

Presents

# HARMONIUMS of the OPERA

for NI KONTAKT 4+



## **Introduction**

The harmonium is a keyboard instrument in which air is blown through a set of reeds, the air is typically supplied by bellows operated by the foot, hand, knees, or in the case of some of the 20th century harmoniums an electric blower. This sample library features two rare and contrasting harmoniums - one foot pumped harmonium made in the 1840s owned by the Juilliard School, and an electric harmonium owned by the Metropolitan Opera.

The Harmonium is an instrument that is employed in classical, folk, devotional and popular music. The title "Harmoniums of the Opera" is a bit "tongue-in-cheek", but is also related to the story behind this sample library which is briefly summarized below.

## **Background on this Sample Library**

A sample library of a Bharat 3-1/2 octave harmonium was added to the Bolder Sounds catalogue in July of 2009. To my surprise, it has been one of the most popular libraries we offer. A number of well known organizations and high profile musicians have been using it.

In January of 2010 I received a call from Rob Gorton - chief sound engineer from the Sound Department at the Metropolitan Opera in New York City. The MET had just purchased a copy of the Bharat harmonium for use in the Richard Strauss opera *Ariadne*. The MET needed the range of the sampled harmonium extended to accommodate the score, also a KONTAKT programming error needed to be corrected (which very inconveniently played the wrong pitch during a rehearsal). Rob told me the MET owned an old German electric 5 octave harmonium which was no longer suitable for live performance. It's notes were very soft and the blower which sent the air over the reeds was very loud (not an ideal combination). Also there was approximately a .5 second delay from the key being pressed until the note was actually heard. We discussed the possibility of myself coming to NYC sometime in the future and creating a virtual restoration/recreation of this instrument.

In July of 2010 I received a call from Christopher Ruigomez - (Director of Concert Operations Boston Symphony Orchestra) from Tanglewood about the possibility of doing a quick sampling of the BSO's historic harmonium for a performance by the Boston Lyric Opera. Due to complications and time constraints that was not possible. Chris later referred me to Joanna Treblehorn (Director of Orchestral and Ensemble Operations) at the Juilliard School in NYC, where I had heard they owned one of the best sounding harmoniums on the east coast - and indeed, it was a beautiful sounding instrument that was recently restored. I was generously permitted to record it.

The sampling sessions of these two instruments took place on June 10th of 2011 at the Metropolitan Opera and on June 13th at the Juilliard School at Lincoln Center in New York City.

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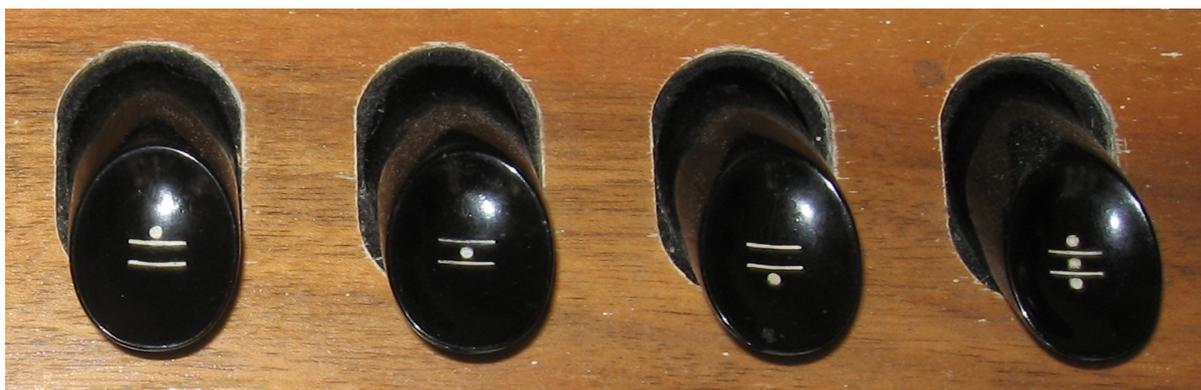
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# About The Metropolitan Opera Electric Harmonium



The electric harmonium owned by the Metropolitan Opera is a 5 octave instrument starting on the pitch of C. It's actual range depends on which stops are engaged. There are seven possible stop combinations triggered by seven separate stop buttons. These stop buttons look like something from a automobile radio made in the 1950s to change stations. There are actually 3 solo stop selections - stop 1, 2 and 3. the other buttons represent combinations of the three stops (see 4 of the 7 buttons below).



