PS-3300

KORG COLLECTION

KORG

E1

Contents

Introduction

Thank you for purchasing the KORG Collection PS-3300. To help you get the most out of your new instrument, please read this manual carefully.

Standalone and plug-in versions

The PS-3300 includes a standalone application and plug-ins for AU (macOS only), VST, and AAX. This manual applies to all versions, collectively referred to as "PS-3300." The functionality is the same except as noted.

A note about this manual

This manual is primarily what is sometimes called a "Parameter Guide;" it describes and explains the different controls that you'll encounter in the plug-in, and offers some tips on how best to use them. It does not, however, attempt to explain the basics of analog synthesis, or to delve into the many interesting ways that the PS-3300's different modules can be made to interact. Instead, we highly recommend the original PS-3300 manual. It's a true classic, full of great info and example patches, and the PDF is available for free on the Korg website.

For best results, use a modern, powerful computer

The PS-3300 is a complex instrument, and this software model is designed to deliver both unprecedented accuracy and stunning audio quality. Together, this complexity, accuracy, and audio quality require a significant amount of CPU processing power. Modern, relatively powerful computers should be able to play up to 60 voices per instance at the default Standard oversampling. If you encounter CPU performance limitations, try reducing the Polyphony value, or setting the **Oversampling Mode** (see page 14) to *Always Use Standard*.

About the Korg Collection PS-3300

The original PS-3300 was something the world had never seen before: a fully-polyphonic, semi-modular synthesizer. The heart of the synthesizer was the PSU-3301 module, which included a complete voice (oscillator, filter, envelope, and VCA) for each of the 48 notes on the keyboard. The massive PS-3300 enclosure housed three PSU-3301s, independently controlled but layered together, for a total of 144 voices!

Since all of this was created with analog components, each of those 144 voices sounded a little different. Envelope times and filter cutoffs varied from note to note, and between the three PSU-3301 modules, creating a uniquely organic sound. We've reproduced this in the PS-3300 plug-in with incredible detail and control; for more information, see "Voice Variation" on page 48.

We've also implemented a host of improvements and modifications to make the PS-3300 even better while preserving its unique character. See the figure below for all the changes to the patch panel, including:

- Choice of modeled PS-3300 or MS-20 filters for each PSU-3301 panel
- Additional, optional Amp Envelopes
- Choice of modeled PS-3300 or modern exp/log shapes for both main and Amp envelopes on each panel
- Modeled Ensemble effect from the PS-3100 and PS-3200
- White and Pink Noise added to Signal Generator waveform options
- Sample and Hold added to Modulation Generator 1 waveform options
- Options to link Temperaments and inter-panel oscillator phase
- Additional Modulation Processors, including a Multiplier, Attenuverter, and Lag Processor
- Tempo sync options in all appropriate places
- Patch-panel outputs for Aftertouch, Mod Wheel, and Pitch Bend
- Expanded keyboard range–a superset of the vintage and reissue ranges, plus an extra fifth in the bass
- Built-in mults for all output jacks
- …and many other small but important details

Highlighted items are additions and mods to the vintage PS-3300

Learn and explore

To make it easier to understand complex patches, cables show signal direction via a brief animation when selected. You can also select between different sets of cable colors, to suit your preferences.

The status bar at the bottom of the screen includes help and useful tips for almost every element in the user interface, including every slider, knob, switch, and jack.

MIDI control

We added three different mechanisms for MIDI control. First, you can introduce MIDI signals directly into the patch panel, including velocity, aftertouch, mod wheel, pitch bend, and two assignable MIDI CCs. There's also a 30-slot mod matrix for modulating parameters from MIDI sources. Finally, MIDI Mapping lets you directly move sliders, knobs, and buttons from your favorite MIDI controller.

Effects

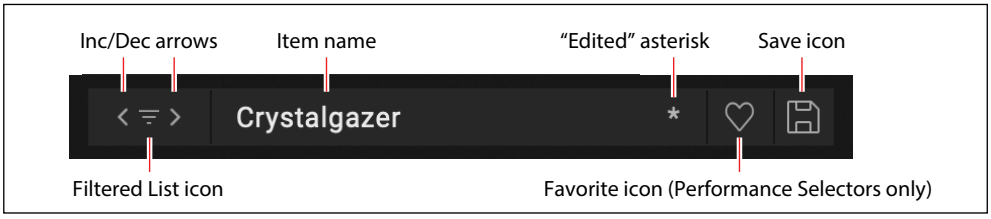
In addition to the Ensemble on the patch panel, we've included three insert effects and a dedicated reverb slot. There are 31 effects types to choose from, including everything from vintage pedals, guitar amps, and tape delay to modern reverse delays and shimmer reverb.

User Interface Elements

Selectors

PS-3300 keeps track of sounds, and some individual sound elements, using a database. This includes Performances, Effects Presets, Temperaments, and Set Lists. In the UI, Performances and Effects Presets appear as Selectors:

Selector



This shows the currently selected item. Use the < and > arrows to step through them one by one, or click on the name to bring up a browser window (see "Sound Browser" on page 7). An asterisk "*" to the right of the name shows that the item has been edited from its saved version.

Important: the arrows step through the list of items according to the Sound Browser window's sort order, and filtered by the window's Categories, Collections, and search text. Each individual selector remembers these settings for as long as PS-3300 is open and unless a new parent sound is selected (for example, the Performance is the parent sound of IFX 2).

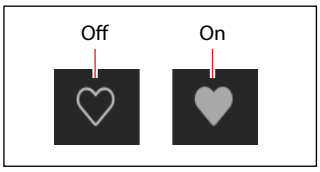
If some items are hidden due to the selected Categories, Collections, and search text, the Filtered List icon appears between the < and > arrows. To clear the filters and show all items in the list, click the Filtered List icon. Alternatively, open the Sound Browser and adjust the filters as desired. For more information, see "Sound Browser" on page 7.

Press the Save icon to bring up the Save dialog.

Right-click/control-click (macOS) on the name to bring up a contextual menu. For most items, this includes options for saving and renaming. Performances also include commands to select the Performance in the Librarian page and to export the Performance to a file on disk.

For Performances only, the Selector includes the Favorite indicator. This lets you quickly mark Performances as favorites. You can then find them later via the "Favorite" Category. Other data types can also be marked as favorites from the Sound Browser and Librarian, but there wasn't room to include the icon in the smaller Selectors.

Favorite icon (Performance Selectors only)



Knobs and sliders

To edit knob values, drag vertically. To edit slider values, drag in the direction of the slider.

Hold Option/Alt while dragging to edit in fine increments.

Most knobs and sliders can also be edited by hovering the cursor over the control, and then using the mouse wheel or dragging on the trackpad. The exception is when the controls are in a scrolling list, such as the Mod Inspector panel or the Mod List. In these lists, the mouse wheel and trackpad drag are used for scrolling, and so they are disabled for editing (to avoid unintended changes).

Double-click knobs and sliders to set them to default values.

Conventions in this manual

In this manual, the following text styles indicate:

- **Parameter Names** in text (silkscreen text is simply written in CAPITAL LETTERS)
- *Parameter Values*

The value range for parameters is shown below the name, in brackets, as below:

LIMITER A

[–5.000…+5.000]

Getting Started

Installation and updates

PS-3300 uses the Korg Software Pass application for authorization, installation, and updates. Optionally, the software can check for updates automatically; see “Check for Updates” on page 12.

Your software license is registered to your Korg ID. You can download the Korg Software Pass application and manage your Korg ID at https://id.korg.com.

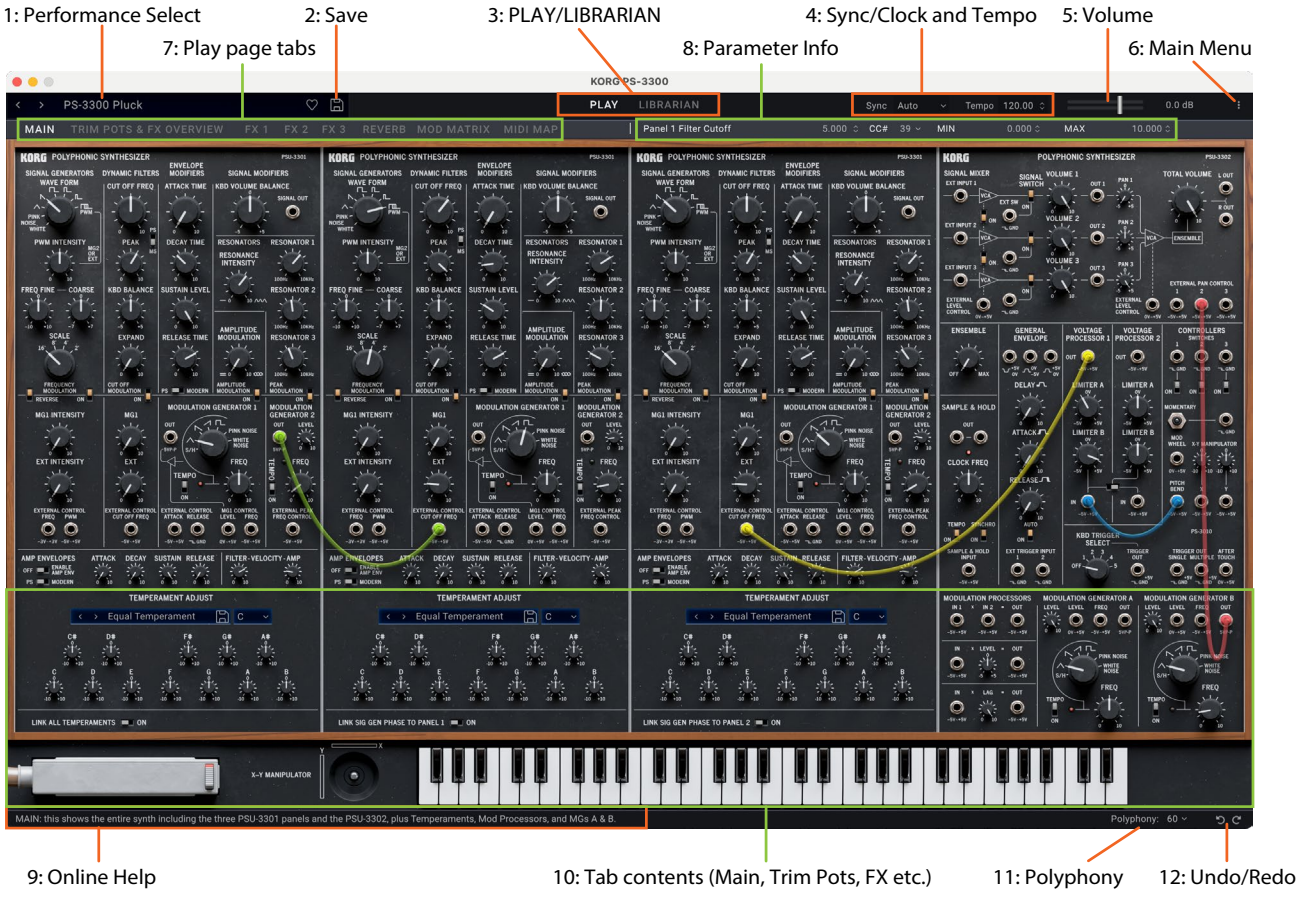
Until authorized, the KORG PS-3300 operates in Demo mode. Sounds cannot be saved, and after 20 minutes the instrument will no longer produce sound.

Where are sounds stored?

The sound database is stored in a dedicated folder structure. This can be created anywhere during the installation process, but as defaults we recommend:

- macOS: /Users/Shared/KORG/KORG PS-3300/System
- Windows: \Users\Public\Public Documents\KORG\/ KORG PS-3300/\System

Basic page layout



All of the Play pages are laid out in a similar way.

1: Performance Select

This shows the currently selected Performance. Use the < and > arrows to step through Performances one by one, or click on the name to bring up a browser window (see “Sound Browser” on page 7). Note that the sounds available via the arrows may be filtered by settings made in the Sound Browser, such as selected Categories or Collections.

Right-click/control-click (macOS) on the name to bring up a contextual menu for saving and renaming. For more information, see "Selectors" on page 2.

2: Save

Click on the disk icon to bring up the Save dialog.

3: PLAY/LIBRARIAN

The buttons at the top of the main window select whether you're playing and editing sounds–including the patch panel, effects, modulation, or MIDI mapping–or working with the Librarian. For the most part, you can simply switch between these pages without thinking about it. It's important to note, however, that some menu commands are available only in Librarian mode, and that undo is handled separately for the Librarian.

Menu commands

Menu commands for file operations, such as importing, backing up, and restoring, are available only when the Librarian is active.

Undo/Redo

Undo/redo history is maintained separately for the Librarian and Play pages. The names of the undo/redo commands change to reflect this; for example, "Editor Undo: Value Change: Cutoff" or "Librarian Undo: Update Name."

4: Sync/Clock & Tempo

Sync To Host

[Off, On]

This only appears when running as a plug-in, as opposed to a standalone application.

When **Sync To Host** is *On*, all tempo-related parameters will synchronize to the tempo from the DAW. When it is *Off*, they will use the tempo saved in the Performance.

Clock

This only appears when running as a standalone application, as opposed to a plug-in.

[Internal, External, Auto]

Internal: Tempo-related parameters will use the Performance's Tempo setting, described below. Use this when playing the PS-3300 by itself.

External: The tempo will synchronize to incoming MIDI Clock messages. If MIDI clocks are not being received, tempo-related features will not function.

Auto: This combines the functionality of *Internal* and *External*, so that you don't have to manually switch between the two:

- If MIDI Clocks are not being received, the PS-3300 uses its internal tempo.
- If MIDI Clocks are being received, they control the tempo. If the clocks stop for more than 500 ms, the PS-3300 switches back to internal tempo.

Tempo

[40.00…300.00]

This is the stored tempo for the Performance. It applies only if **Sync To Host** is *Off* (when running as a plug-in) or when **Clock** is set to *Internal* or *Auto* (when running stand-alone); otherwise, it is grayed out.

5: Volume

This controls the overall volume of the Performance. Use the slider or numeric readout to make adjustments, and view the results on the meter behind the slider.

6: Main Menu

This menu gives access to the Settings window (including velocity and aftertouch curves, interface options, Scale and Set List selection, etc.), undo/redo, user interface size scaling, "About" information, and Librarian-specific commands. For details, see "Main Menu" on page 11.

7: Play page tabs

These tabs select the content to be displayed in the Tab Contents area below. The MAIN tab includes the Temperaments and additional patch-panel modulation controls (Modulation Processors and MGs A and B). TRIM POTS & FX OVERVIEW lets you adjust lower-level details of the synth and see an overview of all four effects. Finally, there are pages for each of the effects, a Mod Matrix for realtime control, and a MIDI MAP for programming or entering automation from a MIDI controller.

8: Parameter Info

This shows the name and numeric or text value of the selected parameter. You can use this for precise numeric editing, if desired.

It also shows the parameter's MIDI Map assignment. The MIDI Map page (see page 60) shows all of the MIDI Map assignments at once.

9: Online Help

When you hover over a parameter or control, this area shows a brief explanation of what it does or how it works. This area also shows the specific action that will be affected by Undo and Redo; see below.

10: Tab Contents

This area shows everything outside of the main synth panels, including Temperaments, the extra Modulation Processors and MG A/B, effects, modulation, MIDI control, and trim pots. The contents change according to the selected Tab. For more information, see:

- "MAIN" on page 43
- "TRIM POTS & FX OVERVIEW" on page 48
- "FX 1/2/3" on page 51
- "REVERB" on page 55
- "MOD MATRIX" on page 56
- "MIDI Map" on page 60

11: Polyphony

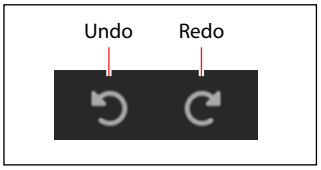
This sets the maximum number of notes that can be played simultaneously. Lower Polyphony settings can reduce CPU load. The value is saved in the Performance.

The vintage PS-3300 was 48-note polyphonic, with a range from F to E. The reissue uses a more standard range, from C to C, with 49-note polyphony. This software model supports a superset of the vintage and reissue ranges, plus an extra fifth in the bass, for a maximum of 60 notes.

12: Undo/Redo

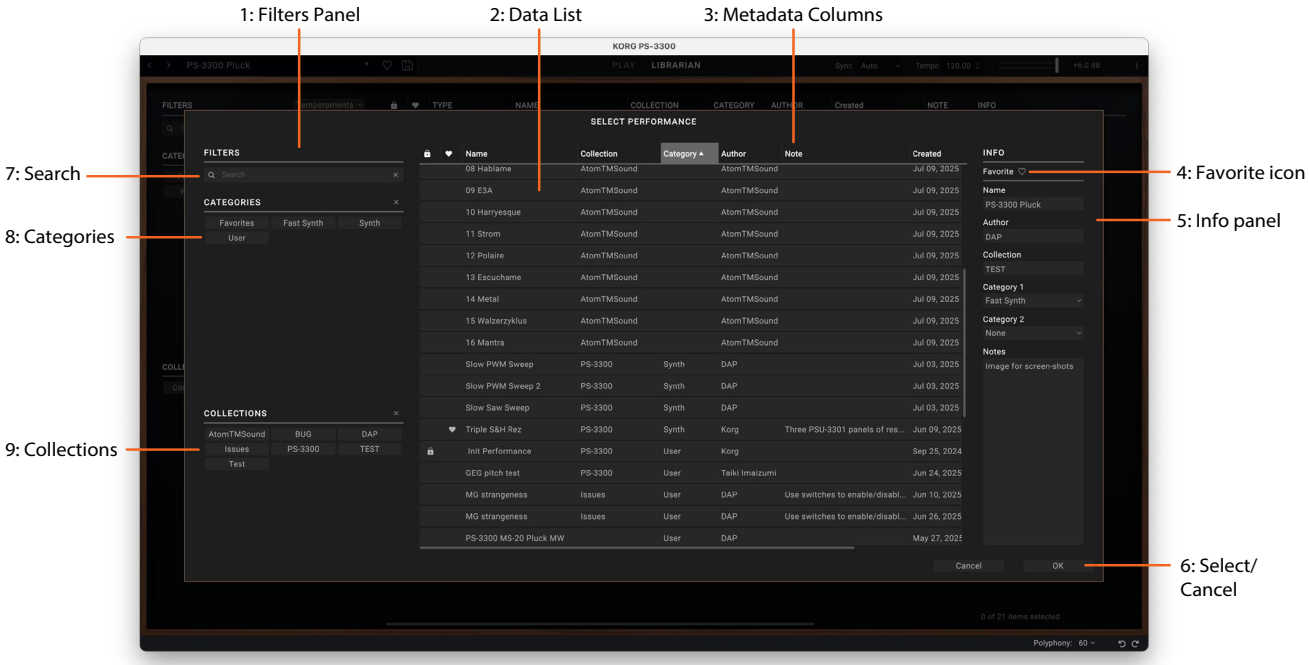
The PS-3300 supports multiple levels of undo and redo for most actions, including importing data, deleting, renaming, editing Set Lists, editing parameters, and so on. For instance, you could import a bundle file containing a thousand objects, edit CUT OFF FREQ, rename all of your Performances, and finally add a new modulation routing to ATTACK TIME, and then safely undo all of those actions in turn.

