USER MANUAL

Stage-73 V

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1   INTRODUCTION

Thank you for purchasing our virtual electric piano, Stage-73 V! We are certain it will give you many hours of inspiration and enjoyment.

Stage-73 V is the newest addition to our extensive family of instruments that recreate hard-to-find classic keyboards and synths. In addition to bringing the authentic sound of this essential instrument to your music, we have added some 21st century features that were never available in the original!

The instrument upon which this virtual model is based became an indispensable part of pop, soul and jazz music after its introduction in the mid-1960s. Its sound remains popular today, having survived the onslaught of a certain digital synthesizer in the 1980s.

But since maintaining and transporting an actual unit poses many challenges, we're confident Stage-73 V will bring you all of the benefits with none of the hassle!

1.1   What is Stage-73 V?

Stage-73 V is a software version of the classic electric piano manufactured by Fender in the late 20th century.

First we thoroughly analyzed the physical and mechanical properties of both the Stage and Suitcase versions of this instrument. Then we constructed a mathematical model to represent every aspect in perfect detail, from the resonance of the tines to the way the composition of the hammers affects the tone.

Then using the original schematics we recreated the electrical characteristics of every version of every component, from the pickups to the preamps.

Throughout each stage of development we constantly compared our results with the physical units and made adjustments as needed. We also recorded an IR (impulse response) of the spring reverb of a Fender Deluxe Reverb amplifier, the one most often paired with the Stage model piano, so the end result is incredibly authentic.

Stage-73 V runs both as a standalone instrument on Windows and Mac OS X and as a plug-in in all major formats inside your DAW. It has easy MIDI learn functionality for hands-on control of many of its parameters, and as a plug-in also allows parameter automation for greater creative control.

1.2   History of the original instrument

Electric pianos began to be developed almost as soon as humans harnessed electricity. The first models were actually acoustic pianos with built-in magnetic "pickups", which convert the motion of strings into electrical signals that can be amplified through a speaker system.

While much lighter than conventional acoustic pianos, these early electric pianos still weighed hundreds of pounds due to their soundboards. The quest for greater portability led to the development of new electromechanical assemblies that used metal bars or rods to generate a tone, which was in turn captured by a pickup and fed to an amplified speaker.

The sound of an electric piano was a vast departure from that of an acoustic piano, but it became increasingly popular in the studio and on the stage. Part of the reason for their popularity was that the sound could be isolated and modified more easily through electronic circuits such as a reverb, chorus, phase shifter or delay. This allowed the artist to create a more distinctive sound that could be readily identified on the radio.

Stage-73 V emulates the electromechanical characteristics of the tine-based electric pianos designed by Harold Rhodes. The sound was more rich and full than their only serious competitor, the Wurlitzer, and proved suitable for anything from blazing funk and jazz to gentle ballads.

The Suitcase was the first of the two 73-note models to be manufactured. The piano section was paired with a set of amplified speakers that also doubled as a stand, which made it a complete package: just pack it up and take it any place with electricity.

These instruments rose to prominence in the 1960s and dominated the popular music scene for decades. Their sound continues to be used heavily today.

Among the notable features of these electric pianos were:
- Portability
- Sturdiness
- Easier to maintain than an acoustic piano
- Early models had a rounded top, which was later replaced by a flat top to support a synthesizer or other keyboard

There were a number of components to their unique sound.
- A pure, bell-like tone
- Tines and tone bars as opposed to reeds or strings
- Longer sustain than the Wurlitzer
- The earliest model had hammers with felt tips
- The models from 1969 forward had hammers with Neoprene tips

1.3 The road to fame

The sound of the tine-based electric pianos was a perfect complement for many styles of music, with a tone that ranged from shimmering to biting, even with

minimal processing. Its relatively compact size ensured that bands, studios and rehearsal rooms would want to have one, and it began to enjoy common use on musical recordings and in live performances.

Notable users and songs
- The Beatles: "Get Back"
- Chick Corea: "Spain", "La Fiesta"
- Doobie Brothers: "Minute by Minute"
- The Doors: "Riders on the Storm"
- Eagles: "New Kid in Town", "I Can't Tell You Why"
- Earth, Wind & Fire: "Shining Star", "Reasons"
- Peter Frampton: "Baby, I Love Your Way"
- Herbie Hancock: "Chameleon"
- Billy Joel: "Just the Way You Are"
- Elton John: "Daniel", "Little Jeannie"
- One Day as a Lion: "Wild International"
- Pink Floyd: "Breathe"
- Linda Ronstadt: "Blue Bayou"
- Steely Dan: "Peg"
- Stevie Wonder: "You Are the Sunshine of My Life", "Isn't She Lovely"

1.4   What does Stage-73 V add to the original?

Recreating an instrument in software allows us to add more advanced features, while of course remaining true to the original hardware! But there are a number of features in Stage-73 V that were difficult to adjust or simply didn't exist on the original:

- Two models available at the flip of a switch: Stage or Suitcase
- Presets! Change every parameter instantly, including the effects, by selecting a new preset.
- Instant access to tone-shaping features that were 'under the hood' and usually maintained by a technician:
  - Master tuning
  - Dynamic range
  - Pickup distance and alignment
  - Hammer noise and hardness: variable from felt to neoprene
  - Damper distance from the tines
  - Tone bar resonance: how long they will sustain

- Harmonic profiles: Dark, Bright, Basic, Noisy, and Harmonic boost
- Velocity curve shaping and presets
- Stomp-box effects units with variable routing order:
  - Chorus
  - Flanger
  - Phaser
  - Analog Delay
  - Auto-wah
  - Compressor
  - Overdrive
- Output routing: direct or through a modeled amplifier

2   ACTIVATION & FIRST START

Stage-73 V works on computers equipped with Windows 7 or later and Mac OS X 10.8 or later. You can use the stand-alone version or use **Stage-73 V** as an Audio Units, AAX, VST2 or VST3 instrument.

2.1   Register and Activate

Once Stage-73 V has been installed, the next step is to register the software. The registration process will require you to enter the serial number and the unlock code you received with the product.

To proceed, go to this web page and follow the instructions:

http://www.arturia.com/register

Note: If you don't have an Arturia account you will need to create one. The process is quick, but it does require that you can access your e-mail address during the registration process.

Once you have acquired an Arturia account you will be able to register the product.

2.2   Initial setup

2.2.1   Audio and MIDI settings: Windows

At the top left of the Stage-73 V application is a pull-down menu. It contains various setup options. Initially you will need to go to the menu and choose the Audio Settings option to get sound and MIDI flowing in and out.
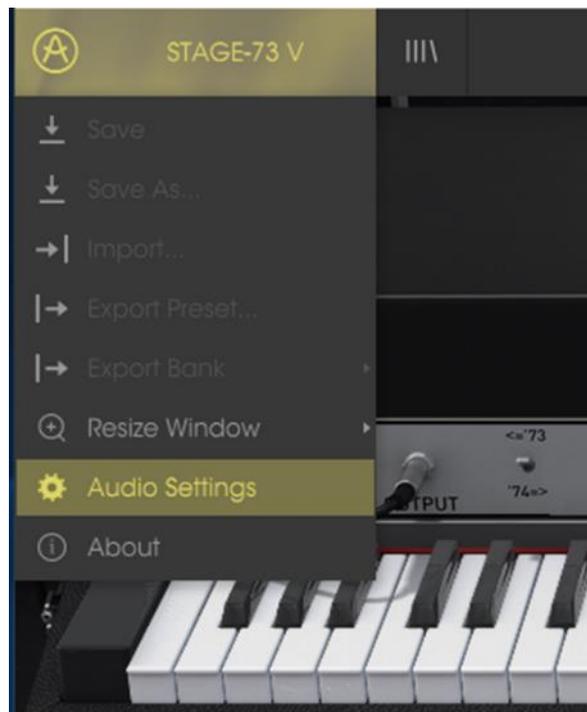
Stage-73 V main menu

You will then see the Audio MIDI settings window. This works in the same way on both Windows and Mac OS X, although the names of the devices available to you will depend on the hardware you are using.
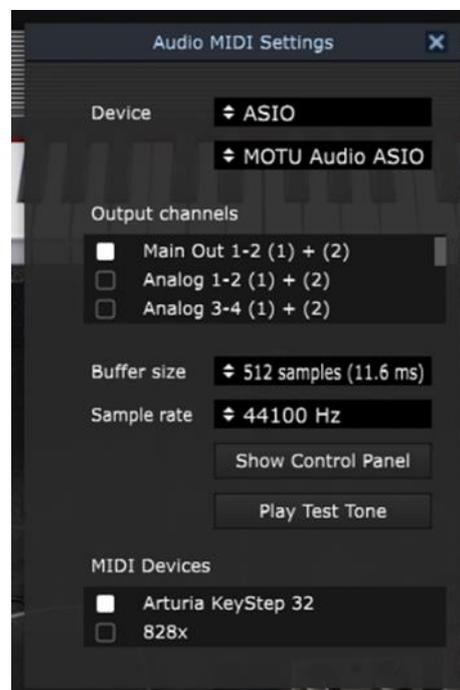
Audio and MIDI settings window

Starting from the top you have the following options:

- **Device** lets you choose which audio driver you want to use to route sound out of the instrument. This might be your computer's own driver like Windows Audio, or an ASIO driver. The name of your hardware interface may appear in this field.