A number of the stops had notes in the upper range that had a severe volume drop or did not sound at all. We have evened out the volume of individual stops to a *restored* state. And from there, layered the 3 stops in the various combinations that the original instrument offered. The result is a very full sound which is most likely very close to the sound of this instrument when it was manufactured.

This harmonium uses a blower to send air over the reeds, it is not a foot pumped harmonium. The blower creates a very even air flow and therefore the sound of a note does not have a tonal "swell" to it, the sound is very uniform and even much like an organ. The blower was extremely noisy. The blower sound was removed from each sample with noise reduction software. The blower noise was then re-sampled and added back in and assigned to a button on KONTAKT's front panel.

Since the MET harmonium sound is quite even, I chose to use samples that are quite long. The samples then have a relatively short loop placed towards the end of the sample. Upon a note-on, most users playing traditional music will never even get to the portion of the sample that is looped. A high percentage of the loops are usually placed past the 10 second point.

In addition to the built in volume pedal, this instrument also has a *vibrato switch* which creates an LFO effect common to most synths and samplers. We have emulated quite faithfully this vibrato effect with an LFO, it is available to turn on or off on KONTAKT's front panel. The vibrato button acts as a *synced* LFO on the MET harmonium. Meaning that regardless of when a series of notes or chords are played, the vibrato effect remains *in time* with all other notes that are sounding. If we chose to use the vibrato samples that were recorded this would not have been possible, since a vibrato waveform sample would trigger at random times reflecting the score, thus making the vibrato effect *out of synch*. This would result in a unrealistic emulation.



# General Stuff

## **KONTAKT Compatibility:**

This library requires NI KONTAKT version 4.2.4 or higher, and has been tested for compatibility in KONTAKT 5. This library is NOT compatible with the KONTAKT 4 or 5 sample PLAYER, only the full retail KONTAKT SAMPLER. It will only run in demo mode for 30 minutes on the KONTAKT PLAYER.

## **Hover Over Mouse Help:**

If you turn on the **Show Info Pane**, you can simply 'hover' your mouse over a particular control and the information on that control will be displayed in the **Info Pane** at the bottom of the KONTAKT window.



## **Reset Knobs:**

All knobs can be reset to their default value, if you CTRL + Click (PC) or Command + Click (Mac) on the knob.

## **MIDI Learn CC#:**



All the buttons and knobs can be automated by a MIDI control. Just Right + Click (PC) or Control + Click (Mac) the button or knob and select **Learn MIDI CC# Automation**, and then move your hardware MIDI controller.

PS: The Damper Pedal (CC64) has no function on the Harmonium. So you can freely use it as an On/Off controller – ex. assign it to the Vibrato On/Off or the Rotator Slow/Fast.

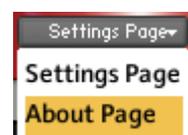
## **Panels:**

The User Interface has three Panels. Click on the Panel Tab Name to open the Panel.



## **The About Page:**

Each Panel has an **About Page** that gives you a quick overview of the Panel.





# The Instrument Panel



On the Instrument Panel, you select and combine the various Stops, and add Vibrato to the Stops. You can adjust the Attack, and select how you want to control the Volume. Here you also find the Blower Fan On/Off button, and you have access to all the Effect On/Off buttons from the Effect Panel.

## **The Stops:**



The Stops can be turned On/Off either by:

1. Mouse clicking on the Stop buttons in the User-Interface.
2. Using Key-Switches (the KS can be freely set up on the Setting Panel).
3. MIDI CC# (right click the Stop button, and MIDI Learn the CC#).

You need to have at least one Stop selected. If only one Stop is selected, then it's not possible to turn it off.

