

B4000 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 ‘B4000’ 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

The B4000 is a drawbar organ in the tradition of the fabulous Hammond B3™ first released in 1935. All features of the glorious ancestor have been modeled with the highest accuracy: 91 tone wheels, full polyphony, key clicks and percussion, scanner vibrato, overdrive and also the rotating Leslie™ speaker.

Although a major development goal of the B4000 was to get as close as possible, the CreamWare Team also implemented some never fulfilled dreams of the Original. The sonic creative possibilities of the original B4000 have been extended with additional effects routing capabilities.

1.4 Key Features

- Pristine emulation of the famous vintage Hammond B3 Organ with full polyphony
- Full organ drawbars for the upper, lower, and pedal manuals
- 91 Tone Wheels, Amplifier and cabinet simulation
- Percussion section with control over harmonic content and key click
- Adjustable microphone positions and component aging
- Drive and full control over the rotor including aftertouch modulation
- Vibrato with configurable behavior
- 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

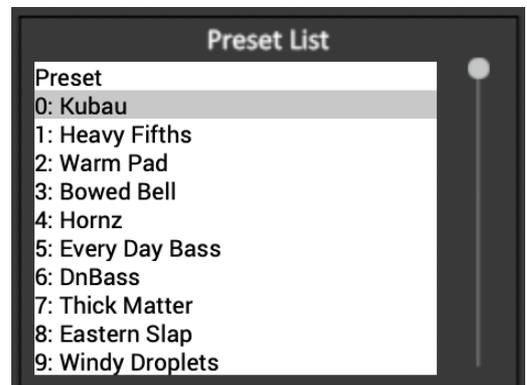
Displays the name of the bank currently visible in the preset list

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.

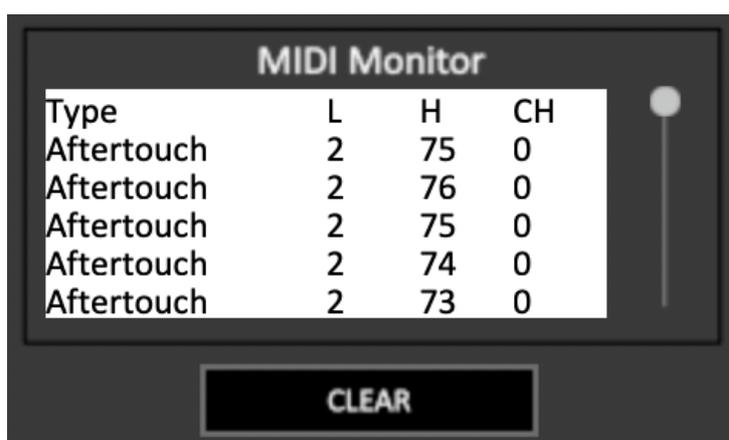


Overwrite

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, frequencies and drive for the singlas running inside of your DinoPark system.

2.6.1 Synthesis Model

In the Synthesis Model section you will 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 adding saturation increases the signal level. Take the fader down to avoid digital clipping.

Balance

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



Bass/Treble

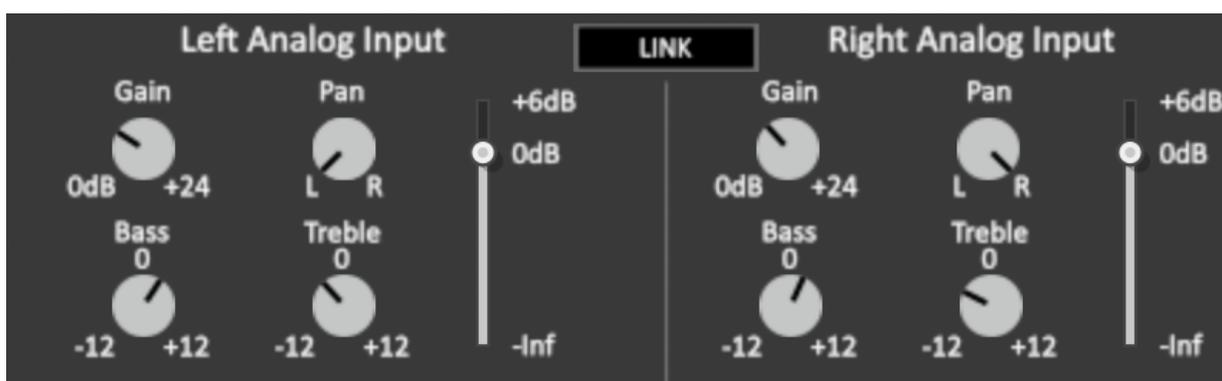
The EQ section comes with a two channel equalizer. With the knobs you can attenuate or boost the shelving bands by 12 dB.