The counter-clockwise arrow ("go back") is Undo, and the clockwise arrow ("go forward") is Redo. Hover over the arrows, and the Online Help area shows the action which will be undone or redone.



Undo/redo history is maintained separately for the Librarian and Play pages. The names of the undo/redo commands change to reflect this; for example, "Editor Undo: Value Change: CUT OFF FREQ" or "Librarian Undo: Update Name."

Sound Browser



Overview

The Sound Browser is used for selecting sound data, such as Performances, Effects Presets, and Temperaments. For editing metadata (such as name, Categories, etc.), use the Librarian instead.

1: Filters Panel

The selections here help you narrow down the number of items in the Data List. Set the Search, Categories, and/or Collections as desired. The Filters Panel can be resized by dragging its right edge, to show one, two, or three columns of Categories and Collections.

Optionally, the instrument plug-in and standalone application can default to hiding sounds which use the audio input, and the effect plug-in can default to showing only sounds which use the audio input. For more information, see “Sound Browser” on page 7.

Important: The Search, Categories, and Collections settings continue to affect data selection, even after the Sound Browser is closed. Each individual selector remembers these settings for as long as PS-3300 is open and unless a new parent sound is selected (for example, the Performance is the parent sound of the Effects Preset). For more information, see “Selectors” on page 2.

2: Data List

This shows the list of selectable sound data (Performances in the example above), as filtered by the Search, Category, and Collection settings in the Filters Panel. Click on an item in the list to select it for auditioning, or use the keyboard up/down arrows to browse through items one by one. Click in the list and type a few letters to select sounds by name. Double-click (or press OK) to select and close the browser.

3: Metadata columns

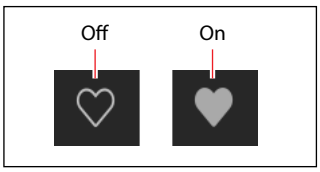
For each item, the list shows the Name, Collection, Category, Author, and Notes, as well as whether or not the item is locked factory data. You can drag the tops of the columns to re-arrange them, or to resize the columns.

Click on a column heading to sort; click again to reverse the sort order. The triangle icon shows which column is selected for sorting, and the direction of the triangle (up or down) shows the sort order.

4: Favorite icon

Click on the heart to mark (or un-mark) an item as a Favorite. You can then find them later via the "Favorite" Category.

Favorite icon



5: Info panel

This panel lets you view the metadata for the selected items, including the Name, Collection, Categories 1 & 2, Author, and Notes. The Inspector panel can be resized by dragging its left edge.

6: Select/Cancel

Press Select to confirm the selection and close the window, or Cancel to revert to the previous selection.

7: Search

Type into this field to filter the list by searching for text in any of the metadata fields. Click on the "X" to clear the field.

8: Categories

Categories let you filter by the type of sound, such as basses, leads, bells, etc. Each sound can be assigned to two Categories, and each data type has its own list of Categories. Click on a Category name to filter by that Category; click on the "X" to deselect all Categories.

When searching by Category, a sound will be shown if either of its Categories match the search criteria.

This section also includes "Favorites," which shows all sounds which you've marked as favorites. You can use the Favorites selection in combination with any other Categories.

9: Collections

Collections let you filter sounds by group, such as factory sounds, expansion packs, or your own projects. Each sound can be assigned to one Collection. Click on a Collection name to filter by that Collection; click on the "X" to deselect all Collections.

Saving Sounds

The Performance is the main way of selecting, editing, and saving sounds. While you can save Temperaments and Effects Presets, you don't have to do so: all data is contained in the Performance.

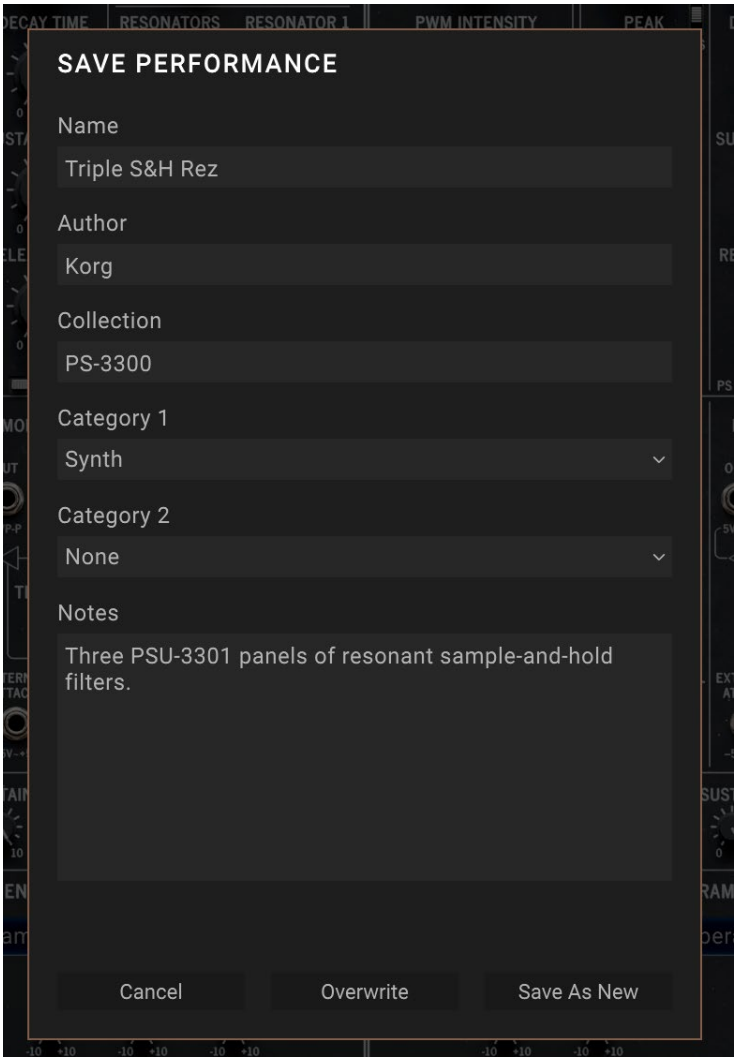
Similarly, when you load Temperaments or Effects Presets into a Performance, a new copy of the data is created in the Performance. Any edits affect only the local copy inside the Performance, and not the original data. This lets you edit freely without worrying about affecting other sounds.

To save a sound or preset:

1. **Go to the Selector for the sound or preset. For more information, see "Selectors" on page 2.**
2. **Press the Save icon, or right-click/control-click (macOS) on the name to open the contextual menu and select the Save command.**

The Save dialog will appear:

Save dialog



3. **Set the Name, Author, Collection, and Categories as desired.**

You can also edit all of this metadata later, using the Librarian window.

Important: changing the name does not automatically make a new copy of the sound! Always use **Save As New** when you want to make a copy.

4. **Save the sound, using either Overwrite or Save As New.**

To overwrite the existing sound, use **Overwrite**. To make a new copy and leave the existing sound unchanged, use **Save As New**. Factory sounds may be write-protected, in which case only "Save As New" is available.

Renaming Effects Presets and Temperaments

As described above, Performances store all of the data for their Effects Presets and Temperaments, including the names. Because of this, you can rename any of these elements without saving them separately, as long as you then save the enclosing Performance. To do so:

Right-click/control-click (macOS) on the name and select the Rename… command in the contextual menu.

5. **Select Rename.**
6. **Enter the new name, and press OK to confirm.**

Names can be up to 24 characters long.

7. **Make sure to save the Performance once you're done.**

Mod Matrix and MIDI Map

There are two different ways to control sliders, knobs, buttons, and switches from MIDI: the Mod Matrix, and MIDI Mapping. They work differently, and are designed for different purposes. You can assign either (or both!) Mod Matrix routings or MIDI Map entries by right-clicking on a slider, knob, or other control to bring up the contextual menu.

Mod Matrix

The Mod Matrix is for modulating parameters–for example, controlling filter cutoff via velocity, or vibrato depth via the Mod Wheel. Mod Matrix routings modulate up or down (or sometimes both) from the parameter value. They do not edit the parameter value, and so sliders, knobs, etc. won't change in response. Mod Matrix settings are stored with the individual Performance. For more information, see "MOD MATRIX" on page 56.

MIDI Map

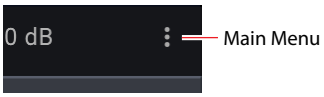
The MIDI Map is for programming or entering automation from a MIDI controller. MIDI Map entries let you assign parameter values for both the maximum and minimum controller values (e.g. CC values of 0 and 127), and then interpolate between them. Control via the MIDI Map edits the parameter values, and moves the sliders, knobs, etc. accordingly. MIDI Map settings are stored globally, and shared by all Performances. For more information, see "MIDI Map" on page 60.

Automation

Automation from the plug-in host is supported for most, but not all, modulatable parameters. Most non-modulatable settings cannot be automated, including modulation routings themselves (sources and intensities), effects type selection, cable connections, and so on.

Main Menu

This menu gives access to the Settings window (including velocity and aftertouch curves, interface options, Set List selection, etc.), undo/redo, user interface size scaling, "About" information, and Librarian-specific commands. Open the main menu by clicking on the three vertical dots at the top-right of the window:



Settings

This opens the Settings dialog, which includes Set List selection, velocity and aftertouch curves, interface options, and more. See "Settings" on page 12.

Audio/MIDI Settings (standalone only)

This includes audio output and MIDI input/output settings for the stand-alone application.

Size

[50%…150%]

This scales the entire user interface to be smaller or larger.

Import…

This is available only when the Librarian is active. It imports one or more files from disk. For more information, see "Importing data" on page 65.

Import PS-3300 Reissue Program…

This is available only when the Librarian is active. It imports sounds from the PS-3300 reissue hardware's Sound Librarian. For more information, see "Importing Programs from the PS-3300 Reissue hardware" on page 64.

Export Bundle of All User Sounds…

This is available only when the Librarian is active. It exports a bundle of all non-write-protected data, for backing up or transferring all of your custom sounds at once.

Load MIDI Map…

You can save and load MIDI Map configurations–for instance, one for use with a KORG Keystage, and another for use with a wavestate. MIDI Map files are saved separately to disk (not within the PS-3300 database) with the suffix "ps-3300midimap." This menu command opens a standard file dialog to load a MIDI Map file.

Save MIDI Map…

MIDI Map files are saved separately to disk (not within the PS-3300 database) with the suffix "ps-3300midimap." This menu command opens a standard file dialog to save the current MIDI Map to a file.

Reset MIDI Map To Default

This menu command resets the MIDI Map to the factory defaults.

Undo

Returns to the state prior to the previous operation. This applies to any edits made in the Editor windows - for instance, editing synthesis parameters, Motion Sequences, or effects, creating modulation routings, and so on. In the Librarian, it applies to edits of metadata (such as names and categories), Set List edits, creation of new Set Lists, object duplication and deletion, and data Import. The system supports multiple undos, so that you can step backwards and forwards through a series of actions.

Undo/redo history is maintained separately for the Librarian and Edit modes. The names of the undo/redo commands change to reflect this; for example, "Editor Undo: Value Change: Cutoff" or "Librarian Undo: Update Name."

Redo

Returns to the state prior to executing the "Undo" command. The system supports multiple redos, so that you can step backwards and forwards through a series of actions.

Open Online Manual

This opens the latest version of the PDF manual in your browser.

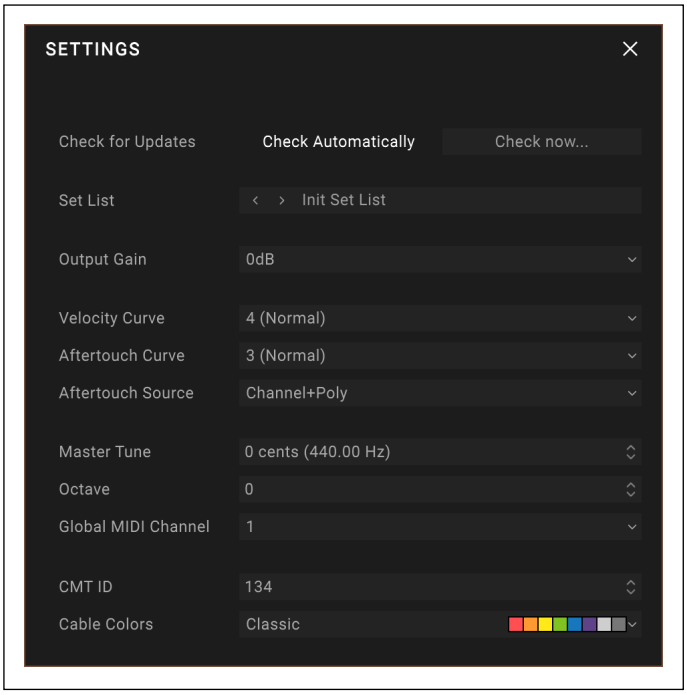
Open Help Center

This opens the Korg app Help Center (https://support.korguser.net) in your browser.

About

This shows the software version number and abbreviated credits. PS-3300 is the result of a team effort, built through the talents of many more people than can be listed on-screen!

Settings



Open this dialog using the **Settings** selection in the Main Menu.

Check for Updates

[Check Automatically, Check now...]

Check Automatically: When this is enabled, the software checks at startup to see if a new version is available. If so, a dialog appears with a download link.

Check now…: When this is pressed, the software checks for a new version immediately.

Set List

[List of Set Lists]

This selects the active Set List. You can store many Set Lists, and change between them as you like. You can also set this by using the **Make Active** command in the Librarian's contextual menu.

Output Gain

[0 dB…+12 dB]

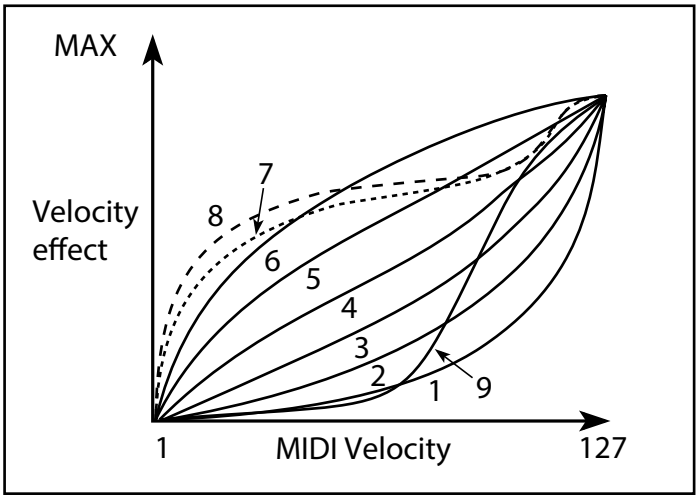
Increases the overall output of the plug-in by up to 12 dB. The default is 0 dB.

Velocity Curve

[1 (Heavy), 2, 3, 4 (Normal), 5, 6, 7, 8 (Light), 9 (Wide)]

This controls how the volume and/or tone responds to variations in keyboard playing dynamics (velocity). Choose the curve that is most appropriate for your controller, playing strength and style.

Velocity curve



1 (Heavy), 2, 3: These are for heavy playing; most of the variation occurs in the upper velocity range.

4 (Normal): This is the default.

5, 6: These are for lighter playing.

7: This is for very light playing, at the expense of control in the middle of the range.

8 (Light): This curve produces the most uniform output, for when velocity sensitivity is not desired.

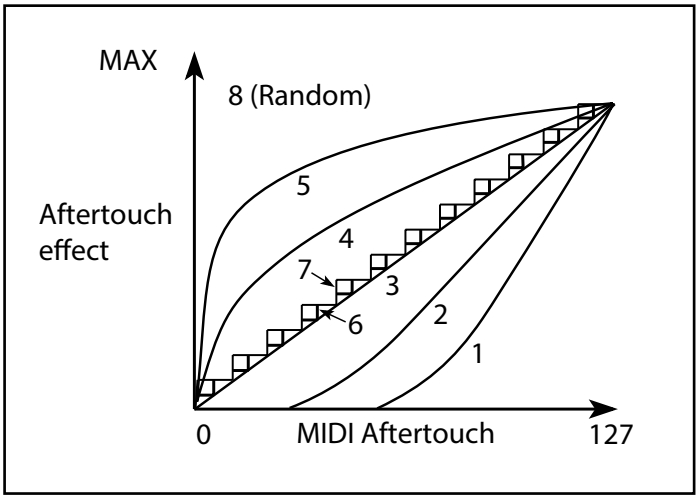
9 (Wide): This curve is designed for the heavier touch of weighted keyboards.