## **The Vibrato:**



The Vibrato can be turned On/Off either by:

4. Mouse clicking on the Vibrato buttons in the User-Interface.
5. Using a Key-Switch (the KS can be freely set up on the Setting Panel).
6. MIDI CC# (right click the Vibrato button, and MIDI Learn the CC#).

The Vibrato amount can be adjusted on the Settings Panel.

## The Attack:



The **At Curve** knob adjusts the curve shape of the attack phase. A value of zero results in a linear curve, negative values make the shape more concave, and positive values make it more convex.

The **Attack** knob adjusts the initial time it will take the envelope to reach its maximum level after it has been triggered.

## The Volume:



The Volume of the MET Harmonium can be controlled either by:

1. Velocity (the Velocity response can be adjusted on the Settings Panel).
2. A MIDI Controller (the CC# can selected on the Settings Panel).

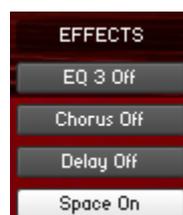
If MIDI Control of the Volume is selected, then you can adjust the amount of the MIDI Controller. The Amount knob is bipolar, so it can either be set to negative and positive amount.

## The Blower Fan:



The Blower Fan button starts and stops the fan engine sound. The Level of the fan engine and the button click can be adjusted on the Settings Panel.

## The Effects:



The four Effect buttons are identical to the buttons on the Effect Panel, and gives you quick access to turn the various Effects On/Off . The Effects can all be edited on the Effect Panel.

# The Settings Panel



On the Settings Panel, you set the keys that will act as Key-Switches for the Stops and the various Stop combinations, and the Vibrato. You can control the Keyboards Perspective, Spread and Velocity. And also adjust the Stereo Field of the instrument, and control the Amount of the Vibrato. The CC# that will control the Volume can be selected, and the Global Volume adjusted. Finally you can set the Engine Fan Level and turn the fan button click On/Off.

## The Key-Switches:

You have eight freely assignable Key-Switches. Seven Key-Switches for the three Stops and their four combination variations. And the last Key-Switch is for the Vibrato. The Key-Switches can be assigned to any key outside the instrument range.

To assign a Key-Switch, do this:



1. Activate the Learn button for the Stop/Vibrato.
2. Then play the Key that you would like to be the Key-Switch for the Stop/Vibrato. You can either play your connected MIDI keyboard, or click on the virtual keyboard in KONTAKT.



The Stop Label now shows the new note name of the Key-Switch, and the color code on the virtual keyboard updates to the selected key.



The color code for the Key-Switches are:

- Single Stops = Green
- Combi Stops = Yellow
- The Vibrato = Red



### The Keyboard:

The **Perspective** button switches between a Public or a Player keyboard layout/perspective.

The **Spread** knob controls how much each note is panned/spread out across the keyboard.

The **Velocity** knob adjust the Velocity response of the keyboard (if Velocity is selected as Volume Control on the Instrument Panel).



### The Stereo Field:

The **Width** knob sets the Width of the Stereo Field. Negative values close it in, and at full counter clockwise the signal becomes mono. Positive values push the Stereo spread outward.

The **Pan** knob adjusts the panning of the Stereo Field.



### The Vibrato:

The **Vibrato Amount** knob adjusts the amount of Vibrato, when the Vibrato effect is turned on.



### The Select Vol CC# :

The **Vol CC#** knob selects the CC# that will control the Volume (if CC# is selected as Volume Control on the Instrument Panel).



### The Global Volume:

As it says – controls the Global Volume of the instrument.



### The Blower Fan:

The **Level** knob adjusts the volume of the Fan sound.

The **Fan Click** button turns the click sound from the Engine Fan button On/Off.



# The Effects Panel



The Effect Panel has four different Pages. Here you select and edit all the various Effect parameters. You can also Save/Recall and Store/Load the Presets for each Effect.

## The Preset Menu:

You can Save and Recall up to six Presets for each Effect.

To Save a Preset, first edit the Effect settings as you like, and then select the **Save as Preset #** in the Preset Menu.