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 Mixer settings, Split points

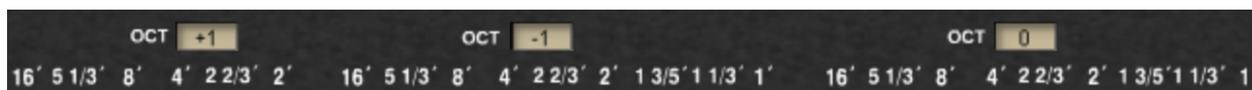


Pedal, Lower Manual, Upper Manual

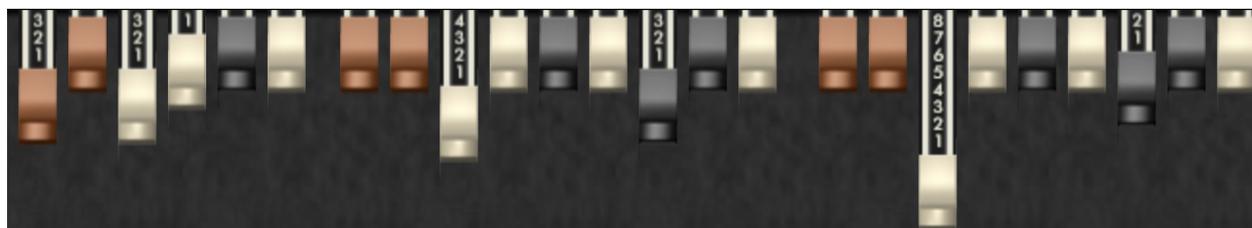
You can adjust the volume settings of the organ manuals here. These settings refer to those of the hardware mixer and will be stored within B4000.

Split points

You can set two keyboard split points to split the manuals over the keys.



3.2 Octave, Drawbars, Swell



Octave

This control sets the octave of the organ manuals.

3.3 Drawbars, Swell, Tone

Drawbars

The sound of each section (pedal, lower manual, upper manual) is controlled by the drawbars.

Every drawbar has a dedicated pitch. The name (number followed by an apostrophe) refers to the length in feet of organ pipes - 8' means an 8-foot pipe. Bigger numbers indicate longer pipes, which produce correspondingly deeper pitches - a 16' pipe sounds an octave lower than an 8' pipe, and a 32' pedal pipe produces very low notes indeed! The 8', 4', 2' and 1' (white) drawbars refer to the fundamental pitch and its 2nd, 4th and 8th harmonics (which sound respectively one, two and three octaves above the fundamental 8-foot pitch).

The black drawbars called 2 2/3', 1 3/5' and 1 1/3' produce the 3rd, 5th and 6th harmonics, while the 16' and 5 1/3' (brown) drawbars produce pitches which are respectively one octave below and one fifth above the fundamental.

In the pedal section the upper three drawbars are not available. Every drawbar can be pulled out to nine possible positions (0-8), thereby controlling the volume of its particular frequency within the overall organ sound.



Swell

Swell controls the general volume of the B4000. When the B4000 is first turned on this parameter defaults to its maximum value, which is stored in the preset.

Tone - Treble

This control is used to adjust the strength of the treble (higher) frequencies.

Tone - Bass

This control is used to adjust the strength of the lower and middle frequencies.

3.4 Vibrato

This section controls vibrato and chorus.

Vibrato Lower / Vibrato Upper

Vibrato (a periodical fluctuation of tone) can be switched on/off separately for each of the two organ manuals here.

Data Wheel

With the data wheel you can control the strength of the vibrato and chorus effects. The 'V-1', 'V-2' and 'V-3' settings introduce increasing strengths of vibrato, while you can add incremental amounts of chorus by selecting 'C-1', 'C-2' or 'C-3'. Position 'C-3' is mainly used for jazz or rock sounds.



3.5 Rotor



Stop

Stops / starts the rotation of the rotary speaker effect.

Slow / Fast

Switches between fast and slow rotation speeds.

Aftertouch

Keyboard after-touch can also be used to control rotation speed. Aftertouch values of 65 or higher switch the rotor to fast speed. (Please note that this only works when the Slow/ Fast control is set to 'slow' - if the switch is already set to 'Fast', there will be no change.)

