, treble and saturation for the signals running inside of your DinoPark system.

2.6.1 Synthesis Model

In the Synthesis Model section you can control whatever Synth Model you have selected.

Saturation

With the drive knob you can add harmonic distortion to your signals. The algorithm will give your signals some gentle accentuation when used with a low setting. With a high preset volume and boosted to its full strength it can heavily distort your signal.. Please mind that distortion effects increase the signal level. Use the gain knob to avoid digital clipping.



Balance

With the balance control you can position your signal in the stereo field.

Bass/Treble

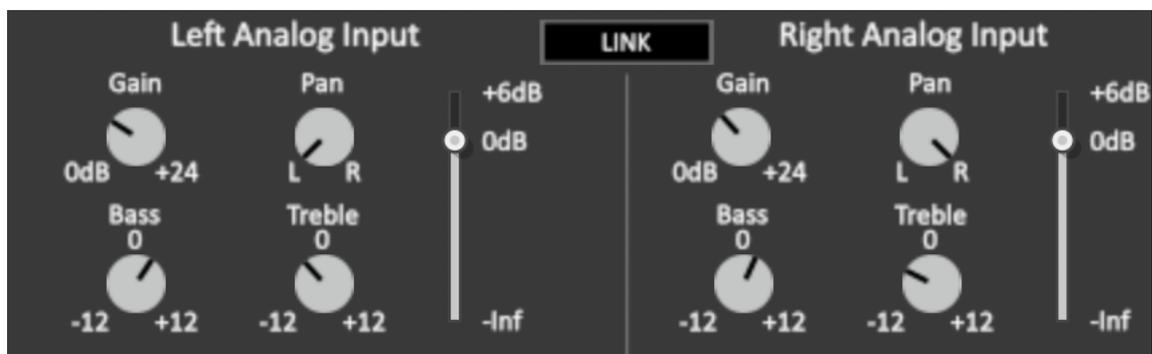
The EQ section comes with a two channel equalizer. With the knobs you can attenuate or boost the shelving bands by 12 dB.

Channel Fader

The Fader can be used similar to a channel fader on a mixing desk. Boosting to the max will yield in a 6dB gain. The attenuation of the signal goes down to complete silence.

2.6.2 Analog Input Channels

The analog input comes with two equal channels that can be linked for convenience.



Gain

With the gain knob you can boost the signals coming into DinoPark by max. 24 dB.

Pan

With the pan control you can position your signal in the stereo field.

Bass/Treble

The EQ section comes with a two channel equalizer. With the knobs you can attenuate or boost the shelving bands by 12 dB.

Channel Fader

The Fader can be used similar to a channel fader on a mixing desk. Boosting to the max will yield in a 6dB gain. The attenuation of the signal goes down to complete silence.

Link

Engage the link function to couple the Pan controls of the two input channels. The channels will work in stereo configuration with hard left/right pan but retain individual control over EQ and level.

3. MAIN Page

This section describes the main synthesizer functionality and the controls you can find on the MAIN page.

3.1 Controllers

In this section, we will take into account common operations concerning this instrument and its modulation routing.

Tune

This switch changes the entire instrument's tune by +/- 2.5 half steps.

Glide On

This button activates the Glide function. A played note will then glide into the next.

Glide

When Glide is activated, you can adjust the amount of time it takes to reach the target note when two notes overlap.

Modulation Mix

Here, you can adjust the mix between Oscillator 3 and noise. The resulting signal serves as a modulation source for the oscillator bank and filter. In order to hear the results, all modulations need to be adjusted in equivalence on the modulation's wheel intensity.

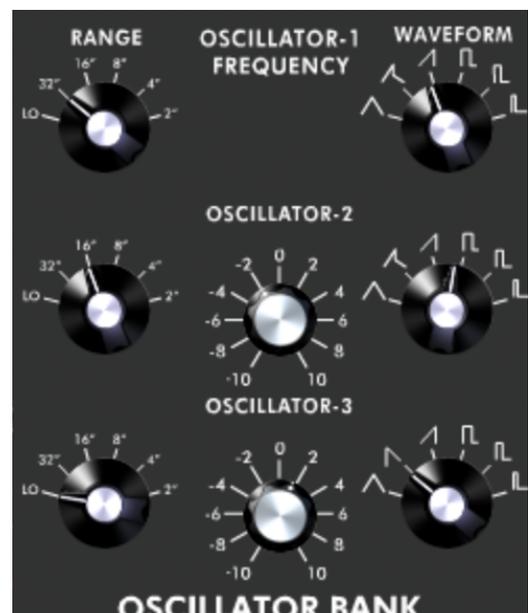
Decay On

This switches the envelopes decay time to release. The release time will be also modulated with the Decay knobs. If Decay is turned off, release will be at a minimum.



