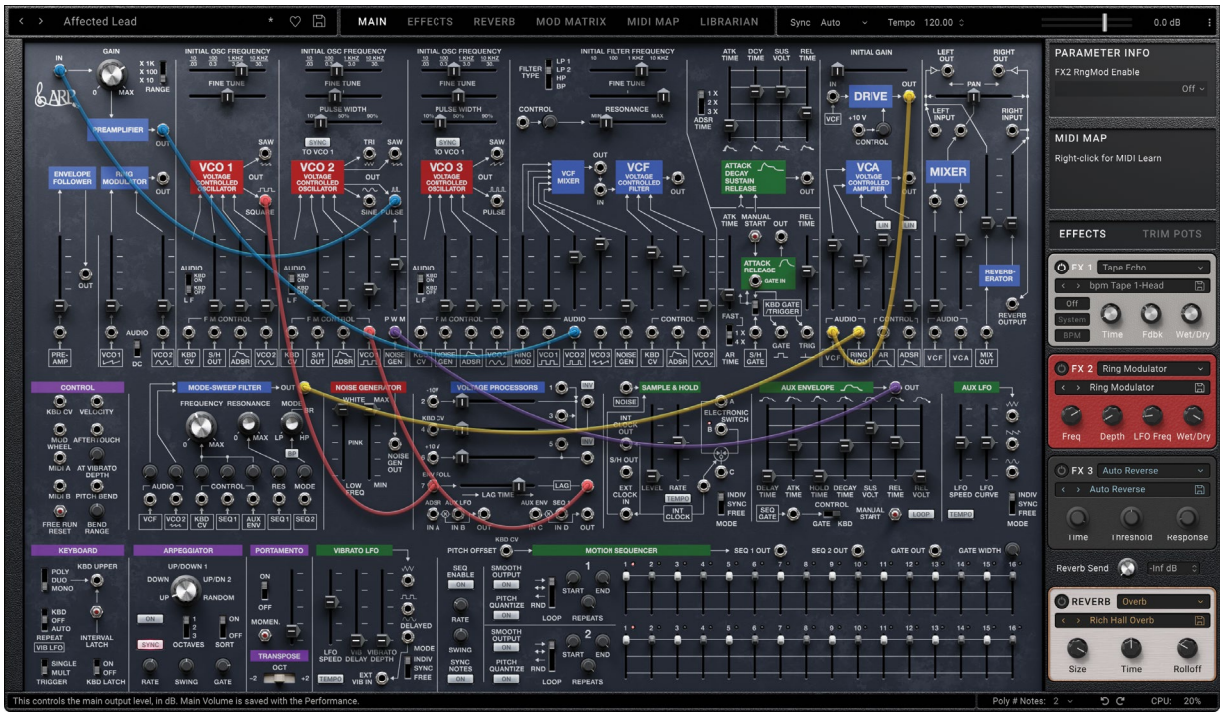
ARP 2600

KORG COLLECTION



KORG

E1

Contents

Introduction

Thank you for purchasing Korg's ARP 2600 software synthesizer. To help you get the most out of your new instrument, please read this manual carefully.

Standalone, Instrument, and Effect versions

The ARP 2600 includes a standalone application, an instrument plug-in named "ARP 2600" for AU (macOS only), VST, and AAX, and an effect plug-in named "ARP 2600 FX" also for AU, VST, and AAX. This manual applies to all three versions, collectively referred to as "ARP 2600." 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 delve into the many interesting ways that the 2600's different modules can be made to interact. Instead, we highly recommend the original 2600 manual by Jim Michmerhuizen. 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 ARP 2600 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. The factory sounds are stored with lower polyphony settings in order to play well on a broad range of systems. Modern, relatively powerful computers should be able to play up to 16 voices per instance at the default 4x oversampling. If you encounter CPU performance limitations, try setting the **Oversampling Mode** (see page 16) to *Always Use 2x*.

About the Korg Collection ARP 2600

Origins

KORG knows analog. The volca and minilogue lines brought analog back to the masses, spearheading an industry-wide renaissance in analog synthesis. The revival of the MS-20 introduced a new generation to its unique, aggressive voice. And of course KORG has now taken over the stewardship of the ARP synthesizer legacy, with faithful new versions of the classic Odyssey and 2600.

KORG also knows digital. From the iconic M1 and ubiquitous microKORG, to the groundbreaking OASYS and KRONOS, to the ultra-modern wavestate, modwave, and opsix, KORG has kept on the cutting edge for more than 30 years.

So, when we embarked on making a plug-in version of the ARP 2600, we knew that it had to preserve the fantastic sound quality, incredible flexibility, and quirky attitude of the original–and it also had to bring something new to the party.

Creating the plug-in

First, we spent months understanding every detail of the original and modern schematics, poring over the original 2600 manuals, staring at oscilloscopes, and most importantly listening. The original AR and ADSR envelopes, for example, might seem simple–but it took over a week to get them just right. Extensive anti-aliasing techniques spread throughout the different modules let us deliver truly premium audio quality.