- **Output Channels** lets you select which of the available outputs will be used to route audio out. If you only have two outputs, only two will appear as options. If you have more than two you can select a specific pair of outputs.

- The **Buffer Size** menu lets you select the size of the audio buffer your computer uses to calculate sound. A smaller buffer means lower latency between pressing a key and hearing the note. A larger buffer means a lower CPU load as the computer has more time to think, but can result in a small latency. Find the optimum buffer size for your system. A fast, modern computer should easily be able to operate at 256 or 128 sample buffer size without creating pops or clicks in the sound. If you are getting clicks, try raising the buffer a little. The latency is displayed on the right hand side of this menu.

- The **Sample Rate** menu lets you set the sample rate at which audio is sent out of the instrument. The options here will depend on the capability of your audio interface hardware though even most computers' own hardware can operate at up to 48kHz which is perfectly fine. Higher sample rates use more CPU power so unless you have a good reason to go up to 96kHz, then 44.1k or 48k is usually fine. The Show Control Panel button will jump to the system control panel for whatever audio device is selected.

- **Play Test Tone** helps you to troubleshoot audio issues by confirming whether sound can be heard through the correct device.

- Your connected MIDI devices will appear in the **MIDI Devices** area. Click the check box to accept MIDI from the device you want to use to trigger the instrument. In standalone mode, Stage-73 V listens for all MIDI channels so there's no need to specify a channel. You can specify more than one MIDI device at once.

2.2.2   Audio and MIDI settings: Mac OS X

The process is very similar to initial setup for Windows and the menu is accessed in the same way. The difference is that OS X uses CoreAudio to handle audio routing and the audio device selection is made in the second dropdown menu. Apart from that, the options work the same way as described in the Windows section.
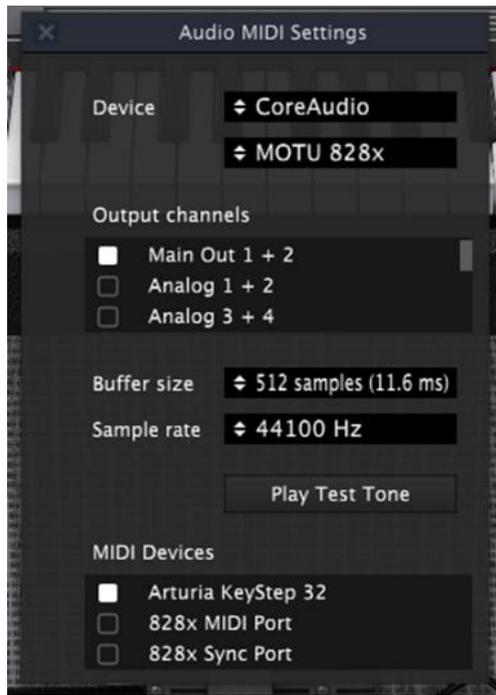
OS X Audio and MIDI settings window

2.2.3 Stage-73 V as a plug-in

Stage-73 V comes in VST, AU and AAX plug-in formats for use in all major DAW software such as Cubase, Logic, Pro Tools and so on. You can load it as a plug-in instrument and its interface and settings work the same way as in standalone mode, with a couple of differences.

- You can automate numerous parameters using your DAW's automation system.
- You can use more than one instance of Stage-73 V in a DAW project. In standalone mode you can only use one at once.
- You can route Stage-73 V's audio outputs more creatively inside your DAW using the DAW's own audio routing system.

3   USER INTERFACE

Stage-73 V is packed with great features, and in this chapter we'll make sure you know what each one does. We think you'll be amazed by the huge range of sounds that can be made with this instrument.

And while Stage-73 V is very flexible, there's nothing complicated about it. That will always be the main focus of every Arturia product: to unleash your creativity while remaining easy to use.

3.1   Virtual keyboard

The virtual keyboard allows you to play a sound without the need for an external MIDI device. Simply click on a virtual key to hear the currently selected sound. You can also drag the cursor across the keys to hear a glissando.

Clicking near the front edge of the key results in a higher velocity note; clicking near the back of the key produces a soft velocity.

The virtual keyboard of Stage-73 V

3.2   The tool bar

The toolbar that runs along the top edge of the instrument both in standalone and plug-in mode provides access to many useful features. Let's look at them in detail.

The first seven of these options can be found by clicking on the Stage-73 V section at the very top left hand corner of the instrument window.

We'll go through each of these functions in the following sections.

3.2.1   Save Preset

The first option lets you save a preset. If you select this you are presented with a window where you can enter information about the preset. In addition to naming it you can enter the author name, select a bank and type and select some tags that describe the sound. This information can be read by the preset browser and is useful for searching the preset banks later.

You can also enter freeform text comments in the Comments field, which is handy for providing a more detailed description.
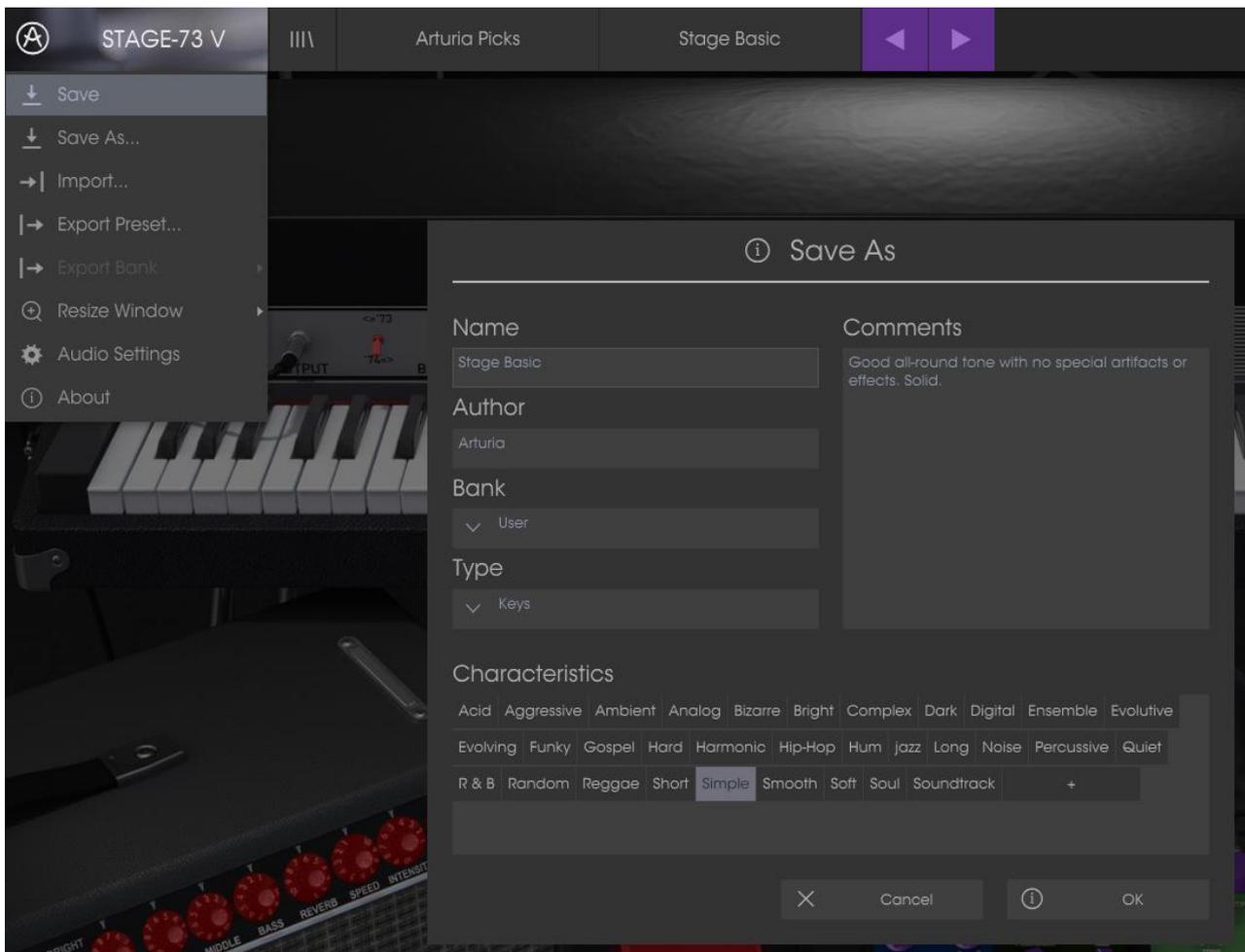
The Save Preset window

3.2.2 Save Preset As...

This works in the same way as the Save command, but lets you save a copy of the preset instead of saving over the original. It's useful for creating variations on patches but still keeping individual copies of each one.

3.2.3 Import Preset

This command lets you import a preset file, which can be either a single preset or an entire bank of presets. Both types are stored in the stagex format.