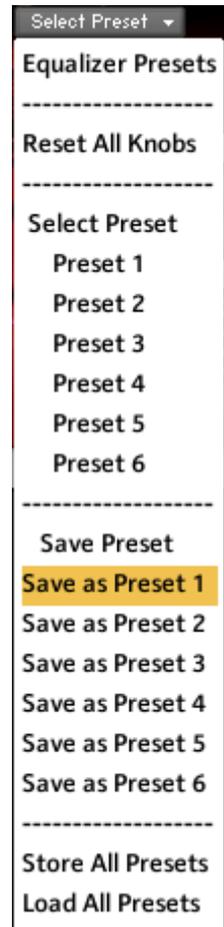
To Recall/Select a Preset, open the Preset Menu and select the **Preset #**.

All six Presets can also be Stored and Loaded as an external independent file to your Hard Disc.

To Store the six Presets, select the **Store All Presets** in the Preset Menu. A save dialog box opens, pointing to the default Data folder inside the main Instrument folder. For better organization, give the file a name that refers to the Effect – ex. "EQ - my presets".

To Load the six Presets, select the **Load All Presets** in the Preset Menu. A open dialog box opens, pointing to the default Data folder.

The **Reset All Knobs** sets all the knobs to their default setting.



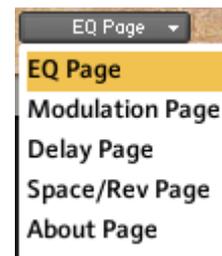
PS: All the default Presets are stored in the sub-folder inside the Data folder.

## The Effects On/Off and the Pages:



The four Effect buttons turn the various Effects On and Off, and opens the corresponding Page.

You can also navigate between the different Effect Pages, using the Page Menu.



## The EQ Page:



The EQ can either be a simple Bass/Middle/Treble Equalizer, with predefined Frequency and Bandwidth. Or an Advanced 3-Band Parametric Equalizer.



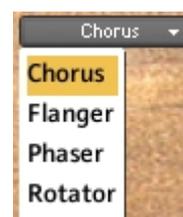
The **Freq.** knob chooses the frequency at which boosting or cutting will appear.

The **Bandw.** knob sets the width of the frequency band in octaves to be boosted or cut.

The **Gain** knob controls the amount of boost at positive values, or the amount of cut at negative values.

## The Modulation Page:

On the Modulation Page, you can choose between four different modulation types.



### Chorus:

The **Depth** knob sets the amount of LFO modulation applied to a signal. Higher amounts result in a stronger effect.

The **Speed** knob sets the speed of the LFO modulating the signal.



The **Phase** knob adjusts the phase difference between the two LFOs that drive the left and right stereo channels.

The **Amount** knob sets the amount of processed signal sent to the main output.

## **Flanger:**

The **Depth** knob sets the amount of LFO modulation applied to a signal. Higher amounts result in a stronger effect.

The **Speed** knob sets the speed of the LFO modulating the signal.

The **Phase** knob adjusts the phase difference between the two LFOs that drive the left and right stereo channels.

The **Color** knob adjusts the range of the flanging effect. Lower values sweep the effect toward the higher end of the flanging range, while larger values sweep the effect toward the lower end.

The **Feedback** knob routes the processed signal back to the Module's input. Higher values create a sharper, more intense effect.



## **Phaser:**

The **Depth** knob sets the amount of LFO modulation applied to a signal. Higher amounts result in a stronger effect.

The **Speed** knob sets the speed of the LFO modulating the signal.

The **Phase** knob adjusts the phase difference between the two LFOs that drive the left and right stereo channels.

The **Feedback** knob routes the processed signal back to the Module's input. Higher values create a sharper, more intense effect.



## **Rotator:**

The **Acceleration High/Low** knobs adjust how quickly the rotors of the treble/bass parts of the cabinets will react to speed changes. At the right-most position, the speaker will change its speed instantly.

The **Balance** knob sets the ratio of the sound produced by the rotating speakers high frequency horn compared to the low frequency woofer. Higher values produce more highs, lower values more bass.