3.2 Oscillator Bank

The oscillator bank has three oscillators. It is possible with each oscillator to adjust its octave range as well as waveform. Oscillator 2 and 3 can furthermore be detuned with the Frequency knob. Because oscillator 3 can also be used as a modulation source, it is possible to separate it from the keyboard's frequency input. The oscillator then acts as an LFO (Low Frequency Oscillator). You can adjust its speed with Range and Frequency. A button activates the oscillators pitch modulation. An LFO is used as a modulation source and can control parameters such as cutoff for example.



Range

You can choose the oscillator octave's range. The adjustments are Lo, 32, 16, 8, 4 and 2 where as the values 32' and 16' are best for basses and values 8' and 4' best for lead sounds. If you would like to use oscillator 3 as an LFO, then choose the value Lo.

Waveform

You can choose the oscillator's waveform. For each oscillator, there is a choice of six waveforms, which are triangle, a mix between Saw Wave and Triangle (Sharktooth), an Ascending Saw Wave, Square, Wide Pulse and Narrow Pulse. As a special feature, Oscillator 3 uses a Descending Saw Wave instead of a mix between Triangle and Saw Wave.

Frequency

You can detune oscillator 2 and 3 with oscillator 1. The scale shows the amount of detune in half tone steps with a maximum of 9 half tone steps.

OSC 3 Control

Here it is possible to separate oscillator 3 from the keyboard ('s frequency input). Oscillator 3 then acts as sound element with a fixed frequency - for example, as an LFO. When oscillator 3 is used as a modulation source, it can act like an LFO. Use the Frequency knob for controlling the LFO speed with Range set to LO or as an audio rate modulator on higher range settings

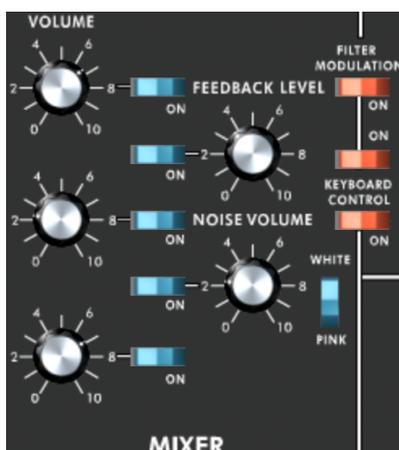
When oscillator 3 is used as a modulation source, it can act like an LFO. Use the Frequency knob for controlling the LFO speed with Range set to LO or as an audio rate modulator on higher range settings.

Oscillator Modulation

Here you can activate pitch modulation for all three oscillators. The signal, adjusted within the Modulation Mix, works as a modulation source. This can be either oscillator 3, noise or a mix of both. The modulation wheel and its parameters can adjust the intensity. (Shown in the Modulation Wheel Settings.



3.3 Mixer



In this section, all signals are mixed before they go through the Filter. The signals are oscillators 1, 2 and 3 through, the noise generator and the synth output routed back into the mixer (feedback). That is altogether six sound sources including filter oscillation, directly produced by the filter. Every sound source has a specified knob to adjust the volume and an on/off switch. If wanted or needed, it is also possible to distort external signals.

Volume

Here you can adjust the volume of each oscillator.

Feedback Level

This function connects the synthesizer's output to the external input. You can use the external input amplifier to distort incoming signals. Feedback Level controls the amount of feedback or distortion.

Noise Volume

Here, you can adjust the noise's volume. If noise acts as a modulation source, volume adjustment will not affect the intensity of the modulation. In this case the modulation signal will be taken as is before going through this section.

Noise White/Pink

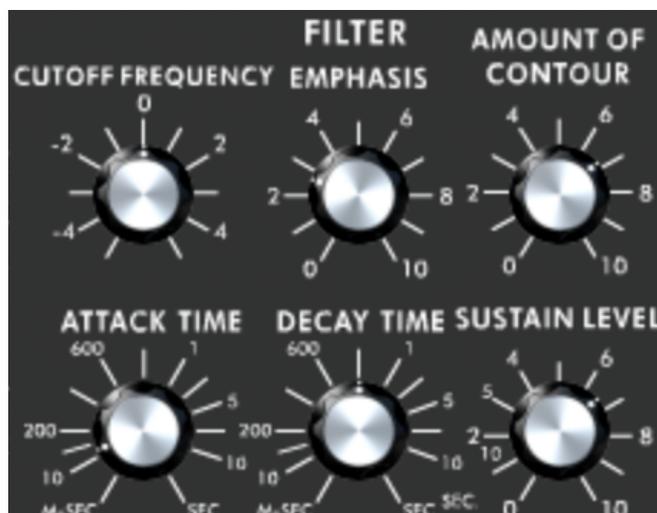
You can choose the type of noise. Your choice will affect modulation if noise is used as a modulation source. White noise is constant noise throughout the whole frequency spectrum whereas Pink noise is noise that matches the frequency response of the human ear and isn't as harsh as white noise.