After selecting this option, the default path to these files will appear in the window, but you can navigate to whichever folder you are using.
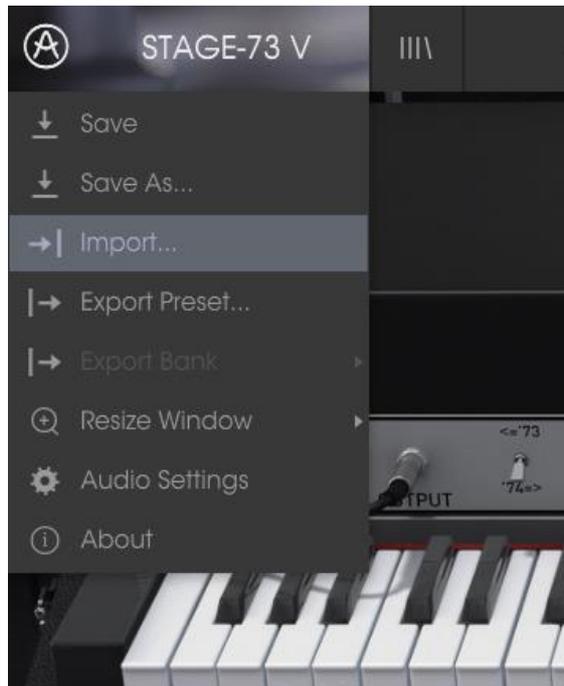
The Import Preset menu

3.2.4   Export Preset

You can export and share a single preset using this command. The default path to these files will appear in the window, but you can create a folder at another location if you like.

3.2.5   Export Bank

This option can be used to export an entire bank of sounds from the instrument, which is useful for backing up or sharing presets.
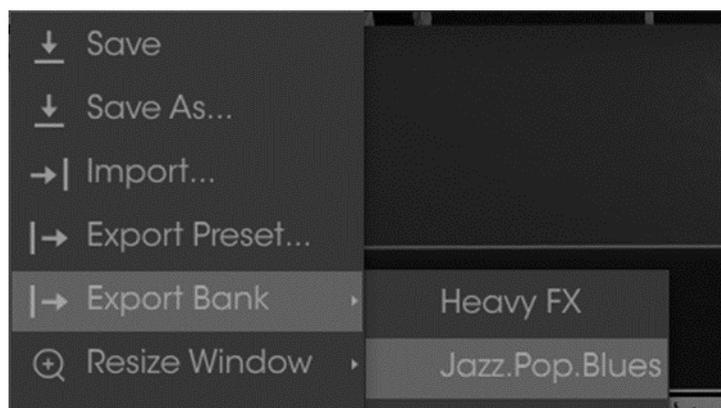
Selecting a Bank to export

3.2.6   Resize Window options

The Stage-73 V window can be resized from 60% to 200% of its original size without any visual artifacts. On a smaller screen such as a laptop you might want to reduce the interface size so it doesn't dominate the display. On a larger screen or a second monitor you can increase the size to get a better view of the controls. The controls work the same at any zoom level but the smaller ones can be harder to see at the smaller magnification values.
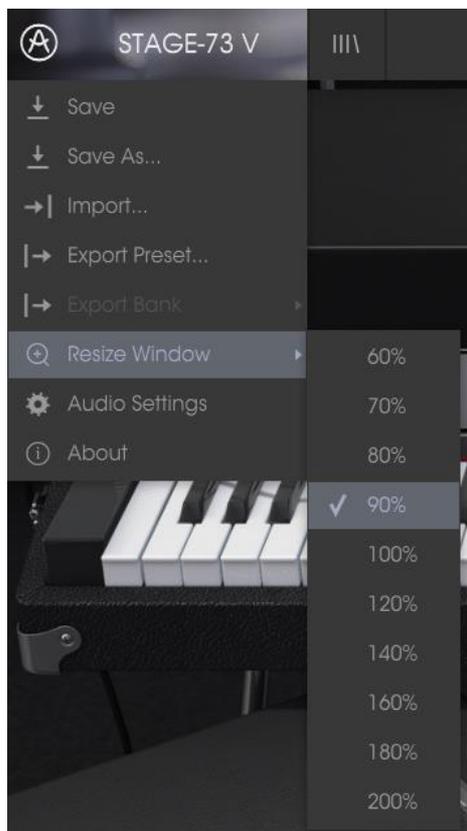
The Resize Window menu

3.2.7   Audio Settings

Here you manage the way the instrument transmits sound and receives MIDI. See section 2.2 of the manual for full details on this.

3.2.8   Preset browser overview

The Preset browser is invoked by clicking the toolbar button that has four vertical lines. See section 3.3 of the manual for full details on this. The Filter, name field and left / right arrows in the toolbar all assist with preset selection.
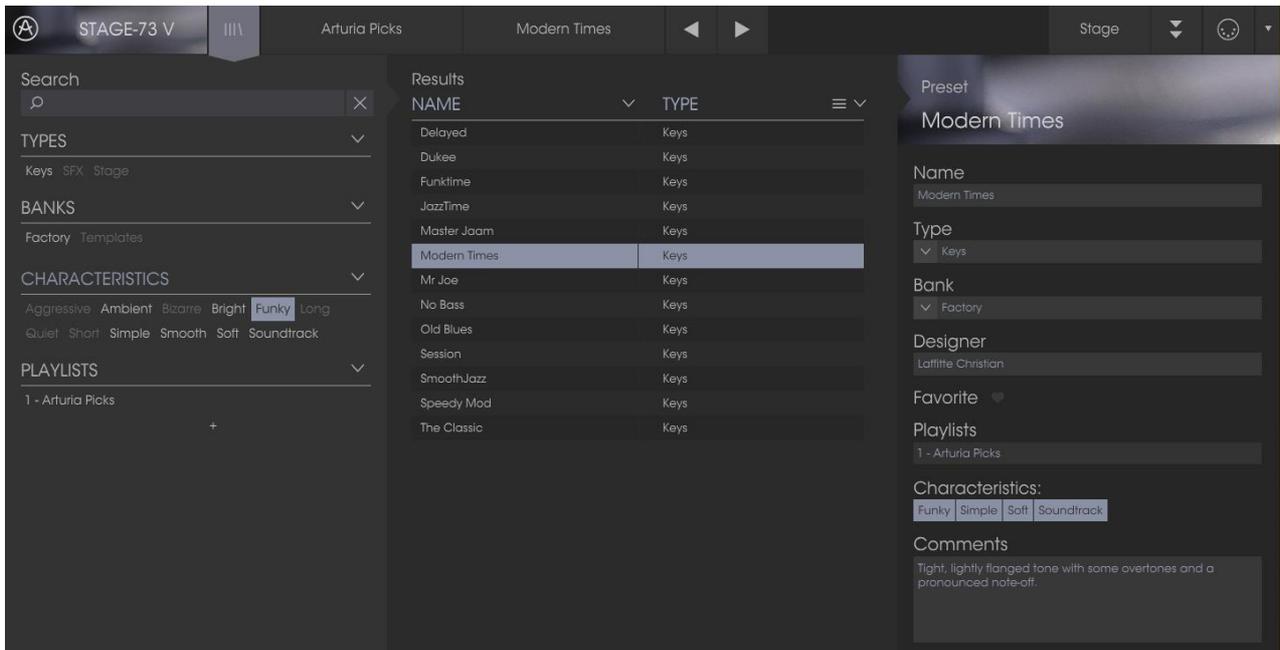
The Preset Browser

3.2.9   Open / close Advanced section

The Advanced section can be revealed by clicking on the button with the two downward arrows at the right of the toolbar. This lets you access the more advanced features of the instrument like Pickup distance and the velocity curve editor. See section 3.5 of the manual for more detail on these controls. Click this button once to reveal the inside of the instrument and again to hide it. You can also click on the closed lid of instrument to open and close it.

3.2.10   MIDI Learn assignment

The MIDI plug icon at the far right side of the toolbar places the instrument into MIDI learn mode. Parameters that can be assigned to MIDI controls will be shown in purple, and the idea is that you map physical buttons, knobs, faders or pedals from hardware MIDI controllers to specific destinations inside the instrument. A typical example might be to map a real expression pedal to the virtual volume pedal, or buttons on a controller to the effect switches so you can change the sound from your hardware keyboard.