Aftertouch Curve

[1 (Heavy), 2, 3 (Normal), 4, 5(Light), 6 (24-step), 7 (12-step), 8 (Random)]

This setting controls how the sounds respond to variations in pressure applied to the keyboard while playing a note (aftertouch). Choose the curve that is most appropriate for your controller, playing strength and style.

Aftertouch curve



1 (Heavy), 2: These are for heavy playing; most of the variation occurs with stronger pressure.

3 (Normal): This is the default.

4, 5 (Light): These produce changes even with light pressure.

6 (24-step), 7 (12-step): These curves result in 24 or 12 steps, respectively. If Aftertouch is modulating pitch with an intensity of one octave, *7 (12-step)* lets you use Aftertouch to play a chromatic scale. (For similar results, you could also use a Mod Processor set to Quantize.)

8 (Random): This is a random curve. Use this to create special effects, or for applying unpredictable modulation.

Aftertouch Source

[Off, Channel, Poly, Channel+Poly]

This lets you instantly re-configure the synth to take advantage of controllers with Poly Aftertouch.

Off: All aftertouch will be ignored.

Channel: The mod source "Aftertouch" receives Channel Aftertouch. Poly Aftertouch can still be used via the dedicated Poly AT mod source.

Poly: The mod source "Aftertouch" receives Poly Aftertouch. Channel Aftertouch is ignored.

Channel+Poly: The mod source "Aftertouch" receives both Channel and Poly Aftertouch. If both are sent simultaneously, the most recent value is used.

Master Tune

[–50 (427.47Hz)…+50 (452.89Hz)]

This adjusts the overall tuning in one-cent units, over a range of ±50 cents. (A cent is 1/100 of a semitone.) At the default of 0, A4 = 440 Hz.

The value shown for A4's frequency assumes that the Temperaments are all set to Equal Temperament, and that Oscillator Drift is set to 0. If a different Temperament is selected, the actual frequency of A4 may be different.

Octave

[-1…+1]

This transposes MIDI input up or down by one octave. The default is *0*. To match the PS-3300 reissue hardware, set **Octave** to *-1*.

Global MIDI Channel

[1…16]

This is the plug-in's MIDI channel, used for notes, controllers, MIDI Mapping, and the Mod Matrix.

CMT ID

Each voice's oscillators, filters, envelopes, etc. behave slightly differently, modeling analog components. The CMT ID determines this instance's specific set of components. For more information, see "Voice Variation" on page 48.

Cable Colors

This selects a color scheme for the patch cables.

Using the Patch Panel

Making connections

To create a connection, click on one jack and drag to another. The cable will appear automatically.

You can start from either an input or an output. Once you start to drag a cable, jacks that make sense for the connection will be available, and jacks that don't make sense will be grayed out. For example, if you drag from an input, other input jacks will be grayed out–since an input has to go to an output.

Multiples (aka Mults)

In hardware, you need dedicated jacks or special cables to route a single output to multiple destinations. The vintage PS-3300 has a "Multiple" section that does exactly this. In software, we have no such restrictions.

To route an additional cable from an output which already has a cable connected, just click on the jack and a mult will appear. Once a jack has a mult, simply hovering over it will do the same thing. You'll notice that the pop-up mult will always show one more jack than is currently connected; you can keep adding more cables as you wish, with no practical limit.

Unlike analog systems, the signal strength will be unaffected; treat that as a bonus, or compensate for it with lower levels at the destinations if you prefer.

Dummy plugs

It's sometimes useful to disrupt a normalled connection without substituting another signal. In the analog domain, you might use a dedicated "dummy plug," or simply insert one end of a cable and leave the other one dangling and unconnected. To do this, you can right-click on most input jacks and select "Insert Dummy Plug" from the contextual menu. Some output jacks, such as SIGNAL MIXER channel outputs, also support dummy plugs.

Cable colors

The patch panel supports eight different colors for cables. A selection of different color sets is available in the Settings window; see "Cable Colors" on page 14.

Colors are assigned randomly when a cable is created. Once a connection is made, you can right-click on either the input or output jack to bring up the contextual menu and select a different color. Cables are normally transparent, but become opaque when you work with them or hover over their input or output jacks.

Signal flow direction

When you hover over either end of a connected cable, a brief animation shows the direction of the signal flow along the cable.

Input and output levels

Most of the input and output jacks are marked with signal levels, such as 0V~+5V or 5VP-P (which means +/– 2.5V). These levels are approximate, as they are on the hardware, and may change slightly depending on Voice Variation and CMT ID.

Knobs and sliders

To edit knob values, drag vertically. To edit slider values, drag in the direction of the slider.

Hold Option/Alt while dragging to edit in fine increments.

Double-click knobs and sliders to set them to default values.

Dead zones

On the hardware, many of the knobs have "dead zones" at the top and bottom of the range. For example, the **CUT OFF** knob goes from *0* to *10*. If you turn the knob to 0 and slowly turn it up, there's no difference in the sound until around *0.8*. Similarly, the filter frequency reaches its maximum at *9.2* or so, and doesn't increase above that point. The specific dead zones vary from knob to knob. The software models this behavior, to enable Program conversion.

When using the Mod Matrix, keep these dead zones in mind. For example, let's continue with the **CUT OFF** knob. If it's set to *0*, and you modulate it from the Mod Wheel with an intensity of *2.0*, you'll only start to hear a difference once the Mod Wheel is halfway up. Instead, try setting **CUT OFF** to *0.8*.

Copying between PSU-3301 panels

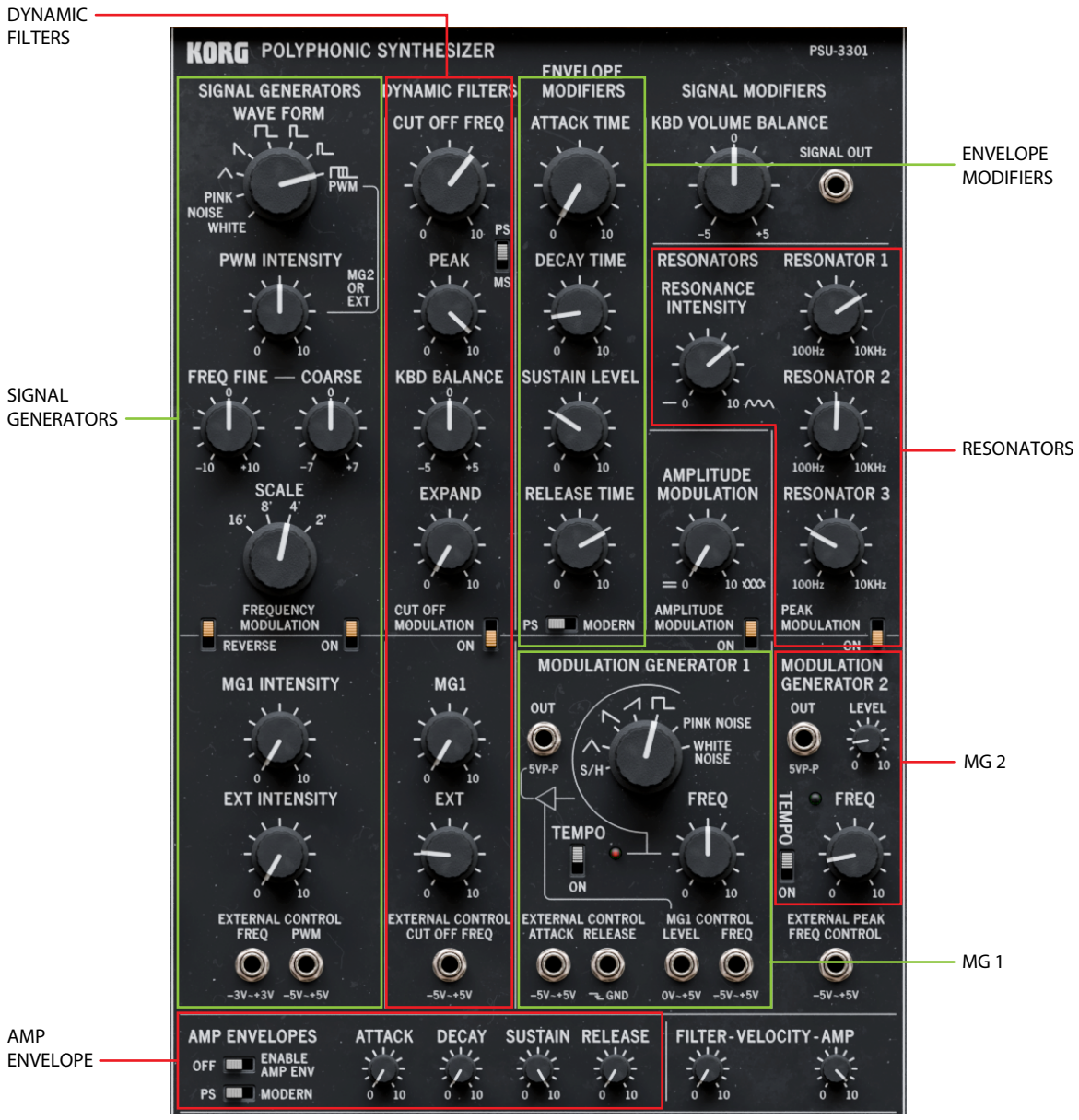
It's easy to copy and paste all of the PSU-3301 settings at once. To do so:

1. **Choose the panel from which you'd like to copy. Right-click the KORG POLYPHONIC SYNTHESIZER title, located at the top of the panel, to bring up a contextual menu.**
2. **Select the Copy Synth Panel command.**
3. **Right-click the KORG POLYPHONIC SYNTHESIZER title on one of the other two panels, and select the Paste Synth Panel command.**

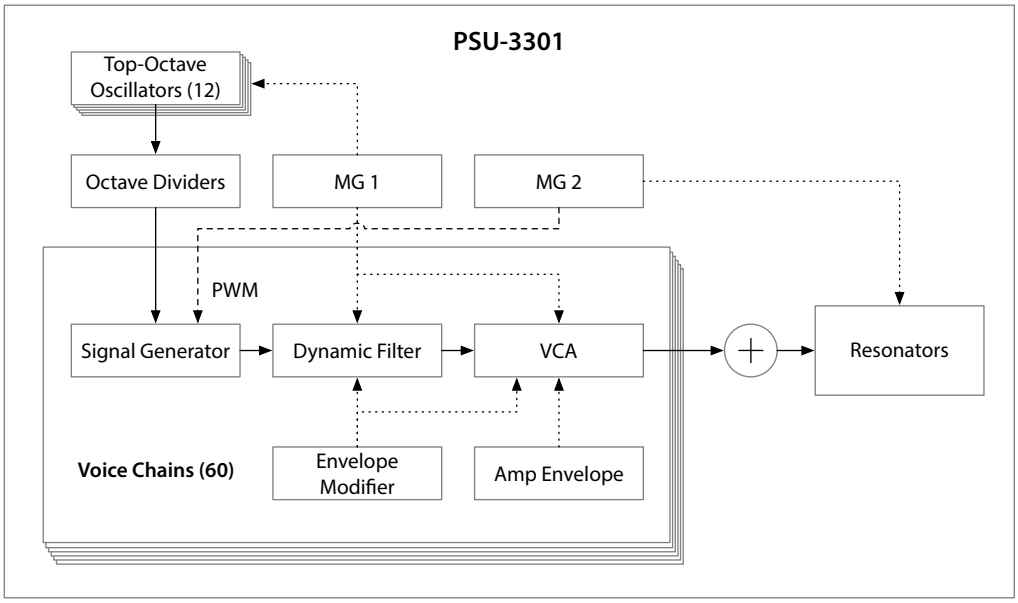
Synthesis Structure

The PSU-3301 Panel

The PSU-3301 panel is the heart of the PS-3300. It includes the oscillator (aka Signal Generator), filter, envelopes, LFOs (aka Modulation Generators), VCA, and Resonators. The PS-3300 includes three complete and independent PSU-3301 panels.



PSU-3301 Structure



When working with the PS-3300, it helps to understand its unique internal structure.

Each of the three PSU-3301 panels includes:

- 12 chromatic top-octave oscillators and a set of octave dividers to create lower pitches
- Two LFOs: MG 1 and MG 2
- Resonator module, with three resonant filters and a wet/dry mix (aka Resonance Intensity)
- 60 complete voice chains

Each of the 60 voice chains includes:

- A Signal Generator, to create the waveform shapes based on the octave divider output
- A resonant 2-pole lowpass filter
- A VCA to control volume
- An envelope, which by default controls both the filter and the VCA
- A second envelope (an addition unique to the software) which can, optionally, control the VCA instead of the main envelope

The fourth panel: PSU-3302 and PS-3010

The fourth, right-most panel features a mixer to combine the three PSU-3301 panels, including the Ensemble effect. There are also tools for controlling the PSU-3301 panels, including instrument-wide modulation sources, CV and signal processors, and controller outputs. Unlike the modules of the PSU-3301, these different elements only interact through the patch panel.

SIGNAL GENERATORS

These oscillators use unique waveform generation based on octave-divider circuitry, so all octave intervals are perfectly in phase. White and pink noise, sourced from MG 1, are new additions.

WAVE FORM

[WHITE NOISE, PINK NOISE, Triangle, Saw, Square, Medium Pulse, Narrow Pulse, PWM]

WAVE FORM controls the basic timbre of the Signal Generator (aka oscillator). As an addition to the vintage features, White and Pink noise are also available, using the same noise source as MG 1.

The waveforms are created by processing the output of the octave dividers, similar to waveshaping. This is an imperfect process, so that what might be straight lines in other synths are instead successions of small jagged edges–part of what gives the PS-3300 its unique sound. As with so many other aspects of the instrument, the specific shapes are different for each note of each PSU-3301 panel, and for each CMT ID (see “CMT ID” on page 14). The intensity of the imperfections is controlled by the Voice Variation **OSCILLATOR** knob; see “Voice Variation” on page 48.

PWM INTENSITY

[0.000…10.000]

PWM INTENSITY sets the amount of Pulse Width Modulation from either MG2 or the source connected to the **EXTERNAL PWM CONTROL** jack. This applies only when **WAVE FORM** is set to *PWM*.

FREQ COARSE

[–7…+7]

FREQ COARSE adjusts the Signal Generator pitch by +/- 7 semitones (a fifth). Use this to create intervals between the synth panels, such as "Fat Fifths."

FREQ FINE

[–100.00…+ 100.00]

FREQ FINE adjusts the Signal Generator pitch by +/- 100 cents (one semitone).

SCALE

[16', 8', 4', 2']

SCALE controls the basic pitch of the Signal Generator, in octaves. 8' is the default.

Modulation

REVERSE

[Off, On]

This switch lets you invert the polarity of the frequency modulation - useful when sharing a modulation source between multiple PSU-3301 panels.

FREQUENCY MODULATION

[Off, On]

This switch enables pitch modulation from the **MG1 INTENSITY** and **EXT INTENSITY** controls, below.

MG1 INTENSITY

[0.000…10.000]

MG1 INTENSITY controls the depth of pitch modulation from Modulation Generator 1, for vibrato and special effects. For this to apply, the **FREQUENCY MODULATION** switch must be ON.

The maximum modulation amount is unusually wide, around 10 octaves. As on the hardware, the sweet-spot for vibrato is relatively narrow, between settings of *1.2* and *1.3*.

EXT INTENSITY

[0.000…10.000]

EXT INTENSITY scales the depth of pitch modulation from the **EXTERNAL CONTROL FREQ** input jack. For this to apply, the **FREQUENCY MODULATION** switch must be ON.

Inputs

EXTERNAL FREQ CONTROL jack

This CV input modulates the pitch of the Signal Generator (aka oscillator). The amount is scaled by the **EXT INTENSITY** knob.

EXTERNAL PWM CONTROL jack

This CV input controls the Signal Generator pulse width when **WAVE FORM** is set to *PWM*, replacing the signal from MG 2. The amount is scaled by the **PWM INTENSITY** knob.

DYNAMIC FILTERS

The vintage PS-3300 had 2-pole filters with a sweet, gentle tone; we've added an option for the aggressive MS-20 filters, via the PS/MS switch. Note how these titles are plural; each key has its own filter!

(Filter Type switch)

[PS, MS]

PS models the original PS-3300 hardware, with its characteristically gentle resonance.
MS models the MS-20 and its much more aggressive sound.

CUT OFF

[0.000…10.000]

CUT OFF (aka cutoff) controls the frequency of the lowpass filter.

PEAK

[0.000…10.000]

PEAK (aka resonance) emphasizes frequencies around the cutoff. Medium settings alter the filter's timbre; high settings can be heard as a separate, whistling pitch. The effect is much greater if the **Filter Type**, above, is set to *MS*.

KBD BALANCE

[–5.000…+ 5.000]

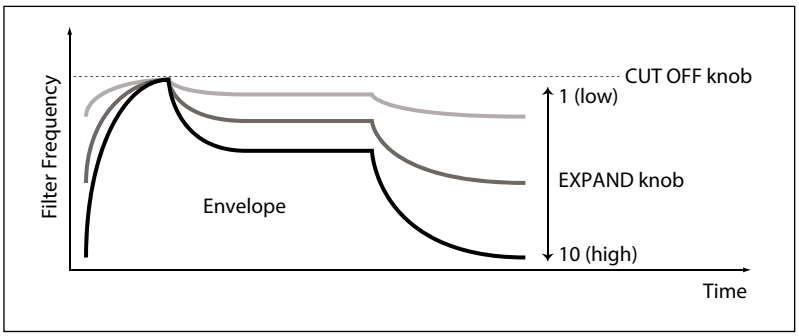
KBD BALANCE (aka keyboard tracking) scales the cutoff as you play up and down the keyboard, centered between G3 and G#3. In the middle position of 0, the cutoff tracks keyboard pitch (more or less).