3.4 Modifiers

In this section, filters and amplifiers modify the signal. Both filter and amplifier each have an envelope with attack, decay and sustain. A switch in the Controllers section sets Release to the Decay Time.

Filter

The filter together with the envelopes define the way the sound progresses. The filter is a 24db/Octave Low pass filter. Frequencies under the cutoff frequency remain unchanged, reason for the term Low pass. There is a 24db/Octave reduction for frequencies over the cutoff frequency. With use of DSP-oversampling the filter remains free of aliasing.



Cutoff Frequency

This is the frequency above which the spectrum is cut. Overtones are reduced this way. You can change the Cutoff Frequency manually.

Emphasis

Emphasis describes the Resonance parameters. The Resonance is created by routing the feedback of the Filter Output to the Filter Input. The frequencies around the cutoff frequency will be strengthened this way. On full Emphasis the Filter sweeps in its own resonance and creates a sinus tone at the chosen cutoff frequency. Therefore the Filter can be looked upon as the sixth sound source.

Amount of Contour

Adjust the intensity of the envelope on the Filter here. Cutoff will follow the envelope course with the adjusted intensity – this way you can create a sound flow. Starting and End point of the envelope course is the adjusted cutoff frequency.

Attack

This controls the attack time of the envelope, the envelopes first segment. When setting Attack to a maximum, the envelope increases in time. The increase ratio is defined by the amount of contour. Both Cutoff Frequency and Amount of Contour determine the maximum level.

Decay

This controls the envelopes second segment. Within the Decay-Phase the envelope falls down to the Sustain value within the given time . When activating the decay button in the Controllers Section, the envelope takes charge of the release time, too.

Sustain

This is the third segment of the envelope. This controls the level the cutoff stays on after the attack and decay phase while holding a note on the keyboard. The Sustain's effect is independent from Cutoff Frequency and Amount of Contour adjustments.

Release

Finally yet importantly, Release is the fourth segment of the envelope. It is only active when the Decay button is on. There are no controllers for the release phase. The envelope goes back to its minimum in the Release-Phase. The base value of the envelope is defined by cutoff. The time for the envelope falling to its minimum is defined by Decay.

Filter Modulation

Here you can activate additional Filter-Modulation. The source will be the signal defined within the Modulation-Mix section. This can be Oscillator 3, Noise or a mix of both. Intensity can be adjusted by using the Modulation-Wheel and its additional parameters.



Keyboard Control

This activates the Cutoff Key Follow function with two steps possible. By activating the upper push button (1) the cutoff frequency follows with 1/3 octave per octave on the keyboard. By activating lower push button (2) the cutoff frequency follows with 2/3 octave per octave on the keyboard. Activating both push buttons will result in a full octave – cutoff then follows the frequency played on the keyboard.

3.5 Loudness Contour

Together with the envelope the Amplifier defines the volume-curve of the sound.

Attack

Attack defines the duration of the first envelope segment. Within the Attack Phase the envelope curve increases within the adjusted time to the maximum adjusted volume.



Decay

Decay describes the duration of the second envelope segment. Within the Decay-Phase the envelope curve falls within the adjusted time to the volume adjusted under Sustain. If you activated the push button Decay within the Controllers Section, the time chosen there will be taken for release of the envelope.

Sustain

Sustain is the third segment of the envelope curve and describes the volume, on which the envelope curve remains after Decay.

Release

Release is the fourth element in influencing the envelope curve. It is only active, if the Decay push button is switched to “On” position. The Release-Phase can not be adjusted by a dedicated button or knob. Within the Release-Phase the envelope falls down to its minimum and the sound disappears. The duration of this process can be adjusted with the Decay knob.

3.6 Output

Volume

With the Volume setting you define the volume of the complete instrument. Please turn down the volume, if distortion in polyphonic sounds should occur.

The volume is placed before the effects section, thus you can use the volume knob also to measure the effects. If you have a heavy feedback from the flanger you can herewith avoid distortion. The volume settings will be stored separately for every preset.

Velocity

The keyboard’s velocity modulates the intensity of the envelope. The Envelope increases or decreases in modulation depending on how intense the keyboard is played. The upper knob controls the Amplifier’s Envelope and the lower knob, the Filter Envelope.