MIDI Learn mode: Suitcase model

The floor amp in the Stage model also has controls that can be mapped:

MIDI Learn mode: Amp controls (Stage only)

3.2.10.1   Assigning / unassigning controls

If you click on a purple area you'll put that control into learning mode. Move a physical knob or fader and the target goes red, indicating that a link has been made between the hardware control and the software parameter. There's a popup window that displays which two things are being linked and a button to unassign the two from each other.
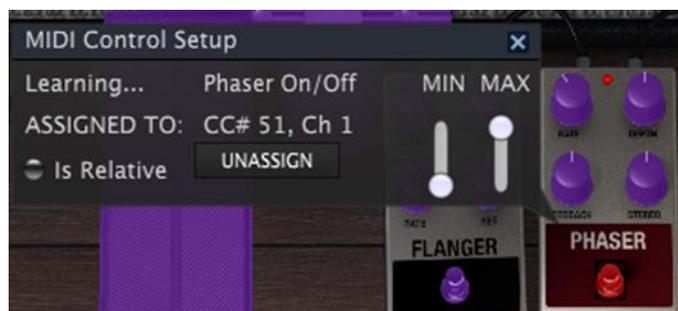
Phaser switch selected and assigned

3.2.10.2   Min / Max value sliders

There are also minimum and maximum value sliders that you can use to restrict the parameter change range to something other than 0%-100%. For example you might want the amp's master volume to be controllable via hardware from 30% to 90%. If you made this setting (Min set to 0.30 and Max set to 0.90) your physical knob would be unable to alter the volume lower than 30% or higher than 90%, no matter how far you turned it. This is very useful for making sure you can't accidentally make the sound too quiet or too loud when performing.

In the case of switches which only have two positions (on or off), those would normally be assigned to buttons on your controller. But it is possible to toggle those with a fader or other control if you like.

3.2.10.3   Relative control option

The final option in this window is a button labelled "Is Relative". It is optimized for use with a specific type of control: one which sends only a few values to indicate the direction and speed at which a knob is turning, as opposed to sending a full range of values in a linear fashion (0-127, for example).

To be specific, a "relative" knob will send values 61-63 when turned in a negative direction and values 65-67 when turned in a positive direction. The turn speed determines the parameter response. Refer to the documentation of your hardware controller to see if it has this capability. If so, be sure to switch this parameter on when setting up its MIDI assignments.

When configured this way, movements of the physical control (usually a knob) will change the software parameter by starting at its current setting, rather than being an "absolute" control and snapping it to some other value as soon as you start to move it.

This can be a great feature when controlling things like volume, filter, or effect controls, since you won't usually want them to jump noticeably from their current setting when they are modified.

3.2.10.4 Reserved MIDI CC numbers

Certain MIDI Continuous Controller (MIDI CC) numbers are reserved and cannot be reassigned to other controls. These are:

- PitchBend
- CtrlSustainOnOff (CC #64)
- CtrlAllNotesOff (CC #123)

All other MIDI CC numbers may be used to control any assignable parameter in Stage-73 V.

3.2.11 MIDI controller configuration

There's a small arrow at the far right hand side of the toolbar that deals with MIDI controller configurations. This allows you to manage the different sets of MIDI maps you may have set up for controlling the instrument's parameters from MIDI hardware. You can copy the current MIDI assignment setup or delete it, import a configuration file or export the currently active one.

This is a quick way to set up different hardware MIDI keyboards or controllers with Stage-73 V without having to build all the assignments from scratch each time you swap hardware.
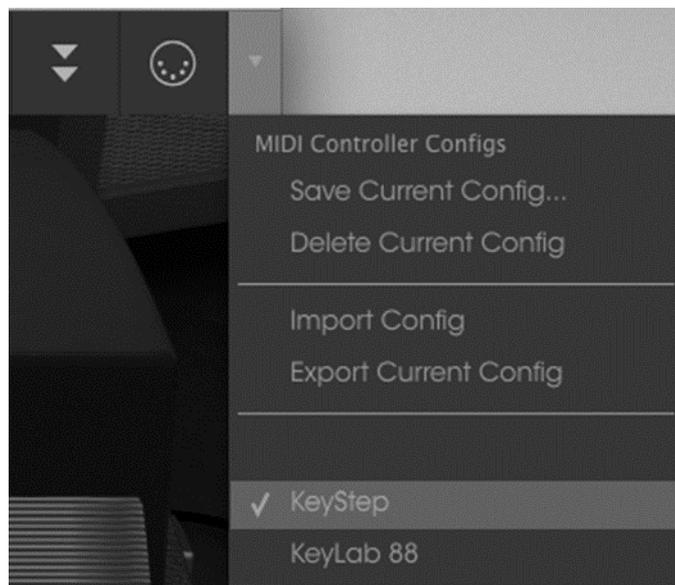
3.2.12 The lower toolbar

At the left hand side of the lower toolbar you will see a readout showing the value or state of whatever control you are modifying. It will also display the current value of a parameter without editing it: just hover the cursor over the related control and the value will appear as pictured below.
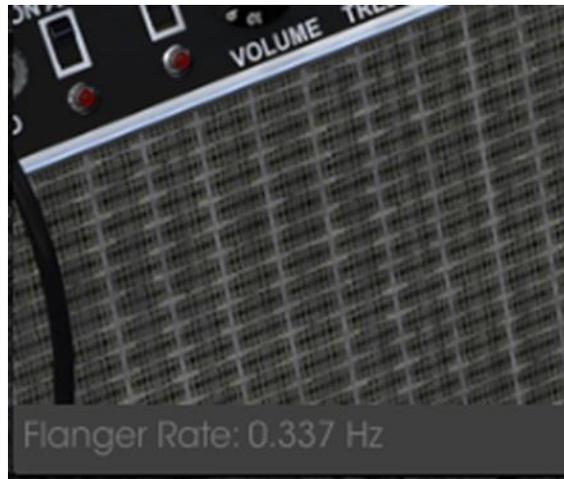
Displaying the current control's value

At the right hand side of the lower toolbar are three small windows. The first one on the left indicates the current MIDI Channel setting. Click on it and it will expand to show the full range of values you can select (All, 1-16).
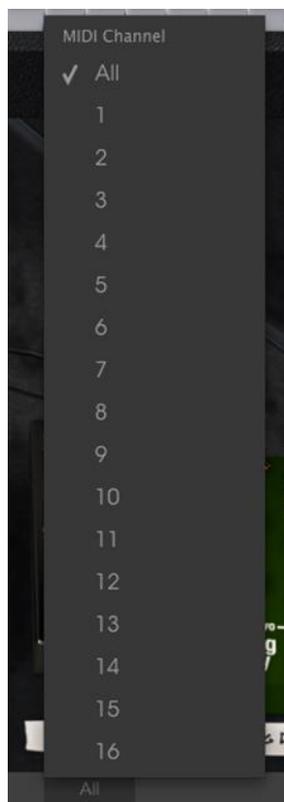
The Panic button can be pressed to reset all MIDI signals in the event of stuck notes or other issues. The Panic button is also MIDI-assignable.

The CPU meter is used to monitor how much of your computer's CPU is being used by the instrument.
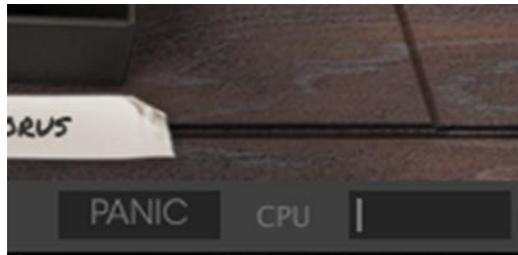
3.3   The Preset browser

The preset browser is how you search, load and manage sounds in Stage-73 V. It has a couple of different views but they all access the same banks of presets.

To access the search view click on the browser button (the icon looks a bit like books on a library shelf).
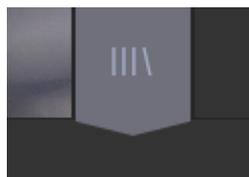
The Preset Browser button

3.3.1   Searching presets

The Search screen has a number of sections. By clicking on the Search field at the top left you can quickly enter any search term to filter the preset list by patch name. The Results column is updated to show the results of your search. Press the X button in the search field to clear the search.
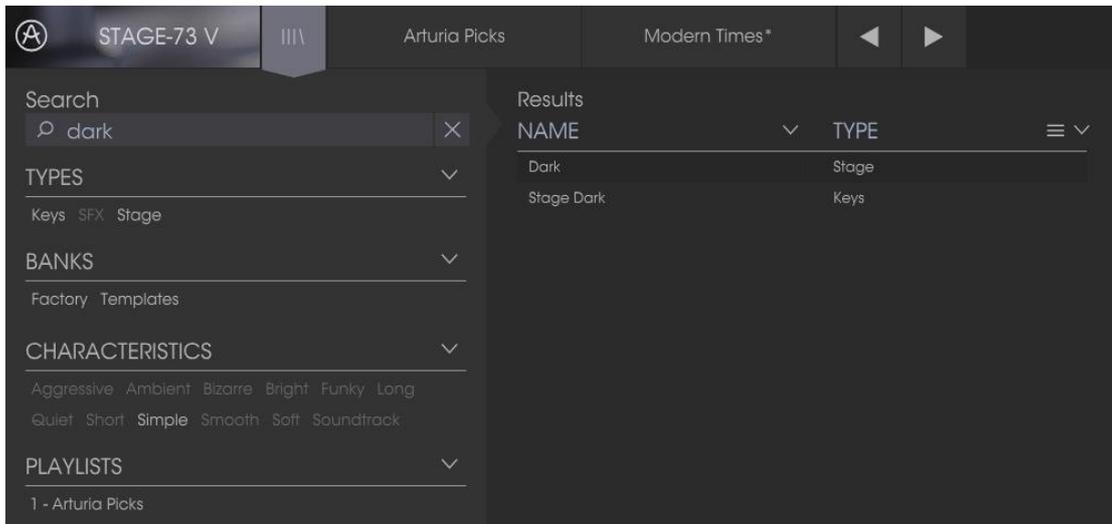
3.3.2 Using tags as a filter