Next, we added the most popular mods for the original hardware, such as oscillator sync (using our patented, best-in-the-industry technique), time-scaling switches for ADSR and AR, an AR trigger input, and so on. We also added new features from KORG's 2600 FS reissue, such as a switch to select between the two original lowpass filter types, additional controller routings, and an arpeggiator. After that, we really got to work; see the figure below for all the changes to the patch panel, including:

- 4-pole highpass and bandpass modes for the main VCF, plus audio-rate resonance modulation

- Insert points between the VCF input mixer and the main VCF, for increased patching flexibility
- Separate Mode-Sweep Filter, inspired by the classic SEM
- Looping DAHDSR Aux Envelope
- Aux LFO
- Two-lane Motion Sequencer inspired by the ARP 16xx series
- Dual multiplier Voltage Processors, for scaling audio and modulation
- Tempo sync and individual/free run options in all appropriate places
- Patch-panel outputs for Velocity, Aftertouch, Mod Wheel, and other MIDI controllers
- Built-in mults for all output jacks
- Up to 16-voice polyphony
- …and many other small but important details

Outside the patch panel, there are 20-odd Trim Pots to dial in calibration details such as square wave width and triangle wave symmetry (just like the original hardware), to select between behaviors of different 2600 vintages, and more.

Additions and mods to the vintage 2600

Preserving and expanding the spirit of the 2600

When adding all of these new features, we kept the character of the original 2600 firmly in mind. And, it really does have a character! To begin with, no two sections are alike; each has its own purpose(s) and capabilities to match. Each of the three VCOs has different features. The two envelopes work very differently. There are many hidden quirks, such as different ranges for identical-looking control inputs and signal phase inversions. It's a carefully considered instrument, but it also feels like a collection of bespoke modules. The differences guide the eye, and also simply make it fun to play around with. There's a constant sense of discovery, of "wow, I can make it do that, too!"

We were determined to preserve the spirit of the original instrument. So, we resisted the modern urge to unify and standardize. Each of the VCOs is still different. When we added an envelope and an LFO, we made sure that they were different from the originals, with their own new capabilities. When we added a filter, we made it entirely different from the main VCF. Each addition speaks with its own voice. All of the additions have sensible normalled connections, incorporating the new LFO, envelope, and sequencer.

We also kept all of the controls of the original instrument, and even with all of the additions, we preserved the basic layout. If you're familiar with the old 2600, or KORG's new 2600 FS and 2600 M, you'll feel right at home. With our

obsessive attention to internal details, you can also directly re-create any original 2600 patch. Pull out the original ARP 2600 Patch Book (available as a free PDF on KORG's website), wire up each of the 100 patches, and they'll sound just like the hardware–something that no other plug-in can do.

Learn and explore

The 2600 is known as a great platform for learning about how synthesizers work. We wanted to expand on that idea, too. The plug-in includes an optional new silkscreen which uses color to differentiate between signal sources, signal processors, modulation sources, and control modules. If you prefer, of course, the original white-on-black silkscreen is also available.

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. You may never have to open the manual at all! That said, the original 2600 manual by Jim Michmerhuizen is a classic for a reason; it's available as a free PDF on the Korg website, and we highly recommend that you read it.

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

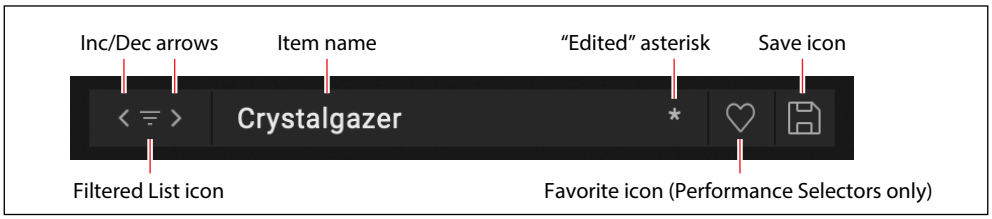
The original spring reverb tank is available in the patch panel. In addition to this, there are three insert effects and a dedicated reverb slot, with 31 effects types to choose from, including everything from vintage pedals, guitar amps, and tape delay to modern reverse delays and shimmer reverb.

User Interface Elements

Selectors

ARP 2600 keeps track of sounds, and some individual sound elements, using a database. This includes Performances, Effects Presets, Scales, 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 8). 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 ARP 2600 is open and unless a new parent sound is selected (for example, the Performance is the parent sound of IFX 2).

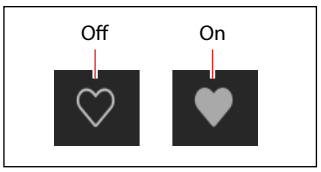
If some items are hidden due to the selected Categories, Collections, and search text, the Filtered List icon appears between the < and > arrows. To clear the filters and show all items in the list, click the Filtered List icon. Alternatively, open the Sound Browser and adjust the filters as desired. For more information, see "Sound Browser" on page 8.

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.

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. Hold SHIFT while dragging OSC INITIAL FREQUENCY to snap to octaves, or while dragging Motion Sequencer Step values to snap to semitones.

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

The value range for most sliders and knobs is 0.00…100.00. The manual includes the ranges only for parameters with a different set of values, such as:

START

[1…16]

Getting Started

Installation and updates

ARP 2600 uses the Korg Software Pass application for installation and updates. Optionally, the software can check for updates automatically; see “Check for Updates” on page 13.