EXPAND

[0.000…10.000]

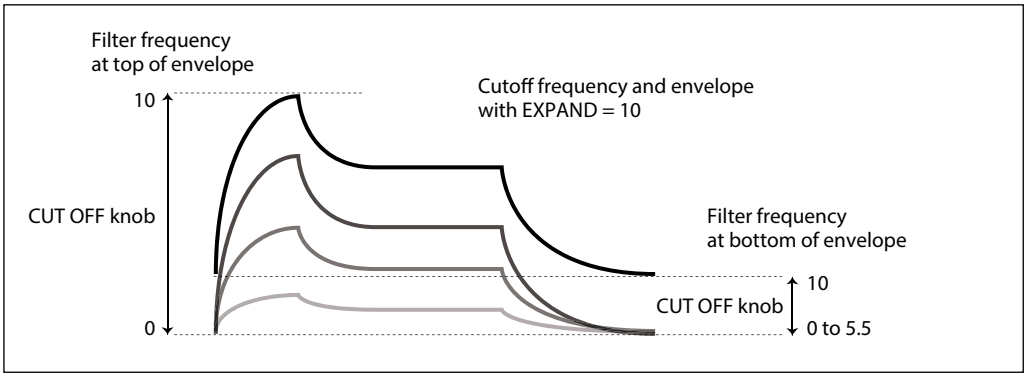
EXPAND controls the effect of the Envelope on the cutoff frequency. It works in a slightly unusual way. **CUT OFF** sets the maximum level, reached at the end of the Attack; increasing **EXPAND** makes the filter ***darker*** at ***lower*** Env levels.

Filter, Envelope, and EXPAND



At higher settings, even when **EXPAND** is at *10*, **CUT OFF** also affects the minimum cutoff frequency when the envelope is at its low points (the start of attack and the end of release). When **CUT OFF** is between *0* and about *5.5*, the minimum cutoff stays about the same. When **CUT OFF** is increased above *5.5,* the minimum cutoff rises, as if the entire envelope shape is shifted upwards.

CUT OFF when EXPAND is 10: minimum and maximum values



CUT OFF MODULATION

[Off, On]

This switch enables cutoff frequency modulation from the **MG1** and **EXT** knobs, below.

MG1

[0.000…10.000]

This controls the effect of Modulation Generator 1 on the cutoff frequency, for wah-wah and rhythmic effects. For this to apply, the **CUT OFF MODULATION** switch must be *ON*.

EXT

[0.000…10.000]

This scales the depth of modulation from the **EXTERNAL CONTROL CUTOFF FREQ** input jack. For this to apply, the **CUT OFF MODULATION** switch must be *ON*.

Inputs

EXTERNAL CUTOFF FREQ CONTROL jack

This CV input modulates the filter's cutoff frequency. The amount is scaled by the **EXT** knob.

ENVELOPE MODIFIERS

Normally, this envelope controls both filter cutoff and level. Enable the AMP ENVELOPES at the bottom of the panel to dedicate this envelope to the filter only. PS/MODERN switches between the vintage PS-3300's linear segments and modern exp/log curvature.

Important: With default voice variation settings, envelope times may vary by up to 2x for each individual note–just like the vintage hardware. See "Voice Variation" on page 48.

ATTACK TIME

[0.000…10.000]

ATTACK TIME sets how long the envelope takes to rise to the peak level.

DECAY TIME

[0.000…10.000]

DECAY TIME sets how long the envelope takes to settle from the peak to the Sustain Level.

SUSTAIN LEVEL

[0.000…10.000]

SUSTAIN LEVEL sets the level at the end of the Decay Time. Once it reaches the Sustain level, if the type switch is set to *PS*, the signal decays slowly over time; if the switch is set to *MODERN*, it stays there until note-off.

RELEASE TIME

[0.000…10.000]

RELEASE TIME sets how long it takes the envelope to return to 0 after releasing a note.

(Env Type switch)

[PS, MODERN]

PS models the original hardware, with linear segments and a gentle decay during the Sustain segment.

MODERN models a more standard envelope with exp/log curvature and full Sustain.

Inputs

EXTERNAL ATTACK CONTROL

This CV input modulates the envelope **ATTACK TIME**. Positive values make the attack faster; negative values make it slower. Modulation is additive.

EXTERNAL RELEASE CONTROL

This switch input changes the **RELEASE TIME** between the knob setting (Off) and the maximum time (On). Try using **SWITCHES 1-3** or **MOMENTARY**. If using a CV instead, high = Off, and low = On.

SIGNAL MODIFIERS

Except for **KBD VOLUME BALANCE**, these are the "not polyphonic" components; they either process the summed voices of the panel (Resonators and Amp Modulation), or create a signal shared by all voices (MGs 1 & 2).

KBD VOLUME BALANCE and SIGNAL OUT

KBD VOLUME BALANCE

[–5.000…+ 5.000]

This controls volume scaling (aka keyboard tracking) as you play up and down the keyboard, centered on C4.

SIGNAL OUT

This is the polyphonic audio output of the PSU-3301 synth panel.

RESONATORS

This bank of three resonant bandpass filters processes the summed output of all of the PSU-3301's voices. Use them to create formants for vocal or string sounds, or modulate the frequencies for phaser-like effects.

RESONANCE INTENSITY

[0.000…10.000]

This sets the dry/wet mix for the Resonator section. Note that the Resonators process the summed output of all voices from the PS-3301 panel, like an effect.

RESONATOR 1/2/3

[0.000…10.000]

These three knobs control the frequency of the first resonant bandpass filter, between 100 Hz and 10 kHz (each mark around the knob is about one octave). Each of the three Resonators has identical functionality.

PEAK MODULATION

[Off, On]

This switch enables MG 2 modulation of the three Resonator frequencies. Unlike modulation for filter and pitch, the EXTERNAL input path is always active, regardless of this switch.

Inputs

EXTERNAL PEAK FREQ CONTROL

This CV input (located below MG 2) modulates the frequencies of Resonators 1-3. Unlike modulation for filter and pitch, this input is always active, regardless of the PEAK MODULATION switch.

AMPLITUDE MODULATION

AMPLITUDE MODULATION (switch)

[Off, On]

This switch enables volume modulation from Modulation Generator 1. Depth is controlled by the **AMPLITUDE MODULATION** knob, above.

AMPLITUDE MODULATION

[0.000…10.000]

AMPLITUDE MODULATION sets the effect of MG 1 on volume, for tremolo or, at high MG freq, ring mod effects. Note: even max amount doesn't entirely mute signal. For this to apply, the **AMPLITUDE MODULATION** switch must be ON.

MODULATION GENERATORS

MODULATION GENERATOR 1 (MG 1)

This not-so-low-frequency oscillator (up to around 1.8 kHz!) is normalled to pitch, filter cutoff, and amplitude. It's so fast that it can create ring mod effects. We've added a Sample & Hold option and tempo sync.

Tips:

- Patch between panels to share a single MG between multiple PSU-3301s.
- Patch to EXTERNAL PWM CONTROL to have separate LFOs for PWM and Resonator modulation.
- Patch to EXTERNAL PEAK FREQUENCY CONTROL or EXTERNAL PWM CONTROL to experiment with other LFO waveforms.

WAVE FORM

[S/H, Triangle, Saw Down, Saw Up, Square, PINK NOISE, WHITE NOISE]

WAVE FORM sets the basic shape of the Modulation Generator (aka LFO). The *S/H* option is a new addition, not present on the vintage PS-3300. All waveforms are bipolar.

Note: the Triangle is made by inverting the Saw midway through its cycle. The setting is usually imperfect, creating a distinctive glitch at the peak of the waveform. Different CMT IDs will have different imperfections; see "CMT ID" on page 14. For a perfect Triangle, set Voice Variation **LFO** to *0*.

FREQ

[0.000…10.000] (Tempo Off)

[2x Breve…1/32 triplet] (Tempo On)

FREQ sets the speed of the Modulation Generator (aka LFO), from below 0.1 Hz to an unusually fast 1.8 kHz (approximately), well into the audio range. With such a broad range, the sweet-spot for vibrato is relatively narrow, from around *4.4* to *4.7*. When **TEMPO** is *On*, this is adjustable in note values.

TEMPO

[Off, On]

This switch enables tempo synchronization for the Modulation Generator.

Off: The MG is free-running, with continuously adjustable frequencies.

On: The MG syncs to tempo, and resets at phrase start. Use the **FREQ** knob to select note values.

Phrase is defined by whether or not notes are sounding. When the last amp-controlling envelope (either the main or amp envelopes, depending on the **ENABLE AMP ENV** switch) completes its release stage for the last sounding note, the phrase ends.

Inputs

MG 1 LEVEL CONTROL

This CV input controls the MG's output level. When nothing is connected, the output level defaults to maximum.

MG 1 FREQUENCY CONTROL

This CV input modulates the speed of the MG, adding to or subtracting from the **FREQ** knob setting.

Outputs

OUT

This is the output of Modulation Generator 1.

MODULATION GENERATOR 2 (MG 2)

This simpler, triangle-only LFO is normalled to PWM and the Resonator 1/2/3 frequencies. It uses a completely different circuit than MG 1; the frequency range is linear, with a maximum of around 20 Hz, and the output level is slightly lower. We've added a **LEVEL** knob–great for use with the Resonators!–and tempo sync.

Tips:

- Modulate the frequency or level of MG1 with the output of MG2; use the **LEVEL** knob to control intensity.
- Patch MG 2 to the SIGNAL GENERATOR **EXTERNAL FREQ CONTROL** for vibrato, freeing MG1 and its wider choice of waveforms to modulate the filter.
- Modulate the frequency or level of MG1 with the output of MG2; use the **LEVEL** knob to control intensity.

FREQ

[0.000…10.000] (Tempo Off)

[2x Breve…1/32 triplet] (Tempo On)

FREQ sets the speed of the Modulation Generator (aka LFO), from just under 0.2 Hz to around 20 Hz. When **TEMPO** is *On*, this is adjustable in note values.

TEMPO

[Off, On]

This switch enables tempo synchronization for the Modulation Generator. Use the **FREQ** knob to select note values. For more details, see "TEMPO," above.

LEVEL

[0.000…10.000]

LEVEL controls the gain of the Modulation Generator output. This is an addition to the original hardware, useful for scaling the amount of modulation for the Resonators.

Outputs

OUT

This is the output of Modulation Generator 2.

AMP ENVELOPE and VELOCITY

AMP ENVELOPE

This addition to the vintage PS-3300 provides an optional separate envelope for volume. If **ENABLE AMP ENV** is *OFF*, it works just like the original, sharing the main envelope for filter and volume.

ENABLE AMP ENV

[OFF, On]

When *OFF*, amp and filter share the main envelope, as on the original hardware.

When *On*, amplitude is controlled by this second envelope instead.

(Env Type switch)

[PS, MODERN]

PS models the original hardware, with linear segments and a gentle decay during the Sustain segment.

MODERN models a more standard envelope with exp/log curvature and full Sustain.

ATTACK TIME

[0.000…10.000]

ATTACK TIME sets how long the envelope takes to rise to the peak level.

DECAY TIME

[0.000…10.000]

DECAY TIME sets how long the envelope takes to settle from the peak to the Sustain Level.

SUSTAIN LEVEL

[0.000…10.000]

SUSTAIN LEVEL sets the level at the end of the Decay Time. Once it reaches the Sustain level, if the type switch is set to *PS*, the signal decays slowly over time; if the switch is set to *MODERN*, it stays there until note-off.

RELEASE TIME

[0.000…10.000]

RELEASE TIME sets how long it takes the envelope to return to 0 after releasing a note.

Velocity Control

AMP VELOCITY

[0.000…10.000]

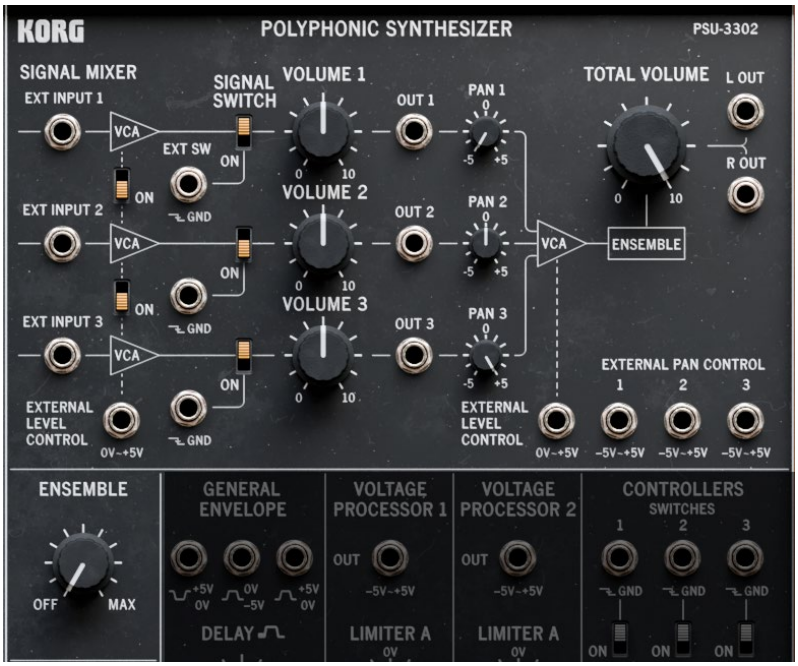
This new addition provides velocity modulation of volume. The maximum volume does not change, but as you play softer, the volume decreases. The higher the knob setting, the more that velocity has an effect.

FILTER VELOCITY

[0.000…10.000]

This new addition provides velocity modulation of the filter **EXPAND** amount. As with **EXPAND**, **CUT OFF** sets the maximum brightness. As you play softer, the filter gets darker. The higher the knob setting, the more that velocity has an effect.

SIGNAL MIXER and ENSEMBLE



This mixer combines the output of the three PSU-3301 panels. We've added pan (with CV control), switchable CV control for the INPUT 1/2 VCAs, an extra 24 dB of gain, and stereo outputs.

Main Output

TOTAL VOLUME

[0.000…10.000]

This controls the overall output level of the PS-3300.

Channels 1/2/3

There are three channels, one for each of the PSU-3301 panels. They are identical except for the **External Level Control** switches, which are available only for channels 1 and 2.

SIGNAL SWITCH

[Off, On]

This switch enables and disables (mutes) the mixer channel.

VOLUME

[0.000…10.000]

VOLUME controls the mixer channel's level.

PAN

[–5.000…+5.000]

PAN, an addition to the vintage PS-3300, controls the left-right stereo position of the channel. Tip: Try panning one channel each to the left, right, and center, or modulating via the **EXTERNAL PAN CONTROL** jacks.

(External Level Control Enable switch)

[Off, On]

This switch, an addition to the vintage PS-3300, enables and disables control from the **EXTERNAL LEVEL CONTROL** input jack, below. It's available only for channels 1 and 2.

Inputs

EXTERNAL LEVEL CONTROL

This CV input controls the levels of the mixer inputs. On the hardware, this is handy when routing Out 1-3 to an external mixer. Use the switches above to disable control for inputs 1 and/or 2.

EXTERNAL LEVEL CONTROL (Total)

This CV input controls the mixer's output level.

EXT INPUT 1/2/3

These are the three audio inputs to the Mixer; they're normalled to the outputs of the three PSU-3301 panels.

EXT SW (1/2/3)

These switch inputs turn the mixer channel on and off; connect to the outputs of Switches 1-3, for instance. They apply only if the channel's **SIGNAL SWITCH** is *Off*.

EXTERNAL PAN CONTROL 1/2/3

These CV inputs modulate the pan for the three Mixer channels.

Outputs

OUT 1/2/3

These are the individual Mixer channel outputs, before Pan and the final VCA control.

L/R OUT

These are the main stereo outputs. Note that the vintage PS-3300 had only a single mono output.

ENSEMBLE

This chorus effect was originally featured only on the vintage PS-3300's smaller siblings, the PS-3100 and PS-3200. It has such a great, unique sound that we had to include it here, too.

The PS-3100 had only an on/off switch for the **ENSEMBLE**, while the PS-3200 had a single knob to control the effect level. On both instruments, internal trimpots adjusted the rate and depth of the effect; we've brought these out to the front panel for easy editing. After almost five decades in the field, the calibration of vintage units now varies widely, so feel free to experiment. For both **RATE** and **DEPTH**, the default setting of *5.0* matches the prized PS-3100 of a legendary "yellow magic" keyboardist.

ENSEMBLE

[0.000…10.000]

This controls the volume level of the Ensemble effect (similar to a chorus), which is then combined with the dry output of the Signal Mixer.

RATE

[0.000…10.000]

This trimpot controls the Ensemble's LFO speed.

DEPTH

[0.000…10.000]

This trimpot controls the amount of pitch modulation.

SAMPLE & HOLD

This samples the input at regular intervals, as set by the **CLOCK FREQ** knob, and holds the voltage at that level until the next sample is taken. Input is required; for instance, use an MG with the waveform set to *WHITE NOISE*. Note that, as a mod to the original hardware, the PSU-3301 MG1 and MGs A and B also have a Sample & Hold mode.

CLOCK FREQ

[0.000…10.000] (Tempo Off)

[2x Breve…1/32 triplet] (Tempo On)

CLOCK FREQ sets the speed of the Sample & Hold LFO. When **TEMPO** is *On*, this is adjustable in note values.

TEMPO

[Off, On]

This switch enables tempo synchronization for the Sample & Hold LFO. Use the **CLOCK FREQ** knob to select note values. For more details, see "TEMPO" on page 29.

SYNCHRO

[Off, On]

When *On*, and when the input signal has a defined edge (such as a square wave), the S&H LFO resets in response to the input. Reset timing depends on the phase relationship between input and LFO; if the phase of the internal clock is in the last third of the cycle and a trigger signal arrives, then the internal clock is reset.