You can also search using different tags. So for example by clicking on the Suitcase option in the Types field you can show only presets that match that tag. The tag fields can be shown or hidden by using the small down arrow buttons in their title fields. Results columns can be sorted by clicking the same arrow button in their own section.
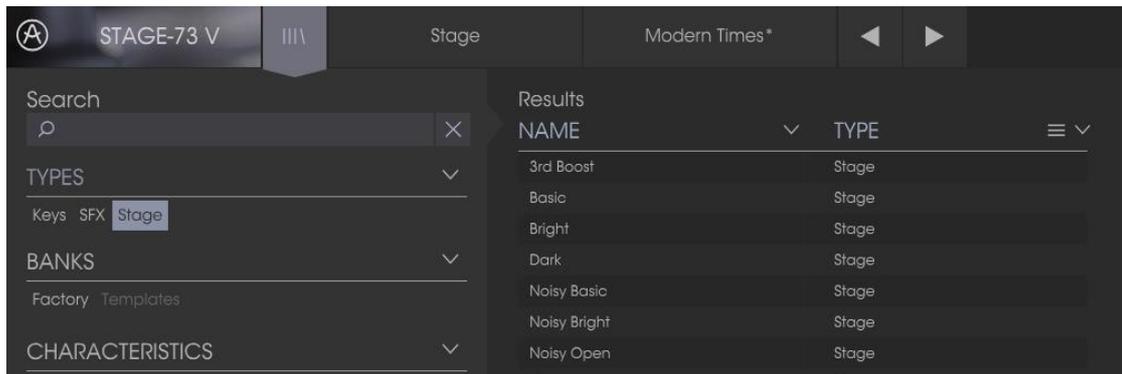
You can use multiple search fields to perform narrower searches. So by entering a text search and also specifying type, bank and characteristics options you could see only the presets that match those exact criteria. Deselect any tag in any area to remove that criteria and widen the search without having to go back and start again. Using "Ctrl + click" (Windows) or "Cmd + click" (Mac) will allow you to select multiple elements in the same area.
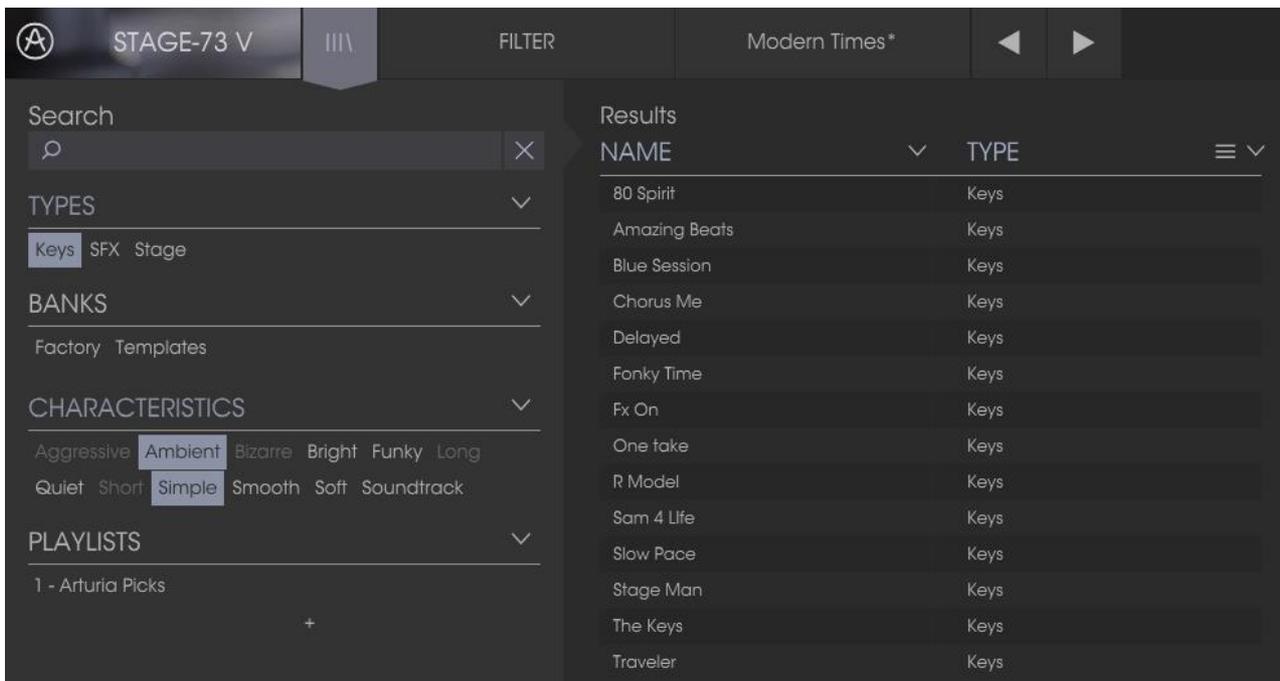
The second Results column can be switched to show Type, Sound Designer, Favorite or Bank tags depending on how you like to search. Click on its options menu button just next to its sort arrow.
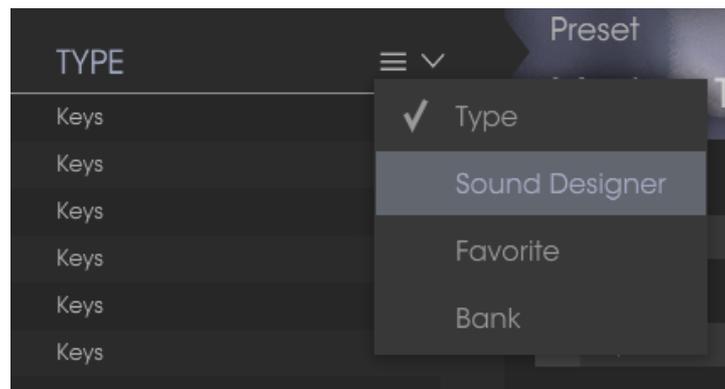
3.3.3   The Preset Info section

The Info column on the right of the search field shows you information about any preset. The information for User presets may be changed here: Name, Type, Favorite, etc.

However, if you want to alter the information for a Factory preset you must first use the Save As command to re-save it as a User preset. After this the Info section will gain Edit and Delete buttons at the bottom of the window.

Click Edit and then make the desired changes, either by typing in one of the fields or by using a pull-down menu to change the Bank or Type. You can even add new Characteristics by clicking the + sign at the end of that list. Click Save when you are done:
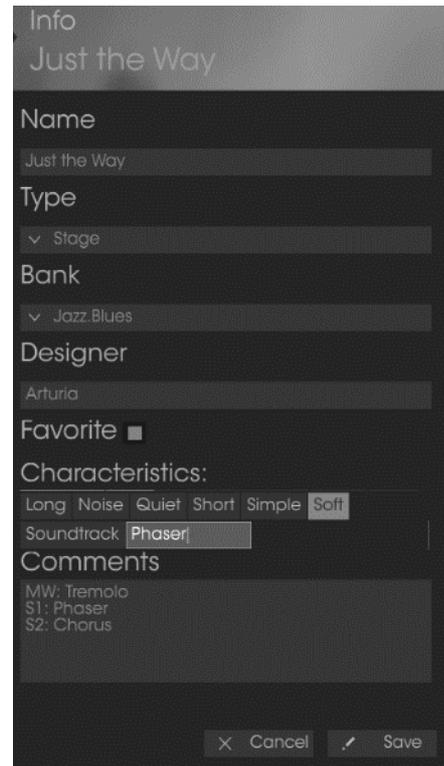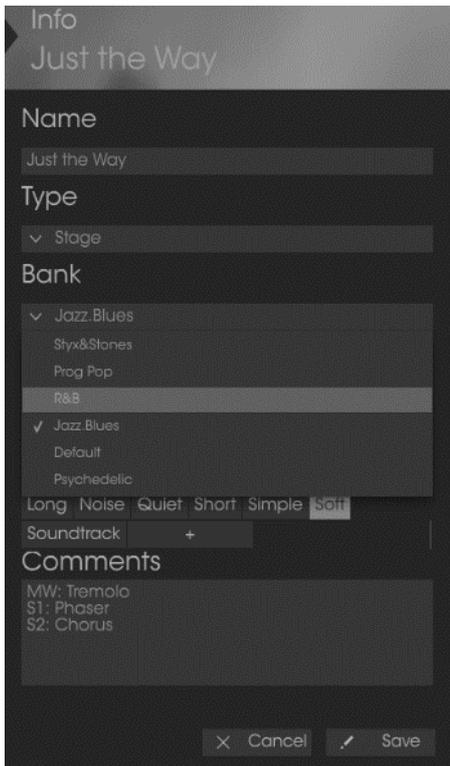
3.3.4 Preset selection: other methods

The pull-down menu to the right of the Search menu provides a different way to select presets. The first option in this menu is called Filter, and it will display the presets that fit the search terms you used in the Search field. So if you searched for "Love" in the main search area, the results of that search will appear here.