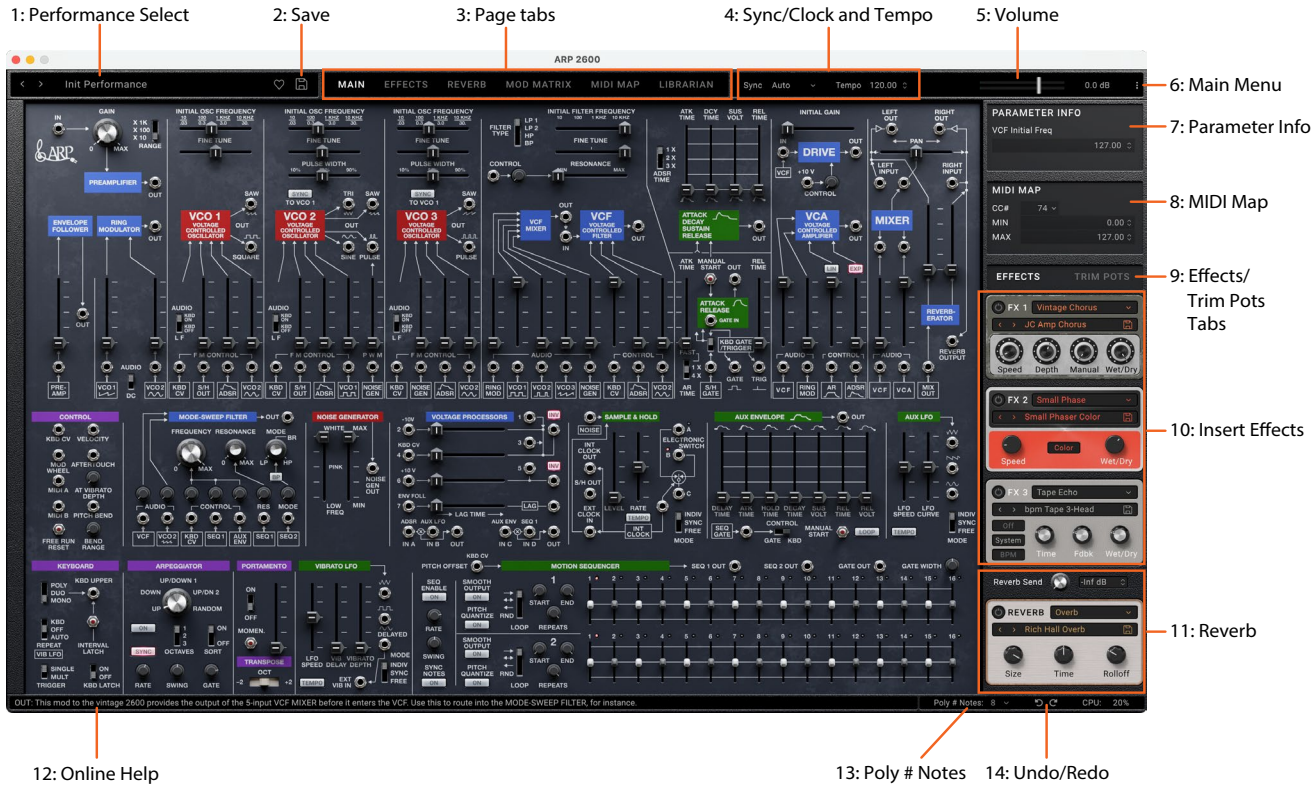
Your software license is registered to your Korg ID. You can download the Korg Software Pass application and manage your Korg ID at https://id.korg.com.

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/ARP 2600/System
- Windows: \Users\Public\Public Documents\KORG\/ARP 2600/\System

Basic page layout



All pages except for the Librarian 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 8). 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 3.

2: Save

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

3: Page tabs

The buttons in the top of the main window select whether you're 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 Edit 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 ARP 2600 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 ARP 2600 uses its internal tempo.
- If MIDI Clocks are being received, they control the tempo. If the clocks stop for more than 500 ms, the ARP 2600 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 12.

7: 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.

8: MIDI Map

This area shows the MIDI Map assignment for the selected parameter. The MIDI Map page (see page 70) shows all of the MIDI Map assignments at once.

9: Effects/Trim Pots tabs

These switches determine whether the panel below shows the compact effects interfaces (IFX 1-3, Reverb Send, and Reverb), or the Trim Pots. You can switch between the two freely.

10: 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 EFFECTS page. In addition to simply clicking on the EFFECTS tab at the top of the window, you can jump there by double-clicking on the background or labels of the compact effects.

For more information, see “EFFECTS” on page 61.

11: 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 65.

Reverb Send

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

12: 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.

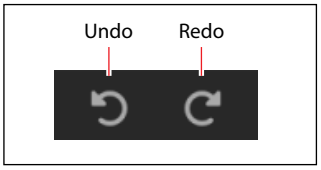
13: Poly # Notes

This sets the polyphony when KEYBOARD is set to POLY. The value is saved in the Performance. Since some 2600 patches don’t require any note-ons to make sound, the specified number of voices runs all the time, and uses CPU resources regardless of whether or not notes are being played.