Inputs

SAMPLE & HOLD INPUT

This input is "sampled" by the S&H circuit. Best used with continuously changing signals, such as from one of the Modulation Generators.

Tip: Try using different MG-1/A/B waveforms as the input.

Outputs

OUT

These two identical jacks both carry the output of the Sample & Hold circuit.

GENERAL ENVELOPE (GEG)

Unlike the filter/amp envelopes, the GENERAL ENVELOPE (GEG) is global for the entire instrument, not per-voice. Use it for pitch bend or delayed vibrato effects, for instance.

DELAY

[0.000…10.000]

DELAY sets the time between the trigger event and the beginning of the Attack. Note: the envelope must be triggered via the **EXT TRIGGER INPUT** jacks.

ATTACK

[0.000…10.000]

ATTACK sets the time that it takes to reach the peak value, after the Delay is complete. Note: the envelope must be triggered via the **EXT TRIGGER INPUT** jacks.

RELEASE

[0.000…10.000]

RELEASE sets the time that it takes to fall back to the minimum value, after the Attack is complete. Note that release level depends on the output jack used.

AUTO

[Off, On]

Turn this on when the envelope **EXT TRIGGER INPUT** is connected to the keyboard section's **TRIGGER OUT MULTIPLE** jack.

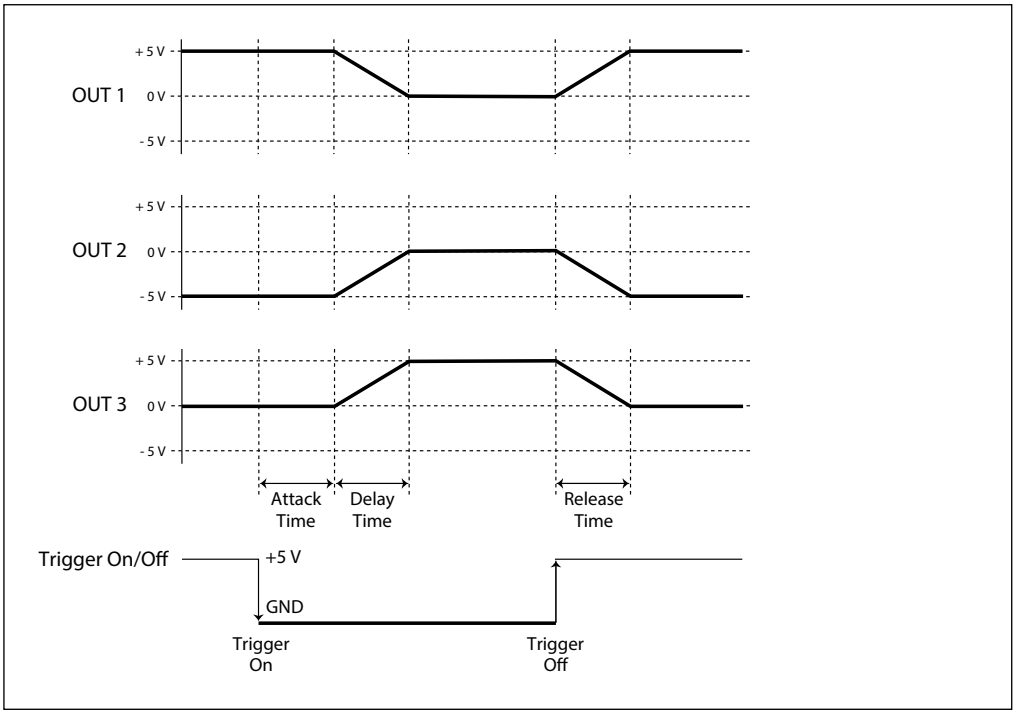
Inputs

EXT TRIGGER INPUT 1/2

This switch input triggers the GEG. Try using **SWITCHES 1-3**, **MOMENTARY**, or Keyboard **TRIGGER** outputs. If using a CV instead, high = Off, and low = On. Both inputs act identically.

Outputs

General Envelope Generator outputs



OUT 1: Inverted

This is an inverted version of the GEG signal. It starts at +5V, goes down to 0V for the attack, and then rises to +5V for the release.

OUT 2: Negative-to-zero

This version of the GEG signal starts at -5V, goes up to 0V for the attack, and then falls back to -5V for the release

OUT 3: Zero-to-positive

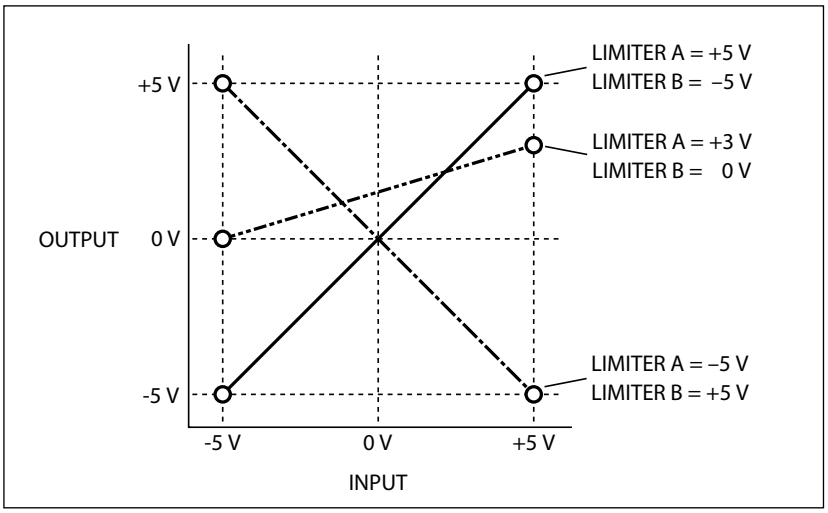
This version of the GEG signal is ”normal” by modern standards. It starts at 0V, rises to +5V, and then falls back to 0V.

VOLTAGE PROCESSORS

These scale, shift, and/or invert CV signals. **LIMITER A** sets the output for an input of +5V, and **LIMITER B** sets the output for an input of -5V; intermediate values are interpolated between this and the **LIMITER B** setting.

If nothing is connected to the input they act as fixed voltage generators, with **LIMITER B** as coarse control and **LIMITER A** as fine control.

Voltage Processors



LIMITER A

[–5.000…+5.000]

LIMITER A sets the output for an input of +5V; intermediate values are interpolated between this and the **LIMITER B** setting.

LIMITER B

[–5.000…+5.000]

LIMITER B sets the output for an input of -5V; intermediate values are interpolated between this and the **LIMITER A** setting.

(Input switch: Voltage Processor 2 only)

[Off, On]

This switch chooses whether Voltage Processor 2 uses its own input (switch to the right), or the same input as Voltage Processor 1 (switch to the left).

Inputs

IN

This is the CV Input to the Voltage Processor. With no connection, the default input is -4.5V; use this as a fixed voltage generator, with **LIMITER B** as coarse control and **LIMITER A** as fine control.

Outputs

OUT

This is the output of the Voltage Processor.

CONTROLLERS

The vintage PS-3300 keyboard controller, named the PS-3010, had a complement of switches and trigger outputs, plus the X-Y Manipulator. We've moved them to the main panel and added aftertouch, mod wheel, and pitch bend.

SWITCH 1/2/3

[Off, On]

Control via MIDI and use with the Envelope **EXTERNAL RELEASE CONTROL**, General Envelope Generator **TRIGGER**, and Signal Mixer **EXT SW** inputs. *On* is 0V (ground), and *Off* is +5V.

MOMENTARY

[Off, On]

Control via MIDI and use with the Envelope **EXTERNAL RELEASE CONTROL**, General Envelope Generator **TRIGGER**, and Signal Mixer **EXT** SW inputs. *On* is 0V (ground), and *Off* is +5V.

X-Y MANIPULATOR (X Offset)

[–100…+100]

This knob adjusts the X-Y Manipulator's X output by +/-1.25V. Note that this is an offset, not a gain control.

X-Y MANIPULATOR (Y Offset)

[–100…+100]

This knob adjusts the X-Y Manipulator's Y output by +/-1.25V. Note that this is an offset, not a gain control.

KBD TRIGGER SELECT

[Off, 1…5]

This selects the number of keys that need to be held down before the **TRIGGER OUT** jack changes from +5V (*Off*) to ground/0V (*On*).

Outputs

SWITCH 1/2/3

These outputs are controlled by **SWITCH 1**, **2**, and **3**, respectively. *On* is 0V (ground), and *Off* is +5V. Connect to an Envelope's **EXTERNAL RELEASE CONTROL**, Mixer **EXT SW** jacks, or GEG **EXT TRIGGER**.

MOMENTARY

This output is controlled by the MOMENTARY switch. *On* is 0V (ground), and *Off* is +5V. Connect to an Envelope's **EXTERNAL RELEASE CONTROL**, Mixer **EXT SW** jacks, or GEG **EXT TRIGGER**.

X (X-Y MANIPULATOR)

This CV output carries the signal from the X axis of the X-Y MANIPULATOR (MIDI CC# 16).

Y (X-Y MANIPULATOR)

This CV output carries the signal from the Y axis of the X-Y MANIPULATOR (MIDI CC# 17).

MOD WHEEL

This converts MIDI Mod Wheel (CC#1) to a CV signal.

PITCH BEND

This converts MIDI Pitch Bend to a CV signal. ***Note:*** this signal is not affected by the **Pitch Bend Range** trim pots.

AFTERTOUCH

This converts MIDI Aftertouch to a CV signal.

Important: Only Channel Aftertouch is supported here, since the PS-3300 patch panel is not per-voice.

TRIGGER OUT

This output is +5V when no keys are held. When between one and five keys are held down, according to the **KEYBOARD TRIGGER SELECT** switch, the output changes to 0V (ground).

TRIGGER OUT SINGLE

This output is +5V when no keys are held. When one or more keys are held down, the output changes to 0V (ground).

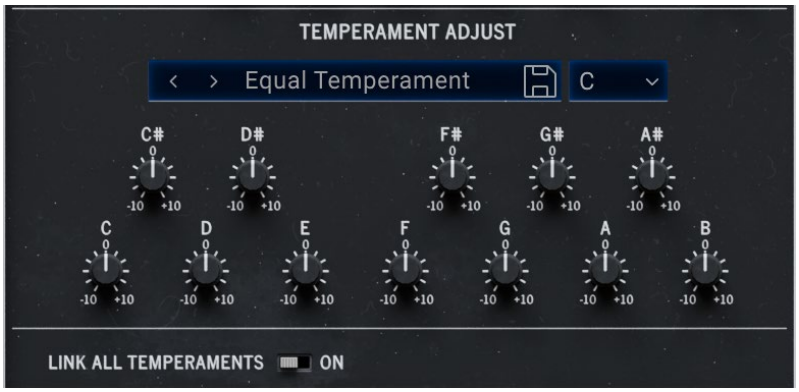
TRIGGER OUT MULTIPLE

Unlike the other two trigger jacks, this one produces a short trigger every time a key is pressed. +5V is the resting state; the trigger pulses to 0V (ground).

MAIN

The MAIN tab shows the PSU-3301 Temperaments and a set of additions to the patch panel: the Modulation Processors and MGs A and B. Unlike the other Play pages, these are incorporated into the main patch panel, rather than offset in a separate frame. It also shows the keyboard and X-Y MANIPULATOR joystick.

TEMPERAMENT ADJUST



All octave-divider instruments need tuning trim pots for the 12 top-octave oscillators, but the PS-3300 designers made the inspired decision to place them on the front panel. These became a signature feature of the PS-3300: Temperaments.

Temperaments allow you to re-tune individual notes to play music from different cultures, recreate historic temperaments, or experiment with new sonorities.

Key

[C…B]

Temperaments are stored in the key of C. The **Key** parameter changes the root key as desired, rotating the pitch offsets accordingly. When saved, offsets are converted back to the key of C.

C…B

[–100.00…+ 100.00]

These knobs adjust the tuning of each of the twelve notes, with a range of +/– 100 cents (one semitone).

LINK ALL TEMPERAMENTS

[Off, On]

This switch is shown under Panel 1. If it is *On*, Panels 2 and 3 will use the Temperament settings from Panel 1.

LINK SIGN GEN PHASE TO PANEL 1/2

[Off, On]

These switches are shown under the Temperament knobs for Panels 2 and 3, respectively.

The oscillators use octave-divider technology, so that all octaves of each note (such as D#) are phase-aligned within each of the three panels. These switches let you phase-align the oscillators ***between*** the panels, either for just a pair of the panels, or for all three at once. It's as if the panels share the set of 12 top-octave oscillators. This cross-panel phase-alignment lets you create layered sounds like vintage organs or string synths.

Important: When phase is linked, Temperaments are also linked, along with PITCH FINE, COARSE, and all pitch modulation. SCALE, WAVE FORM, and PWM can still be adjusted independently.

MODULATION PROCESSORS

These additions to the vintage PS-3300 let you process CV or audio signals by multiplying them together, attenuating or inverting them, or filtering them with a lag processor.

Multiplier

This addition to the vintage PS-3300 is a signal multiplier, which lets you scale one signal with another. Use it as a VCA for CV or audio signals, or as a simple ring modulator.

For example, you can:

- patch in one of the CONTROLLER outputs, such as MOD WHEEL or AFTERTOUCH, and use that to control the level of one of the MGs, the Sample & Hold, or the GEG
- create a simple ring modulator by connecting both inputs to high-frequency outputs, such as the PSU-3301 outputs or the MGs

Note that both inputs scale each other; if either input is zero, the output will be zero.

IN 1/2

These are the inputs to the modulator. It doesn't matter which signal is connected to which input; the result will be the same either way.

OUT

This is the product of the two inputs.

Attenuverter

This addition to the vintage PS-3300 attenuates and/or inverts the input signal.

LEVEL

[–5.000…+5.000]

LEVEL controls the gain of the input signal. Negative settings invert the signal polarity.

IN

The input to this jack will be scaled and/or inverted, according to the **LEVEL** knob.

OUT

This is the attenuated and/or scaled version of the input signal.

Lag

This addition to the vintage PS-3300 slows down sudden changes in the input voltage. An instantaneous change becomes a ramp, from ~0.5 ms to a few seconds long. Can also be used as a 6 dB/oct filter.

LAG

[0.000…10.000]

This controls the amount of lag/filtering.

IN

This is the input to the lag filter.

OUT

This is the filtered version of the input signal.

MODULATION GENERATOR A and B

We've added these two auxiliary LFOs, not present on the vintage PS-3300. They have the same features as the PSU-3301 MG 1, plus a built-in **LEVEL** knob.

Tip: try using these to modulate Pan in the mixer, or if you need two different complex-waveform LFOs for a single PSU-3301 panel.

LEVEL

[0.000…10.000]

LEVEL controls the output gain of the Modulation Generator.

Note: When a cable is connected to the LEVEL CV input, this knob has no effect.

The rest of the parameters and jacks are identical to the MG1 modules; for more information, see "MODULATION GENERATOR 1 (MG 1)" on page 28.

WAVE FORM

[S/H, Triangle, Saw Down, Saw Up, Square, PINK NOISE, WHITE NOISE]

FREQ

[0.000…10.000]

TEMPO

[Off, On]

Inputs

LEVEL

FREQ

Outputs

OUT

Keyboard and X-Y MANIPULATOR

Keyboard

The keyboard shows MIDI input on the Global Channel. You can also play the keyboard directly, for auditioning sounds.

Important: the full range of the instrument is F0 to E5, in MIDI notes. This is a superset of the vintage and reissue PS-3300 ranges, plus an extra fifth in the bass. If MIDI notes are outside of this range, the pitches wrap around to the closest supported octave. For example, if you play the note F5, it results in the same pitch as F4.

This range limitation is required because, internally, the software works in the same way as the hardware PS-3300. A set of twelve top-octave oscillators generates the highest pitches (F4 to E5). Above that, there's nothing to play.

The lower octaves are created by processing the top-octave oscillators through a network of octave-dividers. This is an imperfect analog process which creates unusually-shaped waveforms; the results contribute to the PS-3300's distinctive character, and are lovingly recreated through the software's Voice Variation.

X-Y MANIPULATOR

This creates two CV signals, X and Y, corresponding to the left-right and up-down axes. Use the signals via the X and Y jacks on the main panel; see "X (X-Y MANIPULATOR)" on page 42. This can be controlled via MIDI CCs 16 and 17 for X and Y, respectively.

TRIM POTS & FX OVERVIEW

Voice Variation

On the hardware PS-3300, each note on each of the three PSU-3301 panels sounds a little different, including envelope times, filter cutoff, and more. This note-by-note variation creates a uniquely organic sound, and is a significant part of the PS-3300's character. MG frequencies and waveforms and Resonators also vary between the panels. For more information, see "About the Korg Collection PS-3300" on page 1.

The KORG Collection PS-3300 includes two separate but related mechanisms to model this organic character: Voice Variation and Oscillator Drift.

With Voice Variation, each note on each panel has its own set of virtual components, which vary to the same degree as the original hardware. Envelopes, in particular, can have noticeably different times. You can adjust the intensity of these variations, or disable them entirely, for each individual Performance; see the knobs described below.

The specific set of virtual hardware is determined by the CMT ID; see "CMT ID" on page 14. Unless the CMT ID is the same, two PS-3300 instances will sound different from one another!

Even with these differences, MIDI sequences are completely repeatable; for a specific CMT ID, the same voice in the same panel always behaves the same way.

In addition to Voice Variation, the twelve top-octave oscillators are slightly detuned and drift over time, modeling the instability of analog hardware; see "OSCILLATOR DRIFT" on page 49.

SCALE ALL

[0…200]

This scales all of the individual controls below. 100 is the default. To model an instrument which is particularly out-of-calibration, you can increase this up to 200 (double the variation).

PITCH

[0…100]

This controls the amount of variation in pitch modulation and Temperaments (the tuning of the 12 top-octave oscillators). Note that pitch is also affected by the **OSCILLATOR DRIFT** knob.