4. ADD Page

The ADD Page is built into all DinoPark Synth Models and features pristine audio effects and access to performance control settings and additional synthesizer controls.

4.1 Controllers

The Controllers Section offers elements to adjust modulation and pitch bend.



Bend Range

Here you can adjust the number of half tone steps, by which the tone shall be pitched upon maximum movement of the Pitch-Wheel.

MWint

MWint adjusts the intensity of the Modulation Wheel.

MWOffs

Here you can adjust the offset or in other words the start value of the Modulation Wheel.

LO Note

LO Note starts the Low-Note-Priority function. Low notes will have priority over high notes and a high note cannot cut a low note. If Low-Note is not active, the instrument will switch to Last- Note-Priority , so always the last note played will be active.

Retrig

Here you can adjust the Retrigger behaviour. When activated, RETRIG will restart the envelope curves with every new note received. When Retrig is switched off you can play legato.

Single

The single mode reduces the voices of the instrument to one voice, no matter how many voices had been loaded before. Herewith correct playback of Solo-Sounds with Portamento is possible.



4.2 CV

Within the CV SECTION you can adjust the after-touch behaviour.

OSC

Here you adjust the after-touch intensity for all oscillators.

Filter

Choose here, how much effect after-touch shall have on the Filter.

Loudness

This one adjusts the aftertouch intensity of the volume.



4.3 Chorus / Flanger

As its name indicates, the chorus effect thickens and broadens the sound, producing the sonic illusion of multiple similar instruments playing in unison. The chorus employs a delay whose length is modulated over time, resulting in continual small pitch variations. Mixing of the delayed and original signals produces the chorus effect.

The flanger works in much the same way as the chorus, but employs a somewhat different type of delay time modulation and – more importantly – substantially shorter delay times, combined with feedback. To obtain a full-impact flanger effect, some amount of feedback should be used. The flanger then not only thickens the sound, but also adds a noticeable tonal coloration, as the feedback significantly intensifies comb-filter effect of the flanger.

Chorus/Flanger

Selects the type of effect to be used (either chorus or flanger).

Rate

Adjusts the rate of delay time modulation of the chorus or flanger.

Depth

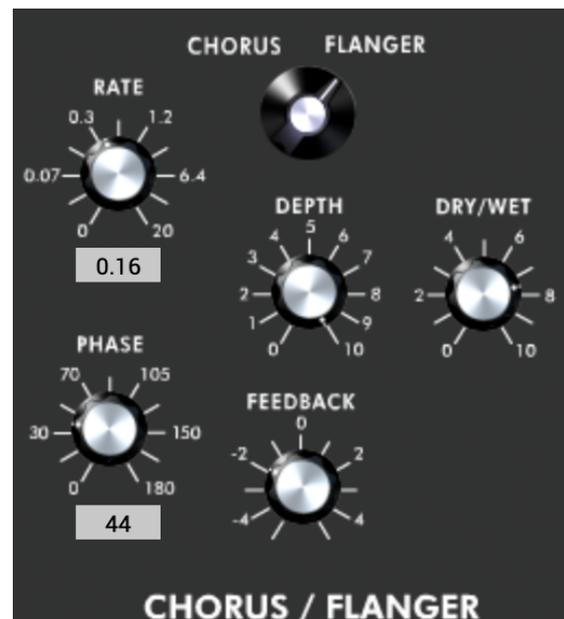
Sets the intensity of the delay time modulation.

Phase

Permits introduction of an offset between left and right delay modulation signals, resulting in a broadening of the stereo image.

Feedback

This control adjusts the intensity of the comb-filter effect which is responsible for the typical flanger sound. Negative feedback settings invert the phase of the feedback signal and produce a modified comb filter effect.



Dry / Wet

This controls the mix balance between the dry and effected signals - a maximum setting gives 100% chorused / flanged sound with no dry signal.

4.4 Delay Left / Right

The delay is positioned at the very end of the signal chain. This is a stereo delay which is capable of both dual-delay and cross-coupled delay effects. Delay times can be controlled in terms of time or note values.



Time

Continuous delay time setting.

Feedback

Sets the amount of delayed output signal which is fed back to the delay input and delayed anew. This can also be viewed as the "number of echoes" control.

Damp

Adjusts the amount of high frequency damping (reduction) applied to the signal going through the feedback loop.

Level

Controls delay volume.

BPM On

This mode switch permits the delay time to be specified in terms of BPM and note values instead of in milliseconds. The time parameter disappears from the surface and is replaced by a drop-down menu containing various note values.