14: Undo/Redo

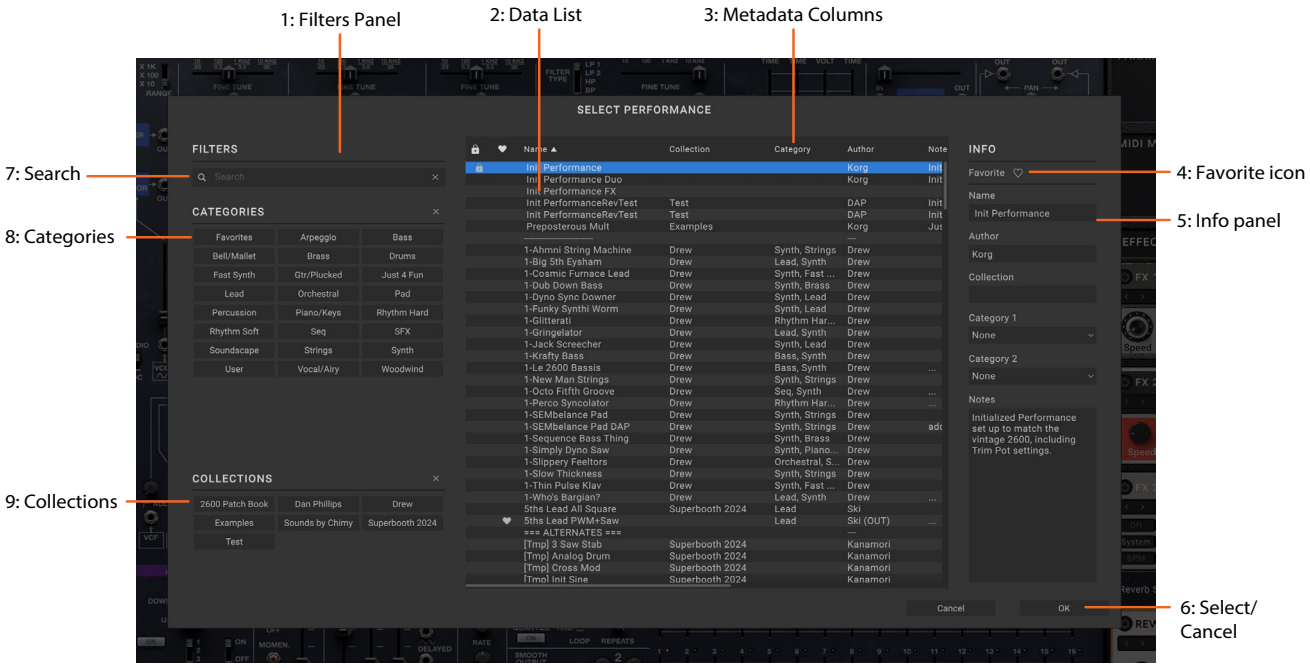
The ARP 2600 supports multiple levels of undo and redo for most actions, including importing data, deleting, renaming, editing Set Lists, editing parameters, and so on. For instance, you could import a bundle file containing a thousand objects, edit INITIAL FILTER FREQUENCY, rename all of your Performances, and finally add a new modulation routing to ADSR ATTACK, 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 Edit pages. The names of the undo/redo commands change to reflect this; for example, “Editor Undo: Value Change: Initial Frequency” or “Librarian Undo: Update Name.”

Sound Browser



Overview

The Sound Browser is used for selecting sound data, such as Performances, Effects Presets, and Scales. 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 15.

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 ARP 2600 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 3.

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

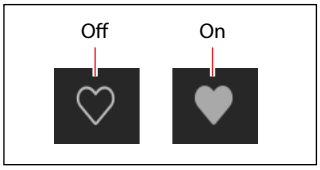
For each item, the list shows the Name, Collection, Category, Author, and Notes, as well as whether or not the item is locked factory data. You can drag the tops of the columns to re-arrange them, or to resize the columns.

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 Effects Presets, you don't have to do so: all data is contained in the Performance.

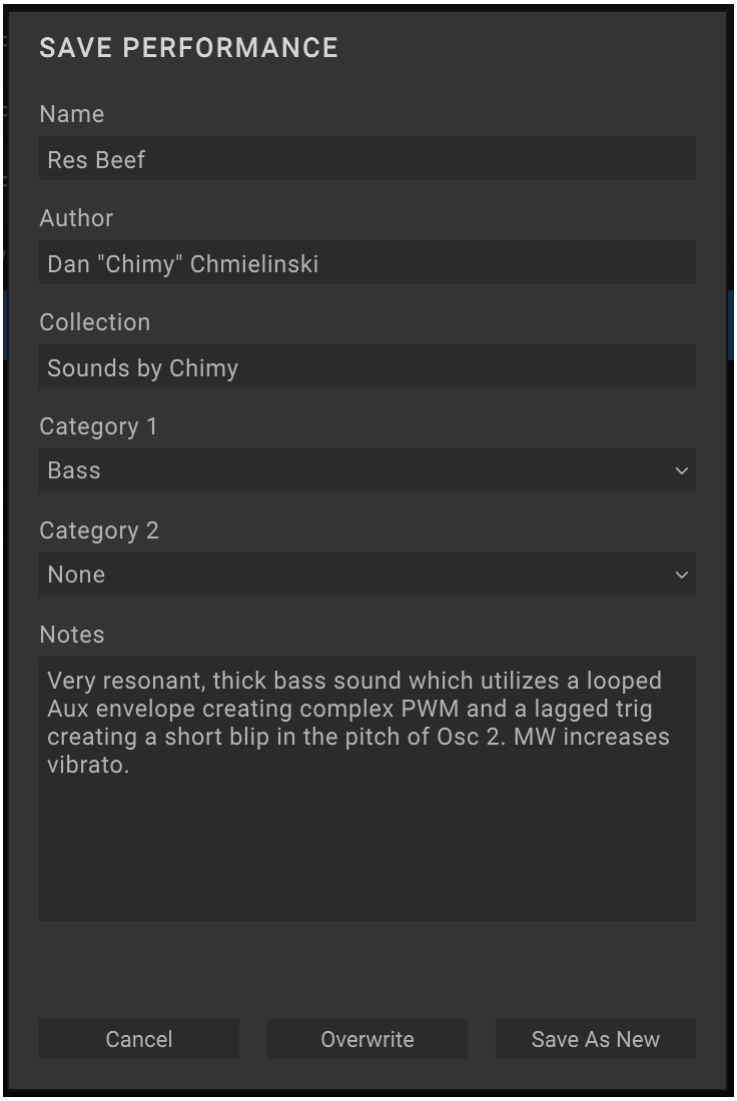
Similarly, when you load Effects Presets into a Performance, a new copy of the data is created in the Performance. Any edits affect only the local copy inside the Performance, and not the original data. This lets you edit freely without worrying about affecting other sounds.

To save a sound or preset:

1. **Go to the Selector for the sound or preset. For more information, see "Selectors" on page 3.**
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

As described above, Performances store all of the data for their Effects Presets, 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.