FILTER

[0…100]

This controls the amount of variation in cutoff frequency and filter modulation.

OSC

[0…100]

This controls the amount of imperfection in waveform shapes (see "WAVE FORM" on page 19), as well as variation in Pulse Width and Pulse Width modulation.

ENV

[0…100]

This controls the amount of variation in envelope segment times. With default voice variation settings, envelope times may vary by up to 2x for each individual note – just like the vintage hardware.

LFO

[0…100]

This controls the amount of variation in LFO frequency, amplitude, and waveforms (including triangle symmetry). When **TEMPO** is *ON*, frequency is not affected by Voice Variation.

AMP

[0…100]

This controls the amount of variation in amp levels.

Trim Pots

These under-the-hood settings let you change subtle behaviors of the synth, and are saved with the individual Performance.

OSCILLATOR DRIFT

[0.0…10.0] (cents)

The twelve top-octave oscillators on each of the three PSU-3301 panels will be detuned by up to this amount, creating a naturally thick sound. A value around 3.0 cents is a good place to start. The amount of detuning will slowly change over time, modeling analog instability.

TRIANGLE SYMMETRY 1/2/3

[–100…+100]

The Triangle is made by inverting the Saw midway through its cycle. On the vintage hardware, the position of the inversion is set by a trim pot. The setting is usually imperfect, creating a glitch in the waveform and a brighter/buzzy timbre.

PITCH BEND RANGE UP

[–12…+12] (semitones)

This sets the maximum amount of pitch bend, in semitones, when you move the controller above the center point. For normal pitch bend, set this to a positive value.

PITCH BEND RANGE DOWN

[–12…+12] (semitones)

This sets the maximum amount of pitch bend, in semitones, when you move the controller below the center point. For normal pitch bend, set this to a negative value.

BASS FREQ

[ORIGINAL, FULL]

ORIGINAL models the vintage PS-3300's bass roll-off, for a lighter overall timbre.

FULL disables this roll-off, for a deeper bass presence.

Effects Overview

Insert Effects

The Performance has three insert effects, IFX 1-3, in series. These are compact interfaces for those effects. You can set the effects type, select presets for that effects type, turn the effect on and off, and edit the three or four most important parameters. Some effects have many more parameters available in the detailed views on the FX 1/2/3 and REVERB pages. In addition to simply clicking on the FX 1/2/3 and REVERB tabs at the top of the window, you can jump to those pages by double-clicking on the background or labels of the compact effects.

For more information, see “FX 1/2/3” on page 51.

REVERB

The fourth effects slot works a bit differently. It is a send effect, with the send level set by the knob above. It also hosts only the reverb effects types (which are also available in IFX 1-3, in case you want to use them in the middle of a serial effects chain). Finally, since it is set up in a send configuration, reverbs in this slot are always 100% wet, without a wet/dry knob. For more information, see “Reverb” on page 53.

SEND LEVEL

[–Inf, –84.9…+6.0 dB]

Controls the amount of signal sent to the Reverb, in dB.

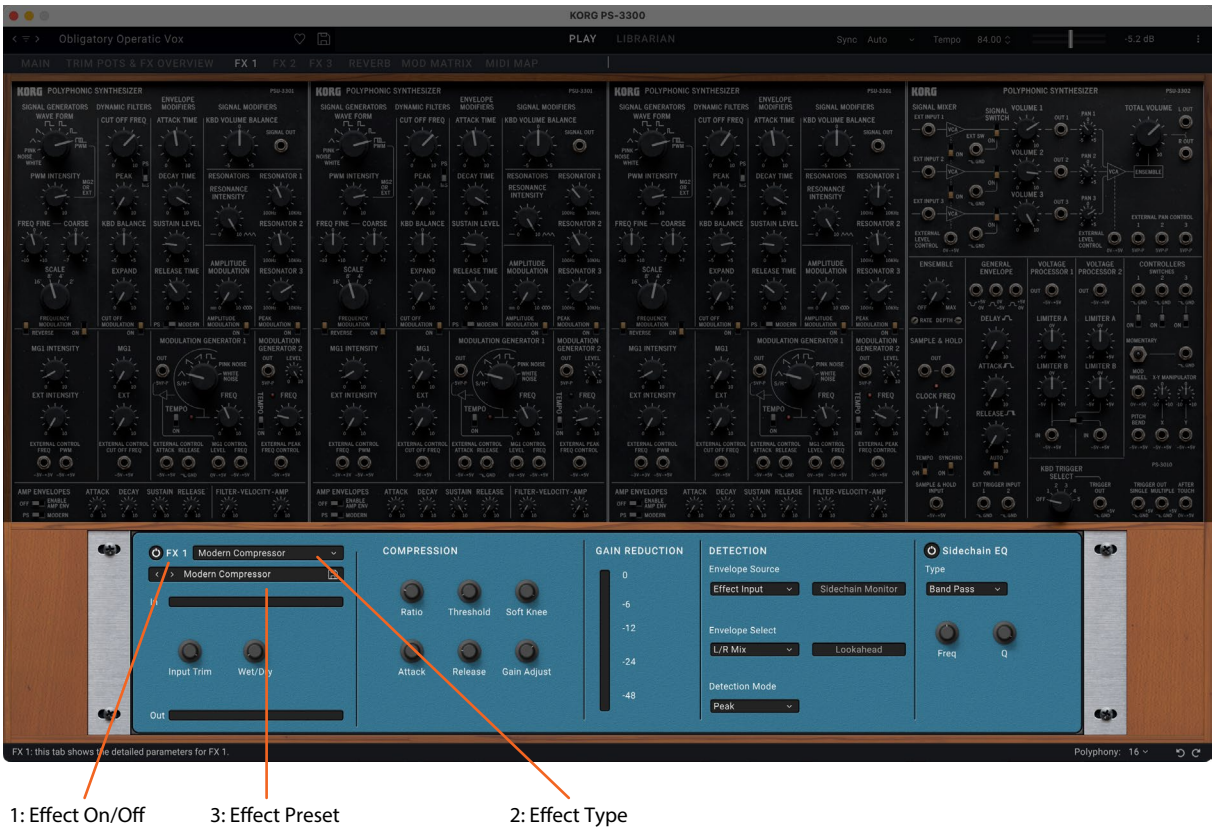
Post-FX Volume

POST-FX VOLUME

[–Inf, –84.9…+18.0 dB]

This controls the volume after FX 3, before the Reverb Send. It allows a volume boost of up to 18 dB - useful to balance Performance levels..

FX 1/2/3



Overview

Each Performance has three insert effects and a dedicated reverb slot.

The three insert effects, IFX 1-3, are arranged in series. These are the detailed interfaces for those effects. You can set the effects type, select presets for that effects type, turn the effect on and off, and edit all of the parameters. In addition to simply clicking on the FX 1/2/3 tabs at the top of the window, you can jump here by double-clicking on the background or labels of the compact effects.

For detailed information on effects parameters, please see the online help at the bottom of the window.

1. Effect On/Off

Click on the power button to the left of the effect number (FX 1/2/3) to turn effects on and off.

2. Effect Type

For each effect, you can select a **Type** (aka algorithm) and a **Preset** within that **Type**. See the full list of Effect Types beginning on the next page.

3. Effect Preset

These are the presets available for the selected **Type**.

Compressor/EQ

Red Compressor

Need to play chordal passages with smooth, even dynamics? Then, look no further: this mono compressor is modeled on a pedal whose clean sound made it hugely popular.

Modern Compressor
This is a stereo compressor with a modern sound.

Parametric EQ
This is a stereo EQ with a single adjustable parametric band. Presets may include additional EQ.

Guitar

Guitar Amp
This mono effect models a selection of guitar amps and speaker cabinets, for everything from subtle saturation to roaring distortion.

Vintage Screamer
This is a true stereo version of a classic green overdrive pedal.

Vox Wah
This mono effect is modeled on the unique "throaty" tones of two legendary VOX wah pedals: the V847 and the V848 Clyde McCoy model.

Chorus/Flanger

Modern Chorus
This stereo effect adds thickness and warmth to the sound by modulating the delay time of the input signal.

Vintage Chorus
This models a mono chorus best-known for being built into a guitar amp. **Speed** and **Depth** provide a broader range of sounds than the original device.

Harmonic Chorus
This stereo effect applies chorus only to higher frequencies—particularly useful for bass sounds. Some presets use feedback to turn the chorus into a flanger.

EP Chorus
This is inspired by a rare chorus built into a famous modified tine piano.

Polysix Ensemble
This models the mono-in, stereo-out ensemble effect built into the classic Korg Polysix synthesizer.

Unison Ensemble
This unique stereo effect creates a rich, wide sound like multiple oscillators playing in unison. The DEPTH and RATE parameters simulate the detuning of the oscillators, and the VOICE parameter is used to simulate the number of oscillators.

Black Chorus/Flanger
This is modeled after a classic mono-in, stereo-out chorus known for both crystal-clean tone and quiet operation, and especially well-suited to tine electric pianos.

Vintage Flanger
A model of a truly classic mono analogue flanger. This amazing stomp-box's bucket-brigade technology provides a sweeping, whooshing sound, perfect for chords.

Phaser

Black Phase
This mono phaser is inspired by a classic European pedal effect.

Orange Phase V2
This is an improved model of a family of mono phaser pedals–in "90" and "100" versions–which are favorites on many recordings. It's useful for adding sparkle, animating chord passages, and widening and fattening the sound.

Small Phase
This models a classic mono phaser made in New York City during the 70s, with its warm, rich tone and liquid transparency.

Modern Phaser
This is a modern, stereo phaser effect.

Modulation

CX-3 Rotary Speaker
This effect models a vintage rotary speaker, with detailed control over both timbre and behavior.

CX-3 Vibrato Chorus
This effect models the scanning chorus and vibrato circuitry of a vintage organ.

Ring Modulator
This stereo effect creates a metallic sound by modulating the input via an LFO-controlled oscillator.

Tremolo
This stereo effect modulates volume with an LFO, optionally controlled by an envelope follower.

Delay

Stereo/Cross Delay
This true-stereo delay provides up to 2,730 msec of delay time.

Tape Echo
This effect models a tape echo with up to three playback heads, including tape saturation.

Reverse Delay
This effect includes a reverse delay followed by additional left and right delays. Presets provide various feedback options.

Auto Reverse
This phrase-based delay can be controlled either by audio or MIDI input. When controlled by audio, it waits until you've finished playing and then repeats the last portion of it, backwards in time.

Reverb

Overb
The Overb features a high-quality, diffusion-based reverb core, including randomization for richer and smoother reverb timbres.

Early Reflections

This provides different early reflection patterns, useful for small ambiences, gated reverbs, and reverse effects.

Spring

This reverb simulates the spring reverbs used in guitar amps and organs.

Iverb

A smooth, high-definition reverb with a natural echoing sound.

Shimmer

An unusual reverb including pitch-shift and feedback. The pitch shift interval changes depending on the TYPE parameter, with sounds ranging from sparkling to mysterious effects.

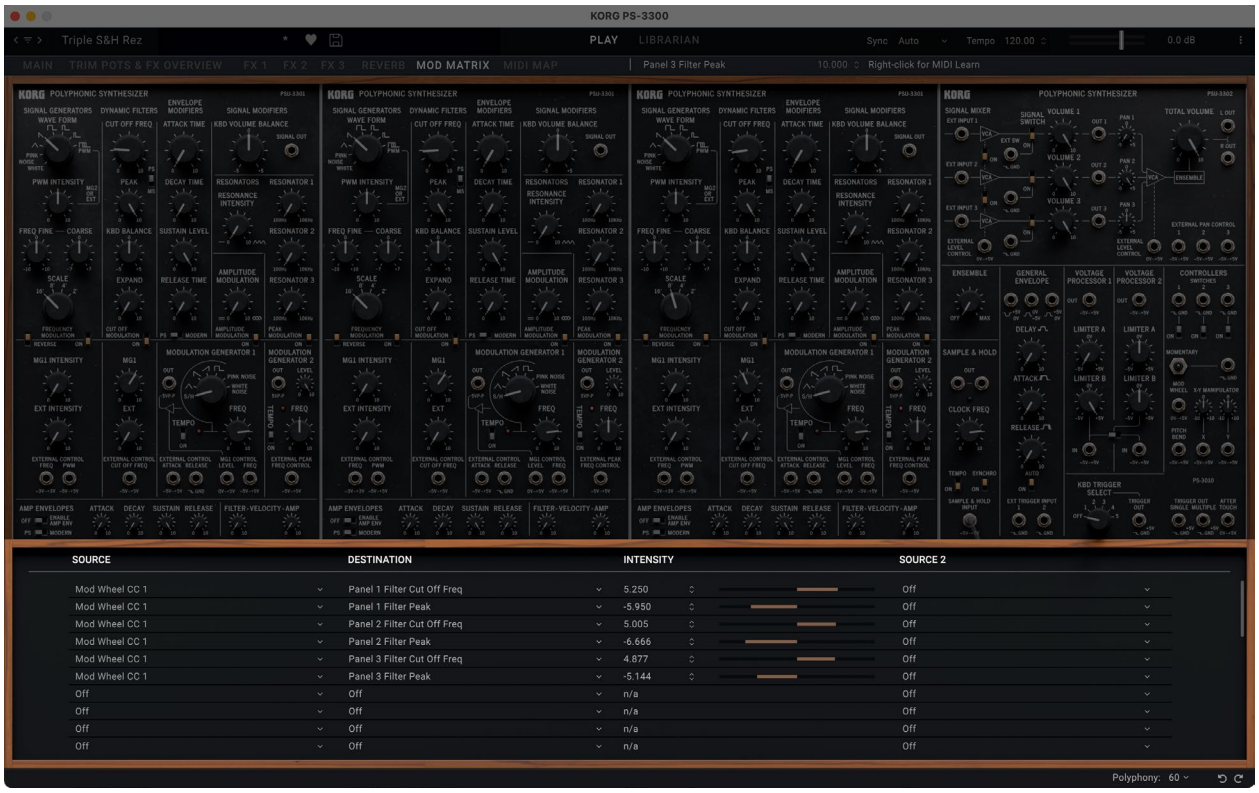
REVERB

Overview

This page shows the dedicated Reverb effects slot, which works a bit differently from the others. It is a send effect, with the send level set by the knob on the left. It also hosts only the reverb effects types; see “Reverb” on page 53. Finally, since it is set up in a send configuration, reverbs in this slot are always 100% wet, without a wet/dry knob.

Other than that, everything works identically to the other effects pages; see “FX 1/2/3” on page 51.

MOD MATRIX



Mod Matrix Overview

The Mod Matrix is for modulating parameters–for example, controlling filter cutoff via velocity, or vibrato depth via the Mod Wheel. Mod Matrix routings modulate up or down (or sometimes both) from the parameter value. They do not edit the parameter value, and so sliders, knobs, etc. won't change in response. Mod Matrix settings are stored with the individual Performance.

Most parameters can be modulated via the Mod Matrix. Each modulation routing includes a primary modulation source, an intensity, and a secondary modulation source; the three are multiplied together to create the modulation amount. A single destination, such as **CUT OFF**, can have any number of incoming modulation routings, up to the Performance's total limit of 30 routings. For descriptions of the available modulation sources, see "Modulation Sources" on page 58.

Creating and deleting modulation routings

Adding modulation routings on the Main and Effects pages

You can quickly add a routing directly from the PS-3300 panel, or from any effects panel:

1. **Right-click/control-click (MacOS) on a slider, knob, or other control to bring up the contextual menu.**
2. **Select the "Add Mod Routing" command.**

Providing that the parameter is modulatable and that a Mod Matrix slot is available, the window will change to the Mod Matrix and a new routing will be created with the selected parameter as the Destination.

3. **Assign a modulation source from the menu. Alternatively, right-click on the Source, select MIDI Learn from the contextual menu, and generate a CC from your MIDI controller.**
4. **Set the Intensity as desired.**

The maximum Intensity is typically +/- the full range of the parameter, so that regardless of the programmed value, modulation can always reach the minimum or maximum values.

5. **Optionally, assign a second modulator (the Intensity Mod Source), whose value will multiply that of the main Source.**

For example, you could route Velocity to **CUT OFF**, with the effect of Velocity modulated by the Mod Wheel.

Adding modulation routings on the Mod Matrix page

You can also manually add modulation routings in the Mod Matrix window. To do so:

1. **Click on the Destination for a Mod Matrix Slot.**

A menu appears with all of the available modulation destinations.

Choose the desired Destination.

Once the Destination is selected, follow steps 3 through 5 under "Adding modulation routings on the Main and Effects pages," above.

Knob "dead zones"

When adding modulation to knobs, be aware that many knobs have "dead zones" at the top and bottom of their range. For more information, see "Dead zones" on page 15.

Deleting a modulation routing

To delete a modulation routing:

1. **In the Mod Matrix, set the modulation routing's Destination to Off.**

Modulation via Velocity and other per-note sources

Supported per-note modulation sources include:

- Velocity
- Exponential Velocity
- Release Velocity
- Note Number
- Poly Aftertouch

Destinations which can be modulated for individual notes include:

- The filter knobs, including CUT OFF, PEAK, KBD BALANCE, and EXPAND
- The filter modulation controls, including the MG 1 and EXT knobs and the CUT OFF MODULATION switch
- The knobs for the ENVELOPE MODIFIERS and AMP ENVELOPES (but not the GENERAL ENVELOPE)
- KBD VOLUME BALANCE
- FILTER and AMP VELOCITY knobs

Due to the internal structure of the PS-3300, modulation of parameters other than those listed above will affect all voices at once. All Signal Generator and MG knobs fall into this category, for instance. You can still modulate these destinations using per-note sources, but the last-received value will affect all sounding notes.

Modulation Sources

Controllers

Off

This means that no modulation source is selected.