The **Distance** knob edits the distance between the virtual microphones and the rotating speaker. Higher values increase the distance.

The **Wet Mix** knob controls the effects strength. Turn fully clockwise to hear the rotating speakers only.

The **Output** knob sets the rotators overall output level.

The **Speed** button switches the speed of the rotator speaker. Choose between slow and fast.

### The Delay Page:

The **Time** knob sets the interval of the delay, in either milliseconds or steps synchronized to external MIDI Clock, depending on the Sync button state.

The **Damping** knob reduces high frequencies in the delayed signal. With feedback applied, each successive echo has progressively lower high-frequency response.



The **Feedback** knob sends a portion of the output back into the input of the delay line, which creates repeating echoes. A value of 0 produces only one echo, higher values give multiple echoes.

The **Pan** knob - setting a value higher than 0 results in a panning effect where each consecutive echo alternates between the left and right channel. The higher the value, the greater the stereo spread.

If the **Sync** button is turned on, the Delay is synchronized to external MIDI Clock.

In Sync mode, each step on the **Time** knob represent a 64'th triplet note. So it's easy to choose whatever time value you need.

Plain	Dotted	Triplet
96 = Whole note	144 = Whole dotted	64 = Whole triplet
48 = Half note	72 = Half dotted	32 = Half triplet
24 = Quarter note	36 = Quarter dotted	16 = Quarter triplet
12 = Eighth note	18 = Eighth dotted	8 = Eighth triplet
6 = Sixteenth note	9 = Sixteenth dotted	4 = Sixteenth triplet
3 = 32'th note		2 = 32'th triplet

## The Space/Reverb Page:

On the Space/Reverb Page you can choose between two different reverb types – Space (convolution reverb) and Reverb (algorithmic reverb). The Reverb uses less CPU than the Space.



### Space:



With the **Select Space** Menu, you can choose between eighteen different Impulse Responses, that can be loaded into the convolution plugin. The eighteen Impulses are divided into six different categories.



With the **Space Size** Menu, you can choose between five different sizes of the selected Impulse Response.

The **Amount** knob sets the amount of processed signal sent to the main output.

### Reverb:



The **Predelay** knob introduces a short amount of delay before the reverb takes effect. Increase this parameter to simulate larger rooms, decrease it for smaller rooms.

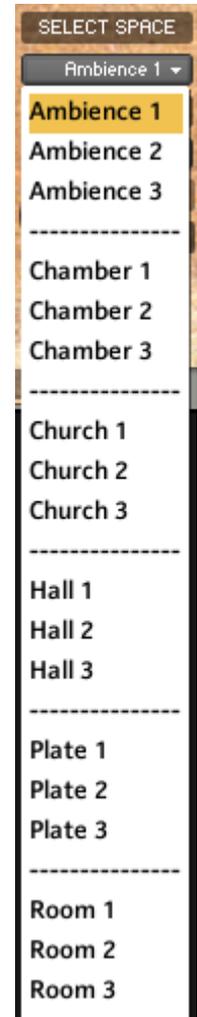
The **Size** knob determines the room size by setting the length of the effect. Higher values simulate larger rooms, lower values smaller rooms.

The **Color** knob determines the type of material used to construct the room. Lower values are softer surfaces, higher values are harder surfaces.

The **Damping** knob sets the amount of absorption in the room. Higher values simulate more absorption.

The **Stereo** knob - higher values increase the stereo effect. Use lower values to simulate sitting closer to the stage, and higher values for sitting further back in the hall.

The **Amount** knob sets the amount of processed signal sent to the main output.



*Our sincere appreciation to the following people for their help on this project-*

*Rob Gorton at the Metropolitan Opera / Joanna Treblehorn at the Juilliard School / Christopher Ruigomez at the Boston Symphony Orchestra*

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Script and Preset by Bo Clausen.

Enjoy The MET Harmonium library!

Dennis Burns - Bolder Sounds - February 2012

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**Customer Support**

For any questions, technical issues inquiries etc .... Please contact Bolder Sounds via email at sales@boldersounds.net.

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