MIDI Map

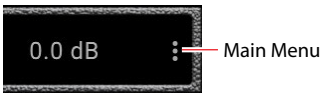
The MIDI Map is for programming or entering automation from a MIDI controller. MIDI Map entries let you assign parameter values for both the maximum and minimum controller values (e.g. CC values of 0 and 127), and then interpolate between them. Control via the MIDI Map edits the parameter values, and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

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, Scale and 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 Scale and Set List selection, velocity and aftertouch curves, interface options, and more. See "Settings" on page 13.

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 74.

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 ARP 2600 database) with the suffix "arp2600midimap." 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 ARP 2600 database) with the suffix "arp2600midimap." 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.

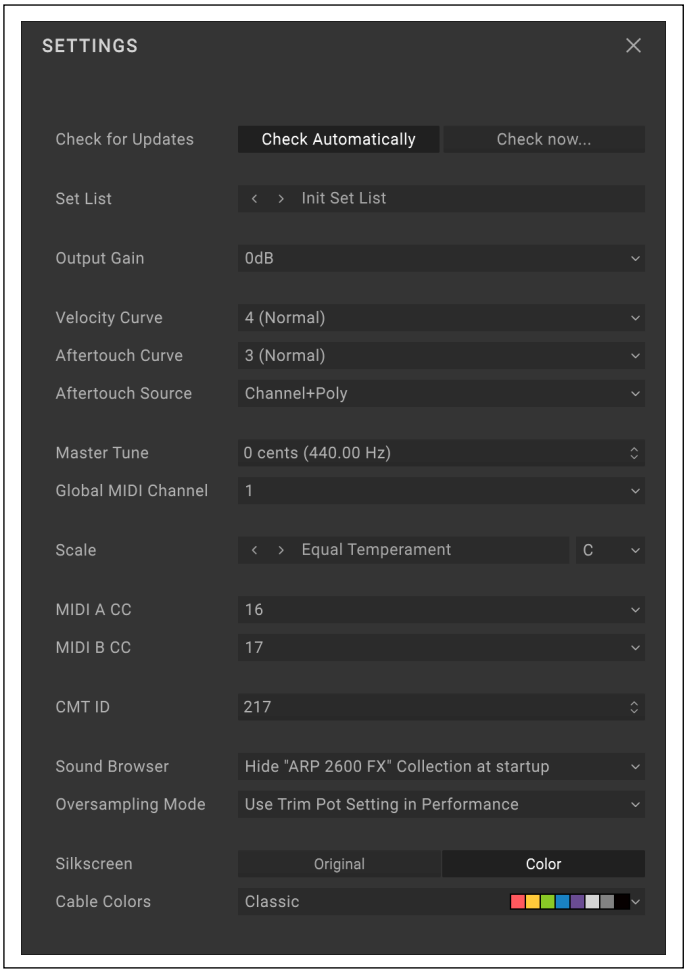
Open Help Center

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

About

This shows the software version number and abbreviated credits. ARP 2600 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]

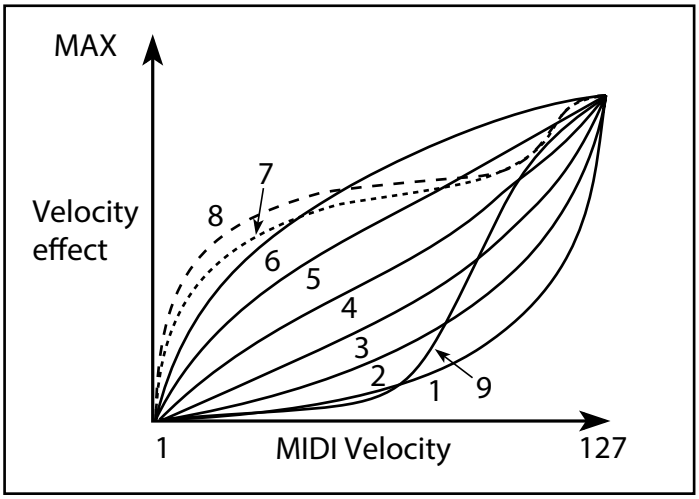
Increases the overall output of the plug-in by up to 12 dB. The default is 0 dB.

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.

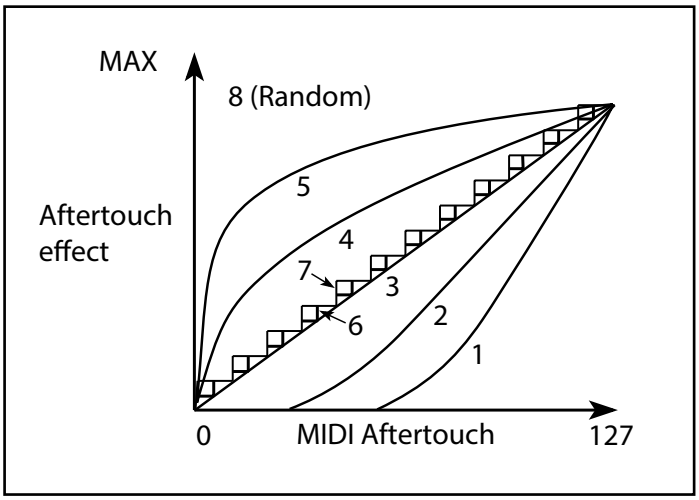
9 (Wide): This curve is designed for the heavier touch of weighted keyboards.

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.

SST Hold Time

[0 ms…60 sec]

This controls the duration of Smooth Sound Transitions. It sets how long reverbs, delays, and note releases continue to ring out after a new sound has been selected. The timer starts after all notes from the previous sound are no longer being held down, and the sustain pedal is released.