Mod Wheel CC 1

This is the standard Mod Wheel (unipolar MIDI CC#1).

Damper CC 64

This is the damper or sustain pedal (unipolar MIDI CC#64).

Pitch Bend

This is the Pitch Bend wheel (MIDI Pitch Bend). You can use this as a modulator, in addition to its hard-wired control of pitch.

For the direct control of pitch, each Program has settings for Pitch Bend Range Up and Down. These are set by the numbers next to the Pitch Bend wheel in the Keyboard section of the Mod Source panel. Up and Down can be set independently, from -60 to +60 semitones.

Pitch Bend+ and Pitch Bend-

These let through only positive or negative pitch bend movements, respectively, ignoring the other polarity.

X-Y Manipulator X CC 16 and Y CC 17

These are the X and Y axes of the X-Y Manipulator, interpreted as bipolar signals. The center corresponds to MIDI value 64; values below 64 produce negative modulation, and values above 64 produce positive modulation.

Velocity

This is the note-on velocity, representing how hard the note is played on the keyboard.

Note: See “Modulation via Velocity and other per-note sources” on page 57.

Exponential Velocity

This is MIDI note-on velocity through an exponential curve. Low velocities won't have very much effect, and the differences between lower velocities won't be very noticeable. On the other hand, high velocities produce increasingly greater effects, and the differences between higher velocities will be more pronounced.

Note: See “Modulation via Velocity and other per-note sources” on page 57.

Release Velocity

This is the note-off velocity, representing how quickly the note is released from the keyboard.

Note: See “Modulation via Velocity and other per-note sources” on page 57.

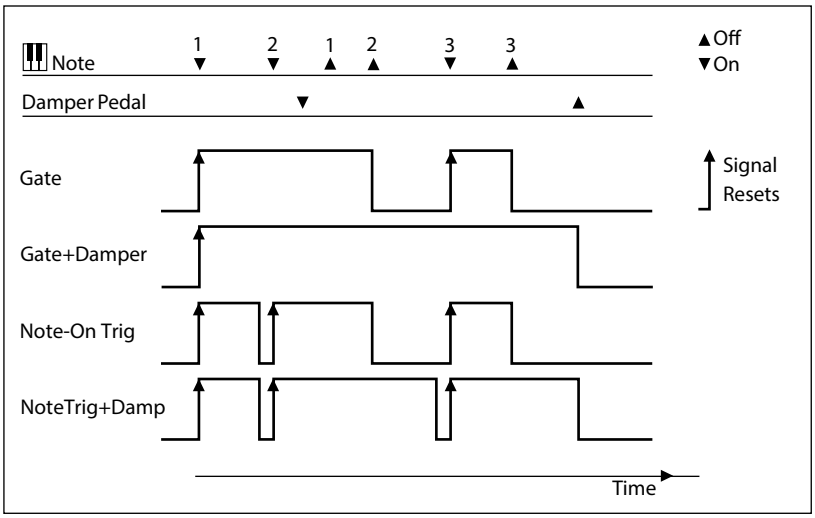
Gate and Gate+Damper

Gate is triggered by a new note after all notes have been released, such as at the beginning of a phrase. Gate+Damper is similar, except that it is triggered by a new note-on after all notes and the damper are released.

Note-On Trig and NoteTrig+Damp

Note-On Trig is similar to Gate, but it triggers with every new note-on, even in the middle of a legato phrase. NoteTrig+Damp includes the damper pedal in the equation, as shown in the diagram below.

Gate, Gate+Damper, Note-On Trig, and NoteTrig+Damp



Note Number

This provides simple key tracking. C4 is the center, with a value of 0. Below C4 is negative, to a minimum at MIDI note 0; above C4 is positive, to a maximum at MIDI note 127.

Note: See "Modulation via Velocity and other per-note sources" on page 57.

Aftertouch and Poly Aftertouch

These are MIDI Channel Aftertouch and Poly Aftertouch, respectively, representing pressure on the keyboard after note-on. Aftertouch can be globally switched to respond to Channel Aftertouch, Poly Aftertouch, both, or neither; for details, see "Aftertouch Source" on page 14.

Note: See "Modulation via Velocity and other per-note sources" on page 57.

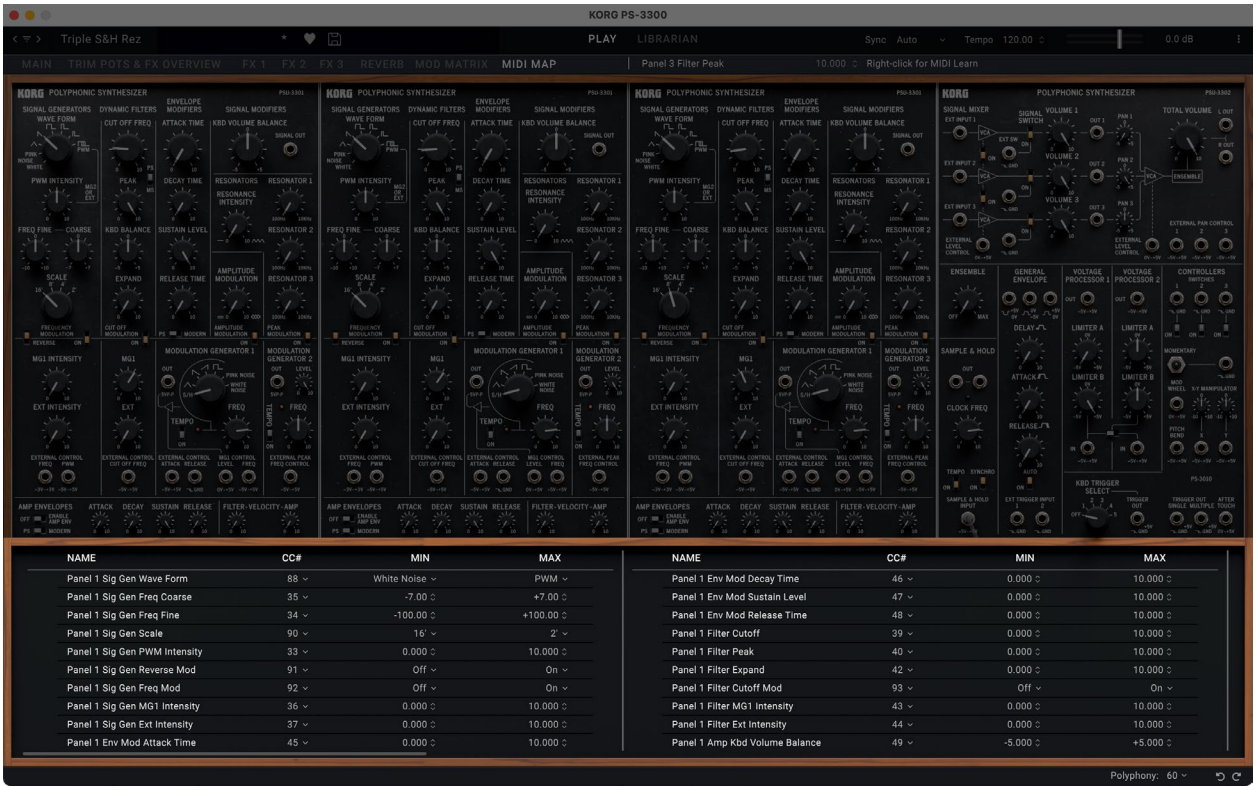
CC +

This is a list of MIDI CCs 1 to 119, interpreted as unipolar signals. MIDI values 0-127 are zero to maximum modulation.

CC +/-

This is a list of MIDI CCs 1 to 119, interpreted as bipolar signals. MIDI value 64 is 0; values below 64 produce negative modulation, and values above 64 produce positive modulation.

MIDI Map



MIDI Map Overview

The MIDI Map is for programming or entering automation from a MIDI controller. MIDI Map entries let you assign parameter values for both the maximum and minimum controller values (e.g. CC values of 0 and 127), and then interpolate between them. Control via the MIDI Map edits the parameter values, and moves the sliders, knobs, etc. accordingly. MIDI Map settings are stored globally, and shared by all Performances.

Creating and deleting MIDI Map assignments

Adding a MIDI Map CC assignment

You can quickly add mappings directly from the PS-3300 panel, or from any effects panel:

1. **Right-click/control-click (MacOS) on a slider, knob, or other control to bring up the contextual menu.**
2. **Select the "MIDI Map Learn" command, and generate a CC from your MIDI controller.**

Alternatively, select "Assign MIDI Map" and select the desired CC manually from the list.

3. **Optionally, go to the MIDI Map page and set MIN and MAX values for the CC mapping.**

MIN is the value corresponding to CC value 0; MAX is the value corresponding to CC value 127. To create an inverted response, set the MIN higher than the MAX. Remember that the MIDI Map is global; for sound-specific modulation, use the Mod Matrix instead.

Only one assignment per MIDI CC

Only one assignment is allowed for each MIDI CC. If you assign a CC which was already assigned to a different parameter, the previous assignment will be changed to "None." You can then edit the previous assignment as desired.

Editing a MIDI Map CC assignment

Once created, assignments can be edited the same way as they were created:

1. **Right-click/control-click (MacOS) on an entry in the MIDI Map to bring up the contextual menu.**

2. **Select the "MIDI Map Learn" command, and generate a CC from your MIDI controller.**

Alternatively, select "Assign MIDI Map" and select the desired CC manually from the list.

Deleting a MIDI Map CC assignment

To delete a MIDI Map assignment:

1. **On the MIDI Map page, right-click/control-click (MacOS) on the assignment to bring up the contextual menu.**

Alternatively, right-click on the knob, slider, button etc. on the Main or Effects pages.

2. **Select "Delete CC Assign" from the menu.**

Saving and loading MIDI Map configurations

You can save and load MIDI Map configurations–for instance, one for use with a KORG Keystage, and another for use with a wavestate. MIDI Map files are saved separately to disk (not within the PS-3300 database) with the suffix "ps-3300midimap."

Saving the MIDI Map configuration

To save the current MIDI Map configuration, including all assignments shown on the MIDI Map page:

1. **Select Save MIDI Map… from the main menu.**

A standard file dialog will appear.

2. **Give the file a descriptive name, and press Save to save the file.**

Loading a MIDI Map configuration

Important: This will overwrite the current MIDI Map, replacing all assignments shown on the MIDI Map page.

To save the current MIDI Map configuration, including all assignments shown on the MIDI Map page:

1. **Select Load MIDI Map… from the main menu.**

A standard file dialog will appear.

2. **Select the desired MIDI Map file, and press Open to load it.**

Resetting the MIDI Map to factory defaults

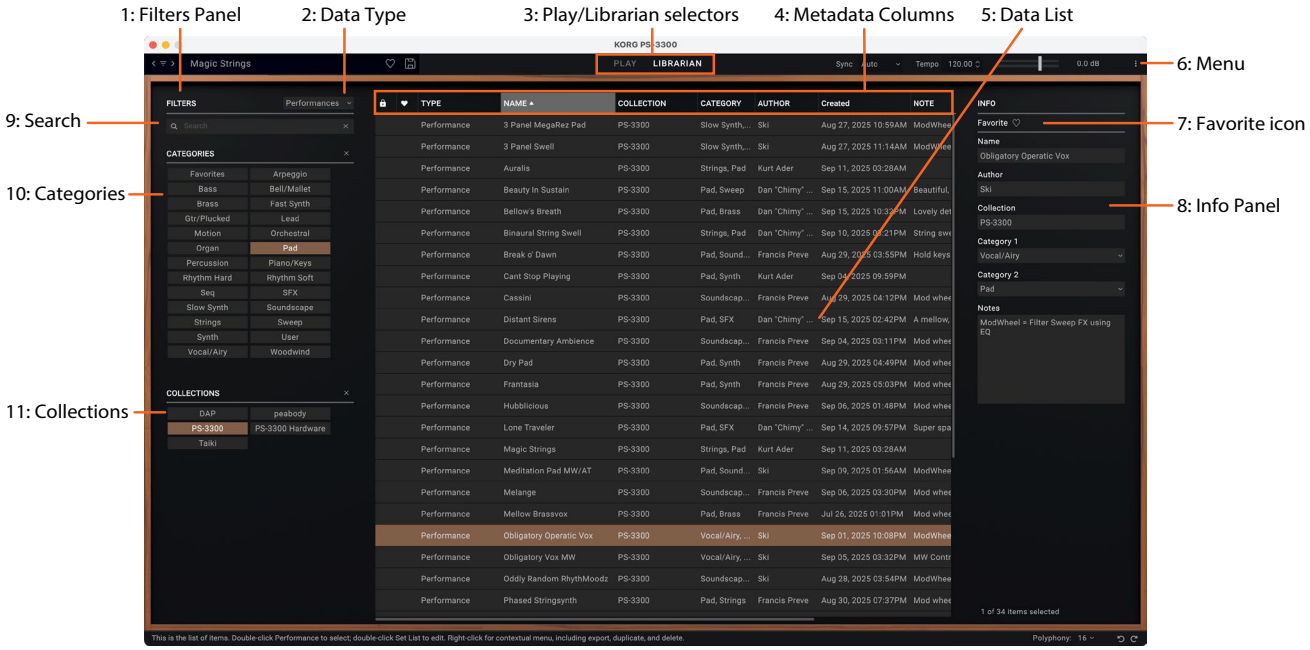
If you like, you can quickly reset the MIDI Map to the default assignments. To do so:

1. **Select Reset MIDI Map to Default… from the main menu.**

A confirmation dialog will appear, warning that this will overwrite the current MIDI Map.

2. **Press OK to confirm, or Cancel to exit without making changes.**

LIBRARIAN



What's the Librarian for?

The Librarian page shows all of the contents of the PS-3300. It's most useful for editing metadata for your own sounds, and for importing and exporting data. For selecting sounds, use the pop-up sound browser instead.

1: Filters Panel

The selections here help you narrow down the number of items in the Data List. Set the Data Type, Search, Categories, and/or Collections as desired. The Filters Panel can be resized by dragging its right edge, to show one, two, or three columns of Categories and Collections.

2: Data type

The Librarian can show Performances, Temperaments, Effects presets, and Set Lists. This menu chooses which type(s) of data are shown in the list. *All Data* shows all types of data at once.

3: Play/Librarian selectors

The PLAY and LIBRARIAN selectors at the top of the main window select whether you're playing and editing sounds–including the patch panel, effects, modulation, or MIDI mapping–or working with the Librarian. For more information, see "3: PLAY/LIBRARIAN" on page 5.

4: Metadata columns

For each item, the list shows the Type, Name, Collection, Category, Author, and Notes, as well as whether or not the item is locked factory data. You can drag the top of the columns to re-arrange them, or to resize the columns.

Click on a column heading to sort; click again to reverse the sort order. The triangle icon shows which column is selected for sorting, and the direction of the triangle (up or down) shows the sort order.

5: Data List

This shows lists of all the data in the PS-3300 database, as filtered by the Search, Data Type, Category, and Collection settings in the Filters Panel.

Selection

Click on an item in the list to select it for metadata editing or export. Double-clicking on Performances and Set Lists will also select them for playing.

Select multiple non-continuous items by holding down the command key on MacOS, or the Ctrl key in Windows. You can also select a range of items by using Shift.

Lock icons: factory data is write-protected

All of the data shipped from the factory is write-protected, including Performances, Effects presets, and so on. This is shown by the lock icons in the list and at the top of the Inspector panel. Factory sounds can't be deleted, and their original versions can't be changed, including metadata such as name, author etc. However, you can duplicate them and then edit however you'd like.

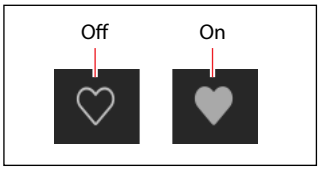
6: Menu

This menu gives access to the Settings window (including velocity and aftertouch curves, interface options, Set List selection, etc.), undo/redo, user interface size scaling, "About" information, and Librarian-specific commands.

7: Favorite icon

Click on the heart to mark (or un-mark) an item as a Favorite. You can then find them later via the "Favorite" Category. Unlike other metadata, you can change the Favorite setting even for locked factory data.

Favorite icon



8: Info Panel

This panel lets you view and edit the metadata for the selected items, including the Name, Collection, Categories 1 & 2, Author, and Notes. If more than one item is selected, and the items have different settings for a metadata field (such as the name or category), the field shows the note "<Multiple Values.>"

If the lock icon is shown, the selection includes factory data, and the fields cannot be edited. You can, however, copy text to paste elsewhere.

The Inspector panel can be resized by dragging its left edge.

9: Search

Type into this field to filter the list by searching for text in any of the metadata fields. Click on the "X" to clear the field.

10: Categories

Categories let you filter by the type of sound, such as basses, leads, bells, etc. Each sound can be assigned to two Categories, and each data type—Performances, Temperaments, etc.—has its own list of Categories. Click on a Category name to filter by that Category; click on the "X" to de-select all Categories.

When searching by Category, a sound will be shown if either of its Categories match the search criteria.

This section also includes "Favorites," which shows all sounds which you've marked as favorites. You can use the Favorites selection in combination with any other Categories.

11: Collections

Categories let you filter sounds by group, such as factory sounds, expansion packs, or your own projects. Each sound can be assigned to one Collection. Click on a Collection name to filter by that Collection; click on the "X" to de-select all Collections.

Librarian contextual menu

Right-click or control-click (macOS) on an item to bring up the contextual menu. Menu commands are still available when multiple items are selected in the list.

Export…

Exports the selected items to individual files on disk. For more information, see "Exporting data" on page 65.

Export Bundle…

This command is available if multiple items are selected. It exports all the selected items to a single file on disk. Use this for distributing a set of sounds, for example.

Duplicate

This duplicates the selected item.

Delete

This removes the selected data. When used with Set List Slots, the Slots are changed to use the Init Performance.

New Set List

This creates a new Set List, with all Slots set to the Init Performance. It is available from the Librarian when showing either All Data or Set Lists.