Note L/R (BPM-Mode)

Adjusts delay time in terms of note values. The abbreviations D and T stand for dotted notes and triplets. The minimum note length (i.e., delay time) corresponds to $1/64 T$. The maximum note length depends upon the tempo setting – at lower tempi, the maximum possible note value becomes more limited. If a particular setting would result in a delay time greater than the maximum possible value of 5460ms, the next-largest possible note value is automatically used instead.

Tempo

Sets the tempo which is used as the basis for interpreting delay times specified as note values.

Cross

Activates the internal cross feedback signal routing. The left delay output is fed back to the right delay and vice versa.

Dry / Wet

This controls the mix balance between the dry and effected signals - a maximum setting gives 100% delay with no dry signal.

Bypass

Switches the effect on or off. When switched off, the effect is bypassed and is unloaded from the DSPs.

5. MIDI Implementation

5.1 Change patches and synth models via MIDI

It is possible to change patches and even synth models remotely via the MIDI protocol.

Change Patch

Send a single program change message to select a patch in the current bank for the current synth model.

Change Bank

Send a bank change message (with a set LSB) followed by a program change message to select a patch in the new bank for the current synth model.

Change Synth Model

Send a bank change message (with a set MSB) to change the synth model. If you not attach a bank change LSB and a program change the device will load the first patch in the factory bank.

| Bank MSB | Bank LSB | Program Change | Comment |
|-------------|-------------|----------------|--------------|
| (Bn 00) hex | (Bn 20) hex | (Cn xx) | |
| Value: | Value: | Value: | |
| 0 | 0 | 0 - 49 | Factory Bank |
| 0 | 1 | 0 - 49 | User Bank |

5.2 How to use NRPN

You can use MIDI NRPN controllers to manipulate device parameters. Our implementation does follow the MIDI 1.0 Standard.

Status Byte: Bn

| Function | Databyte | | Comment |
|-----------------------|----------|-----|---|
| | Dec | Hex | |
| Parameter Address MSB | 99 | 63 | For now, always 0 (We only use the first bank of NRPN commands) |
| Parameter Address LSB | 98 | 62 | Parameter address (please refer to MIDI-Implementation-Chart for mapping infos) |
| Value MSB | 06 | 06 | For now, always 0 (We currently not support high resolution controllers) |
| Value LSB | 38 | 26 | This command engages the value on the address |

5.3 Magic Keys

We have implemented a way to control synth models and presets without any controller, just right from the connected Keyboard. Please mind that this only works on 3.5mm TRS MIDI and USB Host inputs. To deactivate the Magic Keys system you can set the first DIP switch on your DinoPark board to 0.

In any situation, just hold any block of black keys F#,G#,A# and use the following keys:

| Note Key | Plugin | |
|-----------------|-----------------|--|
| C | Minimax | Select synth model with the white keys within the same octave (The preset 0 in bank 0 will be loaded) |
| D | Pro-12 | |
| E | Prodyssey | |
| F | B4000 | |
| C# (left side) | Next Preset | Change Banks with the black keys pair left of the ones you are holding |
| D# (left side) | Previous Preset | |
| C# (right side) | Next Bank | Change Presets with the black keys pair right of the ones you are holding |
| D# (right side) | Previous Bank | |

5.4 Performance Control Mappings

Minimax has fixed mappings for the performance controls. The controls can also be triggered externally via MIDI commands (please refer to Appendix B - MIDI Implementation chart).

| Control | Mapping | Comments |
|---------------------|---|---|
| Modwheel | OSC 3 Modulation Intensity | You can also control Intensity - CC 56 Offset - CC57 Mod Mix - CC58 |
| Pitchwheel | Pitch of OSC 1,2 and 3 | Use the bend range knob in the add section to attenuate the bender signals. |
| Sustain Pedal | Sustain | Holds notes played |
| Soft Pedal | Reserved | Reserved |
| Keyboard Aftertouch | Pitch: Frequency of all OSC Filter: Filter Cutoff Frequency Amp: VCA Gain | You can attenuate the AT signals via the GUI controls or via MIDI Pitch - CC 23 Filter - CC 50 Amp - CC 51 |

6. Regulatory

6.1 Trademarks

All brand, product and company names and any other registered names or trademarks mentioned in this manual belong to their respective owners.

6.2 Disclaimer

MakeProAudio has taken all possible steps to ensure that the information given here is both correct and complete. In no event can MakeProAudio accept any liability or responsibility for any loss or damage to the owner of the equipment, any third party, or any equipment which may result from the use of this manual or the equipment which it describes. The information provided in this document may be modified at any time without prior warning. Specifications and appearance may differ from those listed and illustrated.

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