External Controller

As described earlier, you can use an external controller to control the Slow/Fast settings. The most recently received controller value is the active setting.

3.6 Percussion

As with a Hammond™ organ, the percussion effect is available only on the upper manual and sounds only when a detached fingering style is used. If you play legato style (i.e. with overlapping notes), only the first note played triggers the percussion.



Level

Controls the overall level of the percussion.

Decay

Controls the duration of the percussion.

Harmonic

This controller changes the pitch of the percussion. The pitches correspond to those of the drawbars.

3.7 Key Click

Level

On a Hammond B3™ the mechanical triggering of the sound by the keyboard creates a noticeable, rather 'spitty' click which is an important part of the Hammond sound. The 'Click' control allows you to control the volume of this characteristic sound element.





3.8 Drive

Drive

This switch turns the B4000's emulated tube overdrive on or off - the effect is faithfully digitally modeled on the sound of an original overdriven Leslie™ cabinet amplifier.



Level

Controls the level of tube overdrive.

Output

Tube overdrive level has a big effect on overall volume - when using the overdrive effect, use the 'Output' control to adjust the volume output level.

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 Rotor

These controls are used to adjust various rotor settings. Many rotary speaker systems used a speaker for bass frequencies and a horn for treble signals, which rotated at different speeds. This rich, complex sound is faithfully reproduced and fully programmable in the B4000.



Slow

Controls the rotary speakers slow rotation speed when the 'ROTOR' switch is set to the 'Slow' position on the Main Page.

Fast

Controls the rotary speakers' fast rotation speed when the 'ROTOR' switch is set to the 'Fast' position on the Remote Software Main page.

Accel (Acceleration)

Controls the rate of change when switching between the 'Slow' and 'Fast' settings on the Remote Software Main page.

Brake

Controls the rate of change when switching between the 'Fast' and 'Slow' settings on the Remote Software Main page.

Tone

The bass speaker and horn each have a tone control. By adjusting these you can change the overall tone colour and resonance of the rotor effect.

4.2 Envelope

Unlike mechanical and most electronic organs, the B4000 can be played with dynamic key velocity and the envelope curve can be changed.



Attack

This controls the attack time of the organ signal. When turned fully left (minimum position) the organ sounds immediately at full strength, while turning it fully right (maximum position) makes it fade in smoothly.

Release

This controls the decay time of the signal. When turned fully left (minimum position) the sounds stops immediately after you release a key. When turned fully right (maximum position) the note will go on sounding after you release the key.

Velocity

If the switch is set to the ON position, key velocity controls the volume of the notes.

4.3 Microphones

The B4000 emulates the effect of separately miking the bass and treble (horn) speakers of a Leslie™ rotary speaker cabinet.

Spread

By adjusting the 'Spread' control you can widen the stereo image of the horn, emulating the effect of adjusting the positions of two spaced microphones.

Balance

The 'Balance' control adjusts the volume balance of the bass speaker and treble speaker microphones. Turn the control fully left and you will hear only the bass speaker, turn it fully right and you will hear only the treble. In the centre position, the volume of the two is equal.

Distance

Allows you to adjust the virtual distance between microphones and speakers.



4.4 Tone Wheels



Condition (New / Repair)

As time passes, the condition of the tone wheels of a Hammond™ organ tends to degrade, which affects the sound quality and tuning integrity. With this control you can magically alter the condition of the tone wheels from brand new (NEW) to 'needs repair' (REPAIR).

Tuning

This setting controls the B4000's master tuning +/- one tone in 128 single steps.

4.5 Drawbars

Leakage

On some Hammond™ organs you can hear quiet overtones in the background when keys are played, even when all drawbars are in zero position. This is caused by internal overlapping within the drawbar circuitry of old Hammond B3™ organs. By adjusting the 'Leakage' control you can simulate this phenomenon and adjust its intensity.

Distortion

Turning up this control adds distortion to the modeled tube overdrive on the 'Main' page, producing even dirtier sounds!





4.6 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.



4.7 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 dot and trpl stand for dotted notes and triplets. The minimum note length (i.e., delay time) corresponds to 1/32 trpl. 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)	
Values:	Values:	Values:	
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 MIDI Implementation chart).

Control	Mapping	Comments
Modwheel	Switches the speed of the rotor	0=Slow Speed 63= Fast Speed
Pitchwheel	-	-
Sustain Pedal	Sustain	Holds notes played
Soft Pedal	Reserved	Reserved
Keyboard Aftertouch	Rotor Speed	Switch on in Rotor section in main panel

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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