Open Set List Editor

When a Set List is selected, this opens a Set List window for that Set List. If multiple Set Lists are selected, it opens widows for each of them.

Make Active

When a Performance is selected in the list, this selects the item for playing. (Double-clicking has the same effect.)

When a Set List is selected in the list, this activates that Set List and changes the Set List parameter in the Settings dialog.

Import and export

The **Import** and **Export** commands let you:

- Load new sounds
- Transfer data from one installation of PS-3300 to another
- Back up and restore data

Importing Programs from the PS-3300 Reissue hardware

You can import sounds from the PS-3300 hardware into the plug-in.

Important: only single Program files are supported.

To import PS-3300 Reissue Programs:

1. **In the menu, select the Import PS-3300 Reissue Program… command.**

A standard file open dialog will appear.

2. **Select the file(s) to import.**

You can select and import multiple files at once. PS-3300 Reissue Programs have the file suffix "ps3300prog."

3. **Press the Open button.**

The data in the file(s) will be imported into the database. A message will appear to confirm the import, including information about which files have been added.

Duplicates and file names

PS-3300 Reissue Programs don't have PS-3300 UUIDs until after they've been imported into the database (see "UUIDs" on page 65). So, to check for duplicate files, the PS-3300 plug-in uses the name of the .ps3300prog file on disk. If you import a .ps3300prog file with the same name as a Performance already in the PS-3300 plug-in's database, a dialog appears to ask whether you want to overwrite the existing Performance or make a new, unique Performance instead.

Importing data

To import data saved by the PS-3300 plug-in:

1. **In the menu, select the Import… command.**

A standard file open dialog will appear.

2. **Select the file(s) to import.**

You can select and import multiple files at once.

3. **Press the Open button.**

The data in the file(s) will be imported into the database. A message will appear to confirm the import, including information about which files have been added.

Data conflicts

If some of the imported data appears to be different or updated versions of the internal data, a dialog will appear with the text:

"A different or changed item already exists in the database for <item name>"

The dialog offers several options:

Cancel: the item will not be imported.

Overwrite: the item will be imported, replacing the version in the PS-3300 database.

Make Unique: the item will be imported, and its UUID (see "UUIDs," below) will be changed so that it does not conflict with the version already in the PS-3300.

Apply to All: the choice of Cancel, Overwrite, and Make Unique will be applied to all conflicting files in the Import.

If a Set List is imported, and some of its constituent Performances were made unique, then the Set List is edited to point to the new Performances.

UUIDs

The PS-3300 uses a database to keep sounds organized. Internally, sounds are identified not by their names, but rather by a unique tag attached to the file, called a UUID ("Universally Unique Identifier"). This means that even if a sound's name has been changed, the system still knows it's the same sound.

When you write a sound, "Overwrite" keeps the UUID the same, and "Save As New" creates a new UUID.

When you import data, the UUIDs in the sounds to be imported are compared with those already in the database. If a sound has the same UUID, but its contents are different, you'll see the dialog described under "Data conflicts" on page 65.

Exporting data

When exporting two or more pieces of data, you can either save them as separate files or as a single Bundle file.

Exporting as separate files

To export data from the PS-3300 as separate files on disk:

1. **In the Librarian, select the data that you'd like to export.**
2. **Right-click/control-click (macOS) on one of the items, to open the contextual menu.**
3. **In the menu, select the Export… command.**

A standard file open dialog will appear.

4. **Navigate to the location to save the files.**
5. **Press Open to select the current directory and save the files.**

Exporting as a bundle

To export multiple pieces of data from PS-3300 as a single bundle file:

1. **In the Librarian, select the data that you'd like to export.**
2. **Right-click/control-click (macOS) on one of the items, to open the contextual menu.**
3. **In the menu, select the Export Bundle… command.**
4. **Navigate to the location to save the bundle, and enter a name for the file.**
5. **Press Save to save the bundle file.**

Exporting all user data

To export all of your custom data as a single bundle file, without saving the write-protected factory sounds:

1. **In the menu, select the Export Bundle of All User Sounds… command.**
2. **Navigate to the location to save the bundle, and enter a name for the file.**
3. **Press Save to save the bundle file.**

This exports a bundle of all non-write-protected data, for backing up or transferring all of your custom sounds at once.

Exporting the current Performance

You can also export the current Performance directly from the Performance Selector (see "Selectors" on page 2), without going to the Librarian page:

1. **Save the Performance.**

The Performance must be saved before exporting.

2. **Right-click/control-click (macOS) on the Performance Selector to bring up the contextual menu.**
3. **Select the Export… command.**

A standard file open dialog will appear.

4. **Navigate to the location to save the file.**
5. **Press Open to select the current directory and save the file.**

Importing and exporting Set Lists

Set Lists refer to up to 64 Performances. When you export a Set List, both the Set List and its referenced Performances are saved together. This makes it easy to import and export groups of sounds.

File Types

The PS-3300 uses the file types below.

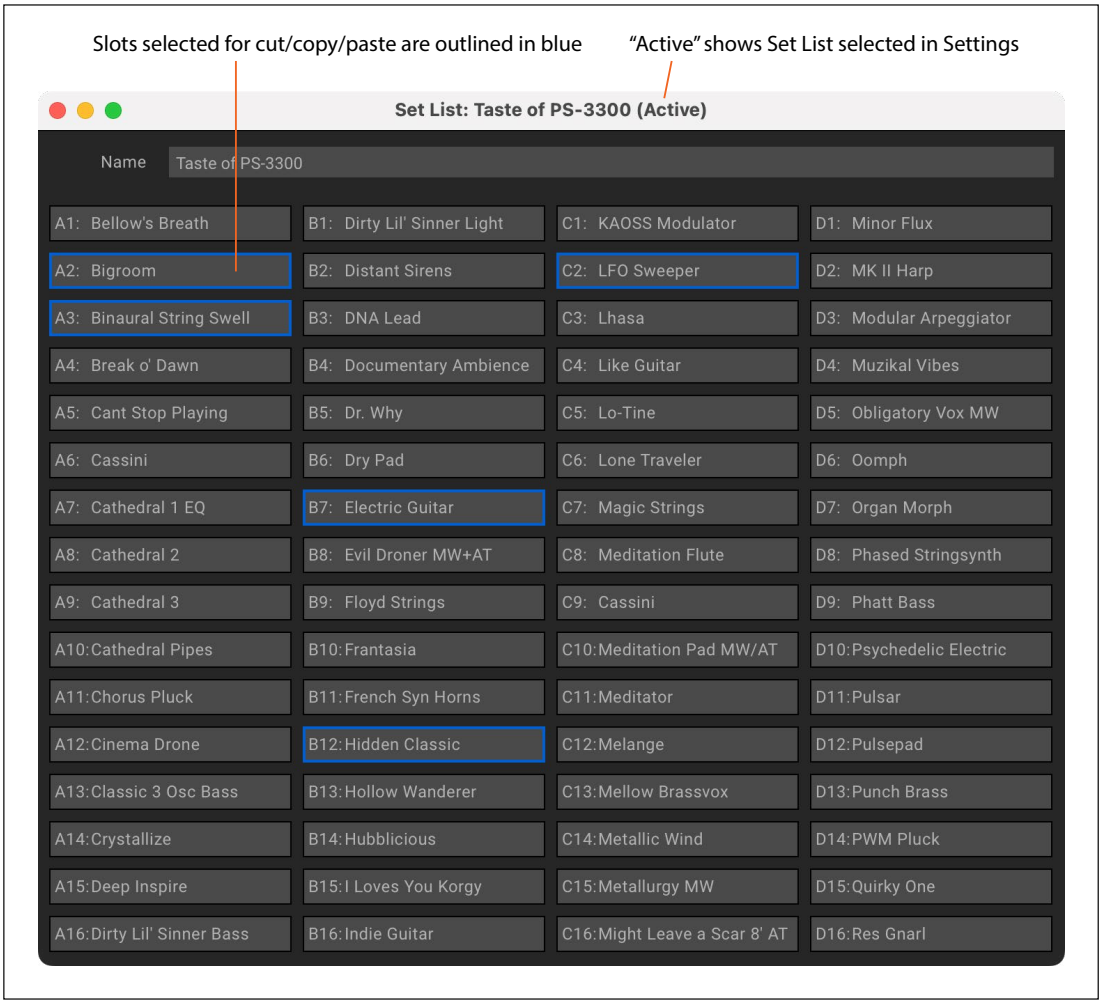
Type	Extension	Contents
Performance	ps-3300perf	A single item of the specified type.
Temperament	ps-3300temperament	
Effect	kceffect	
Set List	ps-3300setlist	One Set List and all of its referenced Performances
Bundle	ps-3300bundle	Multiple items of any type.
MIDI Map	ps-3300midimap	MIDI Map: only on disk, not shown in Librarian

Set Lists

Set List window

This window shows all 64 Slots of a Set List. You can open multiple Set List windows at once. If one of the windows shows the active Set List (as configured in the Settings dialog), the note "(Active)" appears after its name in the title bar.

Set List window



The name of the Set List is shown both in the window's title bar, and in an editable field at the top of the window. Selected Slots are shown with a blue outline. You can select multiple non-continuous Slots by holding down the command key on MacOS, or the Ctrl key in Windows. Alternatively, select a range of Slots by using Shift.

Using Set Lists

Set Lists let you group and order Performances for gigs or projects. A Set List has 64 Slots, arranged into four banks A-D, corresponding to MIDI Program Change messages 1-64. Note that Set Lists don't contain separate copies of their sounds; they just point to Performances stored in the database.

Editing Set Lists

Duplicating Set Lists

To duplicate a Set List:

1. **In the Librarian, set the Data Type to Set List.**

2. **Select one or more Set Lists.**
3. **Right-click/Control-click (macOS) on one of the selected Set Lists to bring up the contextual menu.**
4. **Select the Duplicate command.**

The selected Set List(s) will be duplicated, with a number appended to their name.

Adding Performances to a Set List

To add Performances to a Set List:

1. **In the Librarian, set the Data Type to Set Lists or All Data, and double-click on a Set List.**

This will open the Set List window.

2. **In the Librarian, set the Data Type to Performances or All Data, and select one or more Performances.**
3. **Click and hold on a selected Performance, and drag it over a Slot in the Set List window.**

The Performance will be pasted over the Slot. If you're dragging multiple Performances, they will be pasted over the Slot and immediately subsequent Slots, as necessary.

Re-arranging Slots in a Set List, or copying from one Set List to another

You can re-arrange the Slots in a Set List, such as using cut, copy, paste, and insert, using either contextual menu commands (right-click, or control-click on MacOS) or drag-and-drop.

Only unlocked user Set Lists can be edited. To create an editable version of a locked, factory Set List, right-click on the Set List in the Librarian window and select **Duplicate** from the contextual menu.

You can open multiple Set List windows at once. If one of the windows shows the active Set List, the note "(Active)" appears after its name in the title bar.

Using commands in the contextual menu

To re-arrange Slots using the contextual menu:

1. **Select the Slots that you'd like to copy, cut, or delete.**

You can select two or more non-continuous Slots using command-click on MacOS, or Ctrl-click in Windows. Alternatively, select a continuous range of Slots by using Shift-click.

2. **Select the Cut, Cut and Shift Slots, Copy, or Delete command, as desired.**

Bring up the contextual menu by right-clicking/control-clicking (macOS) on one of the selected Slots. For details on how these work, especially Cut and Shift Slots, see "Cut and Shift Slots" on page 69.

If you delete a Slot, its contents are replaced by the Init Performance.

If using Paste or Insert Before, continue:

3. **Select the destination Slot.**

Important: if multiple Slots are selected, only the lowest-numbered selection affects the Paste or Insert Before operation; other selections are ignored. For more information, see "Paste" on page 69 and "Insert Before" on page 69.

4. **Select the Paste or Insert Before command, as desired.**

Using drag-and-drop

To re-arrange Slots using drag-and-drop:

1. **Select the Slots that you'd like to copy or cut.**
2. **Click and drag on top of a Slot to Paste, or to the space between Slots to Insert Before.**

The effect on the original Slots depends on whether or not you hold the Option key (MacOS) or Alt key (Windows), and whether you're dragging within a single Set List or from one Set List to another, as shown in the table below.

Destination	Drag action	Edit action	Affect on Original Slots
Same Set List	On top of a Slot	Paste	Changed to Init Performance
	On top of a Slot, holding Option/Alt	Paste	Remain unchanged
	Between Slots	Insert Before	Removed, as with Cut and Shift Slots
	Between Slots, holding Option/Alt	Insert Before	Remain, shifted down with the rest of the Slots
Different Set List	On top of a Slot	Paste	Original Slots always remain unchanged
	Between Slots	Insert Before	

Note that dragging to a different Set List always leaves the original Slots intact; option-drag is not required.

Set List contextual menu

Right-click or control-click (macOS) on a Slot to bring up the contextual menu.

Delete

This removes the selected Slot, and changes it to use the Init Performance.

Note that factory data may not be deleted or changed. Also, there must always be at least one Set List; if there is only a single Set List in the system, it cannot be deleted.

Cut

This cuts the selected Set List Slot(s), placing them on the clipboard, and changes them to use the Init Performance.

Cut and Shift Slots

This cuts the selected Set List Slot(s), and shifts all other Slots to fill in the gap. The newly empty Slots at the end of the Set List will be filled by the Init Performance.

Copy

This copies the selected Set List Slot(s), and places their data on the clipboard for use in Paste or Insert Before.

Paste

This replaces the selected Set List Slot, and potentially subsequent Slots, with the data on the clipboard. If multiple Slots are selected, only the lowest-numbered selection affects the Paste operation; other selections are ignored.

Important: if the clipboard contains multiple Slots, Paste will start with the first selected Slot and then replace as many Slots as necessary, regardless of how many other Slots are selected. For example, if there are four Slots on the clipboard, and you select Slots A3 and A7 and then Paste, Slots A3, A4, A5, and A6 will be replaced with the data from the clipboard.

Insert Before

This inserts the data on the clipboard into the Set List before the selected Set List Slot, and shifts subsequent Slots to make room. Slots at the end of the Set List will be "pushed off the end" and removed.

As with Paste, if multiple Slots are selected, only the lowest-numbered selection affects the Insert Before operation; other selections are ignored.

Troubleshooting

Please check the following points if you experience problems.

No sound

- Are the main Level or any other volume-related parameters set to 0?
- Is your computer set to produce sound?
- If you're using Windows, open the Control Panel and check "Sound and Audio Device Properties."
- If you're using macOS, check System Settings/Sound and the Audio Devices section of Audio MIDI Setup (in Applications/Utilities).
- If you're using your computer's sound card, is the sound card set up correctly?
- If you've connected an audio device to your computer, is the audio device set up so that sound is being output from it?
- If you're using the stand-alone version, have you made the appropriate settings in the **Audio/MIDI Settings** window? See "Audio/MIDI Settings (standalone only)" on page 11.

The sound has clicks, pops, or noise, or CPU load is heavy

You may experience clicks, pops, or noise if your computer's CPU is experiencing a heavy load.

If you are having this type of problem, try the following.

- If other applications are running, close them.
- Reduce the Performance's **Polyphony** parameter (see "11: Polyphony" on page 6).
- If you are using a plug-in host, increase the buffer size in the host application. If you are using the stand-alone version, go to the **Audio/MIDI Settings** window and increase the audio buffer size. Note that this will also increase the latency (the delay before you hear sound).

Sound is delayed

The time between when you press a key and when you hear the sound is called "latency." Latency is determined by "the number of samples" x "the number of buffers." To decrease latency when using a plug-in host, decrease the buffer size in the host application. To decrease latency when using the stand-alone version, go to the **Audio/MIDI Settings** window and set the **Audio Buffer Size** to the lowest setting that still allows stable operation.

Can't control the software synthesizer from a MIDI device connected to the computer

- Are your computer and MIDI device connected correctly?
- Is the connected MIDI device detected by your computer?
- If you're using Windows, open the Control Panel and check Sound and Audio Device Properties/Hardware.
- If you're using macOS, open the MIDI section of Audio MIDI Setup (in Applications/Utilities), and make sure that your MIDI device is detected.
- If you are using the stand-alone version, go to the **Audio/MIDI Settings** window and confirm that the desired MIDI controller is selected.

Specifications

- Maximum polyphony: 60 notes (depending on the computer's CPU)
- Standalone operation or as a VST3/AU/AAX Native plug-in instrument
- Real-time MIDI control and automation is supported

Operating requirements

MacOS

- OS: macOS 11 Big Sur or later (with latest updates)
- CPU: Apple M1 or better, or Intel Core i5 or better (for Intel, Core i7 or better recommended)
- Memory: 8 GB RAM or more (16 GB RAM or more recommended)
- Storage: 2 GB or more free space (SSD recommended)
- Internet connection
- Plug-in: AU, VST3, AAX (64-bit only)

Windows

- OS: Windows 10 or later, 64-bit (with latest updates); 32-bit operating systems are not supported
- CPU: Intel Core i5 or better (Core i7 or better recommended)
- Memory: 8 GB RAM or more (16 GB RAM or more recommended)
- Storage: 2 GB or more free space (SSD recommended)
- Internet connection
- Plug-in: VST3, AAX (64-bit only)

* Appearance and specifications of this product are subject to change without notice.

Support and service

If you have questions about the product, please contact the Korg distributor for the country in which you purchased it.

Before you contact us

- Before you contact us, check whether this manual or the Korg app Help Center (https://support.korguser.net) has an answer for your question.
- Please be aware that we cannot answer questions about products that are not made by Korg (such as third-party software, controllers, or audio devices), or general questions about creating songs or sounds.

Information to provide when contacting us

In order for us to help you, we'll need the following information:

- Your name
- The name and version of the product (you can find the version using the About command in the three-dot menu)
- Your computer hardware and operating system name and version
- Your question (provide as much detail as possible)