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 Scale is set to Equal Temperament. If a different Scale is selected, the actual frequency of A4 may be different.

Global MIDI Channel

[1…16]

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

Scale

[List of scales]

This selects a microtuning scale. The selection is saved globally for the standalone application, and separately for each plug-in instance in a DAW session. The default is Equal Temperament. For more information, see "Scales" on page 77.

(Scale Key)

[C...B]

This sets the root key of the scale. Key applies only to repeating 12-note scales.

Note: Specific combinations of Scale and Key may skew the reference tuning pitch. For example, A4 might become 442 Hz, instead of 440 Hz. Use Master Tune to correct this, if necessary.

MIDI A CC and MIDI B CC

These selects MIDI Continuous Controllers (CCs) for the patch panel's MIDI A and MIDI B jacks. The jacks convert the CCs to control voltages, for use in the 2600 patching system.

Sound Browser

The ARP 2600 includes an audio input, accessed via the PREAMPLIFIER. The input is available in the standalone application and the ARP 2600 FX plug-in, but not in the ARP 2600 instrument plug-in. Sounds which use the audio input should be tagged with the Audio In Category. Additionally, factory sounds which use the audio input are in the ARP 2600 FX Collection.

Based on these tags, 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. This Sound Browser preference enables or disables the default filtering. Regardless of this setting, you can still change the Category and Collection filtering manually after startup.

Show all sounds at startup: This shows all sounds, regardless of their Category and Collection settings.

Show only "Audio In" Category at startup: This option is available for the ARP 2600 FX plug-in. At startup, only sounds in the Audio In Category will be shown.

Hide "ARP 2600 FX" Collection at startup: This option is available for the ARP 2600 instrument plug-in and the standalone application. At startup, sounds in the ARP 2600 FX Collection will be hidden.

Oversampling Mode

[Use Trim Pot Setting in Performance, Always Use 2x, Always Use 4x]

This lets you globally override the per-Performance **Oversampling** setting (see "Oversampling" on page 58).

Use Trim Pot Setting in Performance: Performances use their individual Oversampling settings.

Always Use 2x: Oversampling is always set to 2x, regardless of the Performance settings. Use this to optimize CPU usage.

Always Use 4x: Oversampling is always set to 4x, regardless of the Performance settings. Use this to optimize audio quality.

Silkscreen

Original is the classic ARP 2600 black-and-white silkscreen. Color is a color-coded version with red for audio sources, blue for processors, green for mod sources, and purple for controllers.

Cable Colors

This selects a color scheme for the patch cables.

CMT ID

Each voice's VCOs, 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 59.

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.

Bi-directional jacks

Some jacks can be either inputs or outputs. The ELECTRONIC SWITCH is bi-directional, and its jacks are set as inputs or outputs based on the first connection made to the module. The KBD GATE, TRIGGER, and VCO 1-3 SAW jacks are normally outputs, but each can also be configured as an input. To do so, right-click on the jack to bring up the contextual menu, and select "Set As Input." To revert to being outputs, right-click again and select "Set As Output."

Multiples (aka Mults)

In hardware, you need dedicated jacks or special cables to route a single output to multiple destinations. The vintage 2600 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 the REVERB OUTPUT, 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 16.

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.

Color coding of modules

The first version of the vintage 2600 used a white silkscreen over a dark gray panel. We've provided this design for those who prefer its simplicity. We've also created a new version, with color coding to distinguish four types of modules:

- Red for signal generators
- Blue for signal processors
- Green for modulation sources
- Purple for control modules

You can choose the version that you prefer in the Settings window; see "Silkscreen" on page 16.

Knobs and sliders

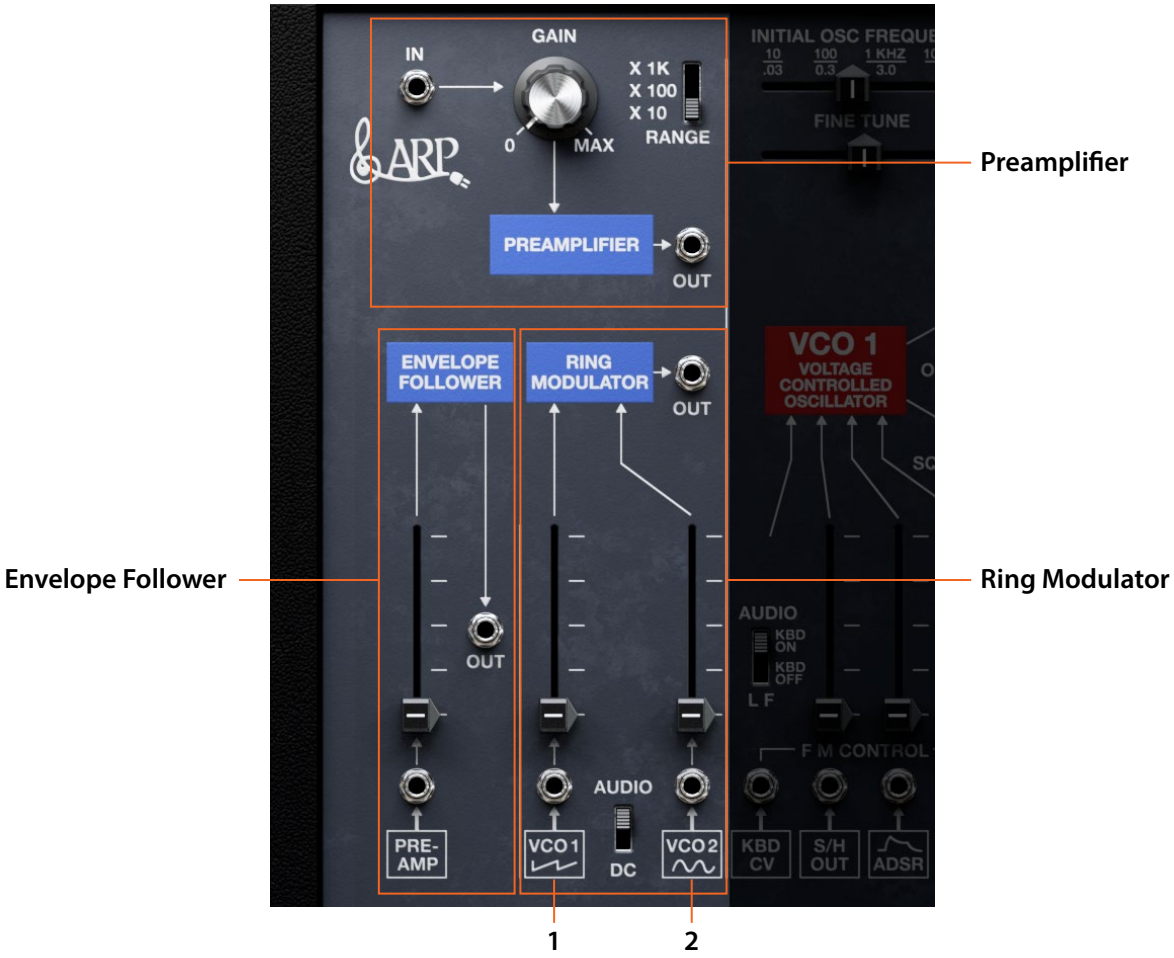
To edit knob values, drag vertically. To edit slider values, drag in the direction of the slider.