Similarly, if you previously selected Type: Stage and Banks: R&B in the Search field you would see the results of that search in this area instead.
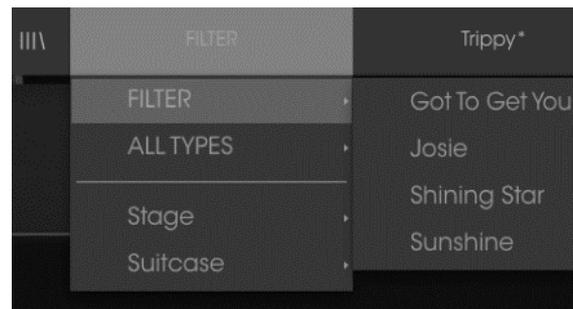
Filter results may differ based on Search criteria

Selecting the All Types option in the pull-down menu will bypass the Search criteria and show the entire list of presets.

The Categories below the line also ignore the Search criteria and display the presets based on their Type: Stage, Suitcase, Rock, and so on.
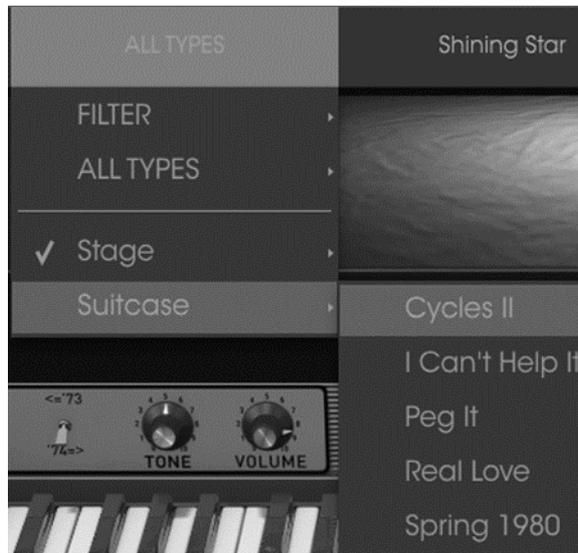
Selecting a preset by its Type

Clicking on the name field in the center of the toolbar will show you a list of all available presets. The list will also take into account any selections you have made in the Search field. So if you have pre-selected a Characteristic such as "Funky" this shortcut menu will only show you presets that match that tag.

The left and right arrows in the toolbar cycle up and down through the preset list: either the full list, or the filtered list that resulted from the use of one or more search terms.
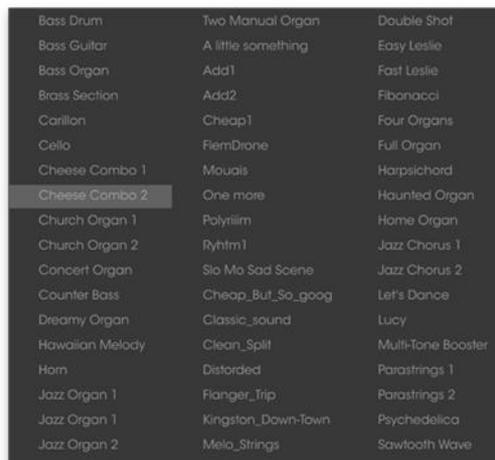
3.3.5 Playlists

In the lower left corner of the Preset Browser window is a feature titled Playlists. This is used to collect presets into different groups for different purposes, such as a set list for a particular performance or a batch of presets related to a particular studio project.

3.3.5.1 Add a playlist

To create a playlist, click the plus sign at the bottom:
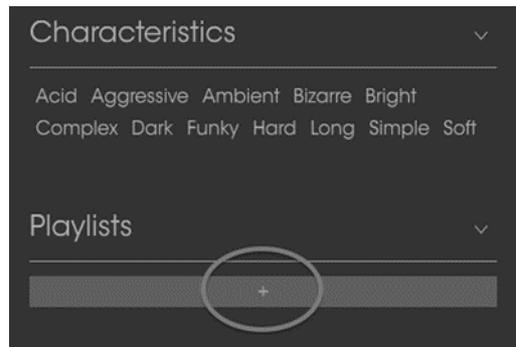
Give the playlist a name and it will appear in the Playlists menu. You can rename the playlist at any time; just click the pencil icon at the end of its row.

3.3.5.2 Add a preset

You can use all of the options in the Search window to locate the presets you want to have in your playlist. Once you have found the right preset, click and drag it onto the playlist name.
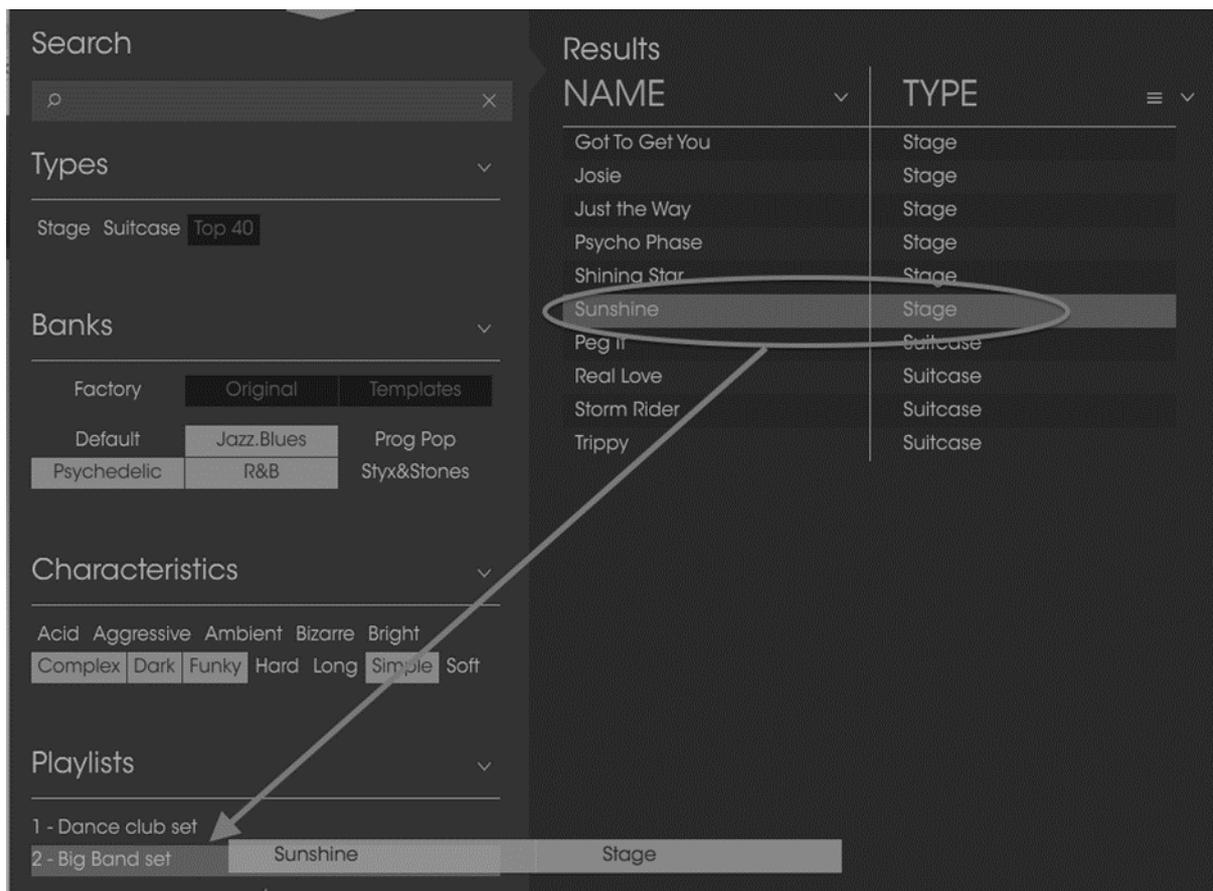
Click and drag from the Search Results list onto one of the playlists

To view the contents of a playlist, click on the playlist name.

3.3.5.3 Re-order the presets

Presets may be reorganized within a playlist. For example, to move a preset from slot 2 to slot 4, drag and drop the preset to the desired location.

This will move the preset into the new location.

3.3.5.4 Remove a preset

To delete a preset from a playlist, click the x at the end of the preset row.
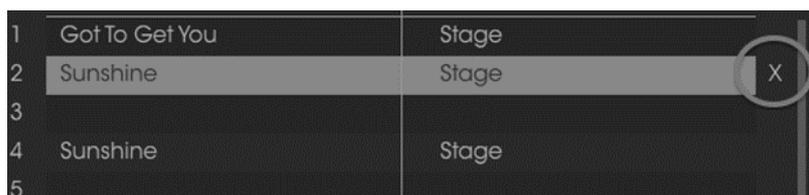
Click the X to remove a preset from a playlist

3.3.5.5 Delete a playlist

To delete a playlist, click the x at the end of the playlist row.
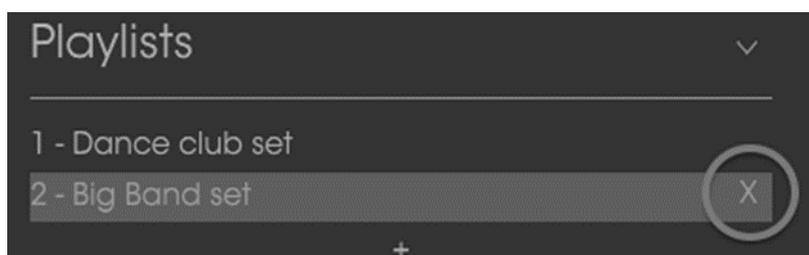
Click the X to delete a playlist

3.4   Front panel controls

The front panel of Stage-73 V is as streamlined as the original instruments. There are two main models: Suitcase and Stage. There are slight differences in the front panel

controls of each model, but they have the identical features 'under the hood' in the Advanced section.

It's important to know that there is more to each model than its appearance. Variations in the features were often accompanied by modifications to the signal path, or the hardware, or both. We have painstakingly modeled every nuance of every version of these instruments, from the pre-amps to the hammers, from the tremolo to the sound board.

3.4.1   The Suitcase model

The front panel of the Suitcase has EQ sliders for Treble and Bass, a Vibrato control section, an effects loop, a power amp connector, and a master volume control.
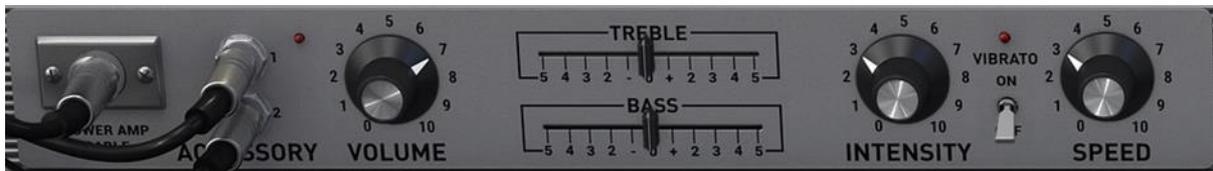
Suitcase model front panel controls

3.4.1.1 Power amp

Click on the cable, or on the connector when the cable is not present, to toggle the modeled power amp circuit on or off. The "off" setting (cable absent) provides a direct output to your DAW.

3.4.1.2 Accessory (FX loop)

These connectors are always present. They route the signal from the pre-amp to the effects units under the piano and then back again.

3.4.1.3 Volume

This knob serves as the master volume control of the pre-amp. At its higher settings it will overdrive the amplifier slightly, just like the original instrument.

3.4.1.4 Treble / Bass controls

These sliders allow you to cut or boost the high and low frequencies of the output signal.

3.4.1.5 Vibrato switch / Intensity / Speed

The "vibrato" is actually a tremolo effect because it alters the amplitude of the signal, not the pitch. But in the interest of authenticity we kept the labels as they were for the original instrument.

Click the switch in the middle to toggle the Vibrato effect on and off. The LED will light when Vibrato is active.

The Intensity knob controls the depth of the vibrato. The effect adds a subtle motion to the sound as it alternately changes the volume of each side. At its maximum the audio signal will seem to bounce between the left and right channels.

The Speed knob controls the rate of the vibrato.

3.4.2   The Stage model

Stage-73 V includes two versions of the Stage model, selectable by the left-side switch pictured below. And while there are slight differences in the front panel

controls between the two, the major difference is actually in the circuitry being modelled. We took great care to recreate the characteristics of both.
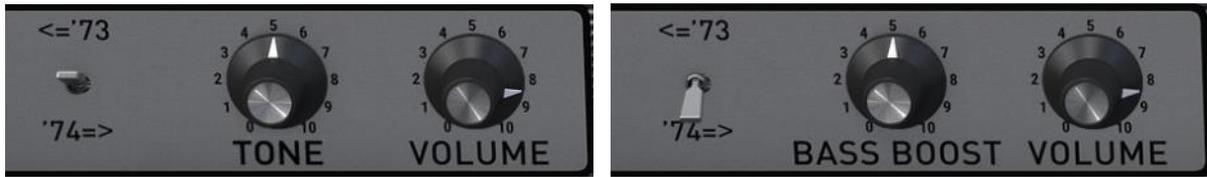
1973 and earlier   *1974 and later*

3.4.2.1 '73 / '74 switch

Click this switch to toggle between the '73 controls and the '74 controls.

3.4.2.2 Tone ('73 and earlier)

The Tone control is present only in the '73 version. It is a multi-band EQ which cuts and boosts the high and low frequencies at the same time.

3.4.2.3 Bass Boost ('74 and later)

This control boosts and cuts only the lower frequencies of the electric piano.

3.4.2.4 Volume (both)

This knob serves as the master volume control of the pre-amp. At its higher settings it will overdrive the amplifier slightly, just like the original instrument.

3.5   Advanced features

The Advanced features can be accessed by clicking the Advanced button or by clicking on the top of the electric piano.
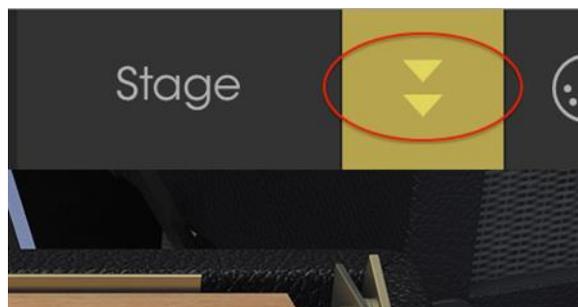
The Advanced button

The top of the piano will disappear, revealing additional controls that allow a much greater level of control over the sound of the instrument.

The controls are the same for both the Stage and Suitcase models.

3.5.1 Harmonic profiles

The process of modelling an instrument in software produces complex equations representing each aspect of the sound of that instrument. Once we have isolated the components of the sound we are able to emphasize, de-emphasize, and even remove individual components. This makes it possible to create harmonic profiles that sound very different from one another but are still based on the same instrument.

Stage-73 V includes many different harmonic profiles that you can use as the basis for creating the exact sound you want:

- Basic
- Noisy Basic
- Bright
- Noisy Bright
- Open
- Noisy Open
- Dark
- 3rd Boost

3.5.2 Physical components

The following side view of the physical relationship between the keys, the tone bars and the tines may be helpful in visualizing some of the following parameters.

Side view of the keyboard / tone bar / tine mechanism

3.5.3   Tone Bar resonance

This parameter adjusts the sustain time of the tines by simulating changes in the characteristics of the metal tone bars. A more resonant tine will sustain longer, while a less resonant tine will not sustain as long.

3.5.4   Pickup distance

The distance of the pickups from the tines has an effect on its output level and a slight impact on its tone.

3.5.5   Tuning

The entire instrument can be tuned flat or sharp by as much as 1.5 semitones with this control.

3.5.6   Pickup alignment

The alignment of the pickups has a significant effect on the overall tone of the instrument. As the pickups move further off-axis they are able to reproduce more of the fundamental frequencies of each note, resulting in a richer tone.

3.5.7   Damper distance

The distance of the dampers from the tines affects how quickly a tine will stop vibrating after a key is released.

3.5.8   Dynamics

This parameter models what happens when the hammers are moved closer to or farther from the tines. The closer they are to the tines, the less dynamic range there will be.

This has almost a compressor-like effect, as notes played softly will be relatively loud and their overtones will be heard more clearly.

3.5.9   Hammer hardness

The early tine-based pianos used hammers covered with felt, which had a pleasing effect on the attack of the sound. However, they proved not to be as durable and needed to be changed too frequently.

Various solutions were tried, including neoprene rubber tips covered with felt. The final version of the hammers was the most durable, using only neoprene rubber tips.

We have modelled all types of hammer composition, and this parameter allows you to dial in exactly which sort of attack you want the notes to have: gentle (felt) to aggressive (neoprene) and every level in between the two.

3.5.10 Hammer noise

This parameter controls the relative level of noise generated by the hammers when they strike the tines. The combined use of this and the Hammer hardness parameter can result in a tone completely devoid of hammer noise or completely dominated by it.

3.5.11 Velocity curve

When the Advanced button is clicked a simulated touch-screen tablet appears below the keyboard. This is the velocity curve editor.

The velocity curve editor

As notes are played on the keyboard vertical lines will appear inside the velocity curve editor window, indicating the velocity at which each note was played. The length of the line represents the amplitude of that particular note.

A number of preset curves are provided, and you can easily create your own.

3.5.11.1 Selecting a curve

To audition the existing velocity curves, click on the menu bar inside the editor window. A drop-down menu will appear with a list of presets and the Save As / Delete options.
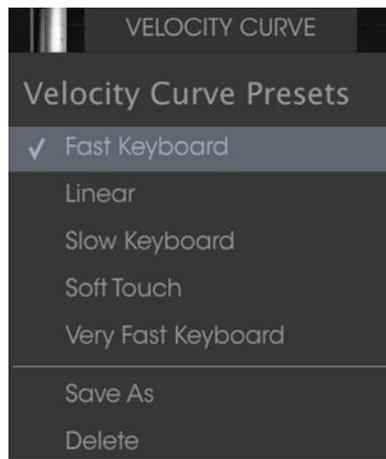
The Velocity Curve menu

A check mark next to a preset curve indicates that it is the currently selected curve. Click on a different curve name to select that curve. The menu will close and the new curve will appear in the editor window.