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

Hold SHIFT while dragging OSC INITIAL FREQUENCY to snap to octaves, or while dragging Motion Sequencer Step values to snap to semitones.

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

Preamp, Envelope Follower, & Ring Mod



PREAMPLIFIER

Unlike the VCA, the PREAMPLIFIER can both cut and boost signal levels. The RANGE switch controls the maximum amount of gain; the GAIN knob controls level. At high gain, it saturates and can be used as an overdrive.

Processing audio with the ARP 2600

In the standalone application and ARP 2600 FX plug-in, the IN jack (the input to the PREAMPLIFIER) is normalled to the audio input. This lets you process external audio through the patch panel–try triggering envelopes with drums, overdriving the preamp for saturation, or using rhythmic filters on electric guitars.

You can also use external audio as a modulation source, either directly or via the Envelope Follower. This can produce interesting results with sounds played from the keyboard; for instance, you can use a drum loop to modulate the filter on a string pad. The ARP 2600 FX plug-in receives MIDI, so you can use it to add audio processing or control to any sound in the database.

Sounds which use the audio input should be tagged with the Audio In Category. Additionally, factory sounds which use the audio input are in the ARP 2600 FX Collection. For an option to automatically filter the Sound Browser according to these tags, see “Sound Browser” on page 15.

IN jack

This is the input to the PREAMPLIFIER. In the standalone application and ARP 2600 FX plug-in, this is normalled to the effect input; when running as an instrument, there is no normalled connection.

GAIN

Boosts or attenuates the input. The RANGE switch controls the maximum amount of gain. Unity gain is 43, 19, or 4.5 with RANGE at X10, X100, and X1K respectively.

RANGE

RANGE sets the maximum boost from the GAIN knob. X 10 = 20 dB; X 100 = 40 dB; X 1K = 60 dB. Generally, start low and work your way up.

OUT jack

This is the output of the PREAMPLIFIER. To hear the signal, you'll need to patch this somewhere - such as an input to the VCF or VCA.

ENVELOPE FOLLOWER

This module converts an audio signal to a control voltage (CV), for modulating filters, VCOs, etc.

(In)

This is the input to the ENVELOPE FOLLOWER. It's normalled to the PREAMPLIFIER output. The level is controlled by the slider above.

(Level)

The slider adjusts the Envelope Follower's input level. At maximum, 1V P-P square wave input produces +10V output. The output takes 10 ms to reach 50% of input level, and 30 ms to reach 90%.

OUT

This is the CV output of the ENVELOPE FOLLOWER. The signal is also normalled as an input to the LAG PROCESSOR.

RING MODULATOR

In addition to being an audio effect, this module can serve as a VCA (with one audio input and one CV input), or multiply modulation signals to combine (for example) an envelope and an LFO.

(Input Coupling Mode)

AUDIO: removes DC offset from the input signal. Use this for normal ring modulation.

DC: preserves DC offset in control voltages. Use this to scale an input (either CV or audio) with a control signal, such as scaling an LFO via the ADSR.