If you have edited a velocity curve and would like to save it, use the Save As option and follow the prompts. After you name it and save it, your new curve will appear in the Velocity Curve Presets list in alphabetical order.

If you want to delete one of the preset curves, first make sure it has been selected in the Velocity Curve Presets list (there should be a check mark by its name). When you are certain the curve you want to delete has been selected, click the word Delete in the Velocity Curve menu. It will be removed from the Velocity Curve Presets list.

3.5.11.2   Editing a velocity curve

Each velocity curve has five points which can be edited. Think of the editor window as an X/Y grid, with the Velocity value along the X axis and Amplitude along the Y axis.
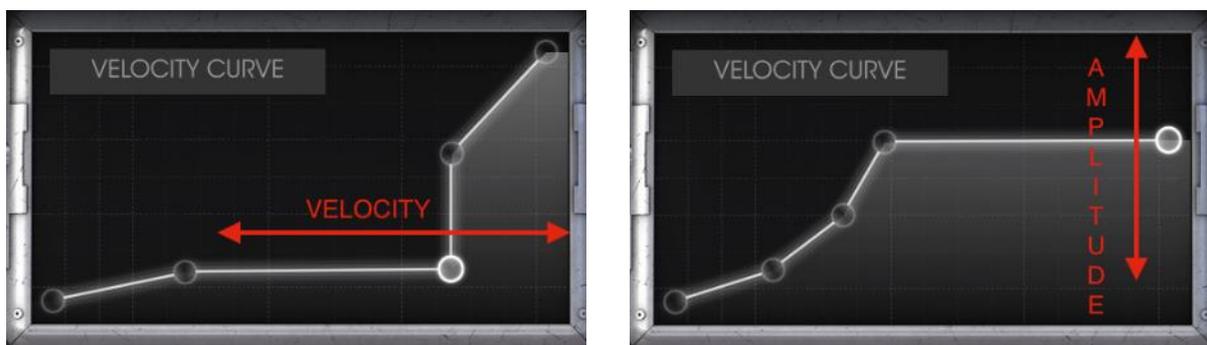
Velocity curves: Velocity (X axis) and Amplitude (Y axis)

Click and drag a velocity point to move it to a different location. Double-click on a velocity point to remove it. To add it again, click anywhere inside the X/Y grid.

Here are some important things to remember about editing velocity curves:

- There can be as many as 5 velocity points but no fewer than 2.
- The first and fifth points can only be edited vertically and cannot be removed.
- The three middle points can be placed anywhere within the X/Y grid.
- The three middle points can be removed and added again.

Using a combination of these features, it is possible to create an infinite number of velocity curves. Here are three examples:
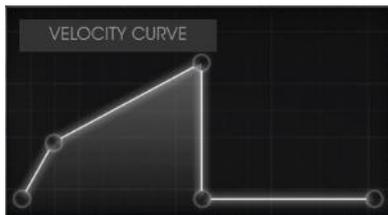
Cross-switch low   *Cross-fade high*   *Inverted response*

3.6   The amplifier (Stage model only)

The Suitcase version included its own amplification system but the Stage version did not. Fender recommended one of its own guitar amps for this purpose, which we have faithfully modelled and included with Stage-73 V. When the Stage version of the instrument is selected, the guitar amp will appear at the lower-left hand corner of the application window.

The amplifier (Stage version only)

All of the classic controls of this famous amplifier are available:

3.6.1   On Axis

The placement of a microphone can have a significant effect on the sound of an instrument. This switch selects one of two positions for the modelled microphone (an SM-57): on-axis or off-axis.

On-axis models the sound of the microphone pointing straight at the amp, and off-axis emulates the effect of having the microphone pointed at an angle.

The on-axis setting tends to emphasize the fundamental frequencies, while the off-axis setting de-emphasizes them.

3.6.2   Bright

This switch provides a quick way to brighten the sound by boosting the high-frequency content of the sound. It is only active at low volumes.

3.6.3   Volume

This knob controls an additional pre-amp stage. To produce a tone with more distortion, use higher values on this control and lower values on the Master Volume. To produce a tone with less distortion, use lower values on this control and higher values on the Master Volume.

3.6.4   EQ (Treble, Middle, Bass)

These knobs provide conventional tone-shaping controls over the high, mid and low frequencies, respectively.

3.6.5   Reverb

We've included a convolution model of a spring reverb so you can add an authentic touch of "roominess" to the sound. We were faithful to recreate all of the characteristics of this feature, with the exception of its tendency to rattle if you shook the amplifier!

3.6.6   Vibrato Speed / Intensity

As with the Suitcase version, the "vibrato" is actually a tremolo effect because it alters the amplitude of the signal, not the pitch. The Speed knob controls the rate of the effect, and the Intensity knob controls its depth.

The vibrato effect is mono, not stereo like that of the Suitcase model.

3.6.7   Master Volume

This knob controls the final output stage. To produce a tone with less distortion, use higher values on this control and lower values on the left-hand Volume control. To

produce a tone with more distortion, use lower values on this control and higher values on the Volume knob.

3.6.8   Amplifier On / Off

When the amplifier is enabled this light will turn red, indicating that the amp has been placed in the signal path. When it is dark the light will turn off, which means the output of the instrument will be routed directly into your DAW.

3.7   The effects

The effects come between the instrument and the amplifier in both the Suitcase and Stage versions of the piano. When the effects and amps are all switched off, what you hear is the pure output of the instrument.

When you activate any of the effects or the amp, they begin to process the sound. You can swap the order of any of the effects by clicking on their name text and choosing a new model to go into that slot.

The Stage-73 V Effects section

Note that when you do this the pedal will swap positions. So if you swap an Overdrive for the Phaser in slot 3, for example, the Overdrive will take the place of the Phaser pedal.

Four of the six available pedals must be present in the pedalboard at any given time, though none of them has to be active. There is no option to have an empty pedal slot.

Switch any effect on by pressing its virtual footswitch. All effects, the amp and swell pedal can be MIDI controlled by using MIDI learn mode.

3.7.1 Flanger

Flanging works by mixing two identical signals together, with one signal delayed by a small and gradually changing period. This produces a swept "comb filter" effect. The controls for the effect are:

- Delay amount
- Effect Depth
- Rate
- Resonance

3.7.2 Phaser

Phase shifting is a sweeping effect that was first popularized in the 1960s. It adds motion and a swirling character to the sound. The controls are:

- Modulation Rate
- Phaser depth
- Feedback amount

- Stereo spread

3.7.3   Chorus

A Chorus effect is similar to a flanger in that it also splits the signal, delays one side, varies the delay time gradually, and mixes the two signals back together. The difference is that the length of the delay time is longer than that of a flanger, which results in a more subtle but still very interesting effect. The controls are:

- Rate
- Delay amount
- Chorus Amount
- Dry / Wet Mix
- Stereo Chorus Rate
- Stereo Width
- A three-position chorus type switch

3.7.4   Analog Delay

A delay can increase the spaciousness of a sound without making the sound "swim" the way some reverbs do. It can also be used as a rhythmic counterpoint to accentuate a groove. The controls are:

- Delay Time
- Feedback Tone
- Feedback Amount
- Dry / Wet Mix
- LFO Rate
- LFO Depth

3.7.5   Compressor

A compressor is generally used to help maintain a consistent level of sound, though there are many other ways to use one.

For example, it can keep the attack transients of a sound from overloading the input of the next effect. It can also help a sound which would normally decay quickly not to fade away as quickly. The controls are:

- Input level
- Threshold
- Ratio
- Attack rate
- Release rate
- Makeup gain

3.7.6   Overdrive

Overdrive will add anything from a slight amount of grit to flat-out distortion to a sound. The controls are:

- Drive Amount
- Output Level
- Drive Tone

3.7.7   Volume / Wah / Auto-Wah

To the left of the virtual sustain pedal is another effect slot. It can either be a Volume pedal, a Wah pedal, or a 'stomp-box' effect called an Auto-Wah.

Click the label under at the bottom of the screen to select one of these three effects.

3.7.7.1 Volume pedal

The volume pedal controls the output level of the piano before sound is passed to the effect pedals or the amplifier.

You can use the MIDI assignment feature to map this virtual volume pedal to a real hardware expression control or volume pedal in order to have a more authentic playing experience when triggering Stage-73 V from your MIDI keyboard.

3.7.7.2 Wah pedal

The Wah pedal looks the same as the volume pedal but controls the harmonic content of the sound instead of the volume.

3.7.7.3 Auto-Wah

The third option selects an effect pedal known as an Auto-Wah. It also controls the harmonic content of the sound, but does so automatically with an LFO (low-frequency oscillator). The controls:

- Frequency

- Threshold
- Modulation depth
- Automatic rate

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