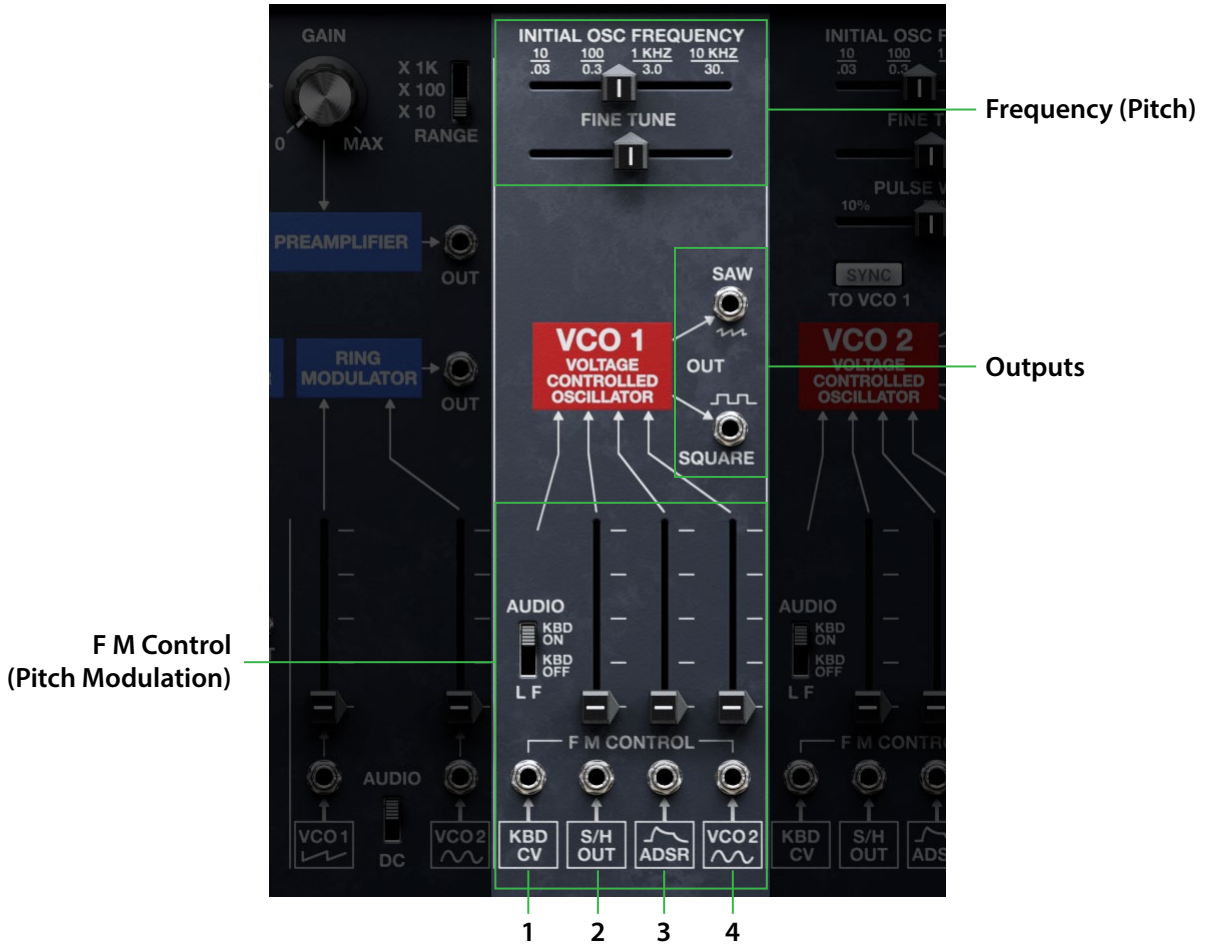
(Inputs 1 and 2)

These are the two inputs to the RING MODULATOR. They act identically; you don't need to be concerned about carriers vs modulators. The sliders adjust the levels for their respective inputs.

OUT

This is the output of the RING MODULATOR. The signal is also normalled as an input to both the VCF and the VCA.

VCO 1



The vintage 2600 had no duplicate modules. VCO 1 is the simplest of the three oscillators, and also serves as the Sync source. You can use both waveforms simultaneously. All VCOs can also be used as LFOs, via the AUDIO/LF switch.

Frequency (Pitch)

INITIAL OSC FREQUENCY

This controls the tuning of the VCO, from -46.00 to +77.00 semitones. The silkscreen's Hz values are approximate. Hold SHIFT while adjusting to snap to octaves. The vintage 2600 didn't restrict VCOs to stepped octave tuning.

FINE TUNE

This detunes the oscillator by up to +/- 250 cents. Double-click to reset to 0.

F M Control

"F M" stands for Frequency Modulation, also known as pitch modulation. There are four inputs for modulating the frequency. The first is normalled to the keyboard, and has no slider to control the amount. The remaining three look similar, but internally their ranges are different, as described below.

(Range)

[Audio, L F]

Sets VCO 1's frequency range, via both the INITIAL OSC FREQUENCY slider and CV input.

AUDIO/KBD ON sets the range to 10Hz…10KHz, with keyboard control.

L F (Low Frequency)/KBD OFF sets the range to .03Hz…30Hz and disconnects the keyboard. You can manually patch the keyboard CV back into the jack, if desired.

(F M Control 1)

This CV input modulates VCO 1's frequency without control of intensity (no slider above). It's normalled to the keyboard, but the keyboard is disconnected if LF/KBD OFF is selected above. This is the CV input to use when precise control of pitch is desired.

(FM Control 2)

This modulates the pitch of VCO-1, with a high intensity (max ~1 Volts/octave). It's not calibrated, so it will not produce exact pitch results with the KBD CV. It is normalled to the SAMPLE & HOLD output.

(FM Control 3)

This modulates the pitch of VCO-1, with a medium intensity (max ~2.3 Volts/octave). It is normalled to the ADSR output.

(FM Control 4)

This modulates the pitch of VCO-1, with a low intensity (max ~4.9 Volts/octave). It is normalled to the VCO 2 SINE output.

Outputs

SAW

This is VCO 1's saw wave output. You can use this and the SQUARE output simultaneously. See also "Using the SAW jack as an input" on page 25.

SQUARE

This is VCO 1's square wave output. You can use this and the SAW output simultaneously. The VCO 1 Square Width Trim Pot adjusts the width of the pulse, for timbre variation.

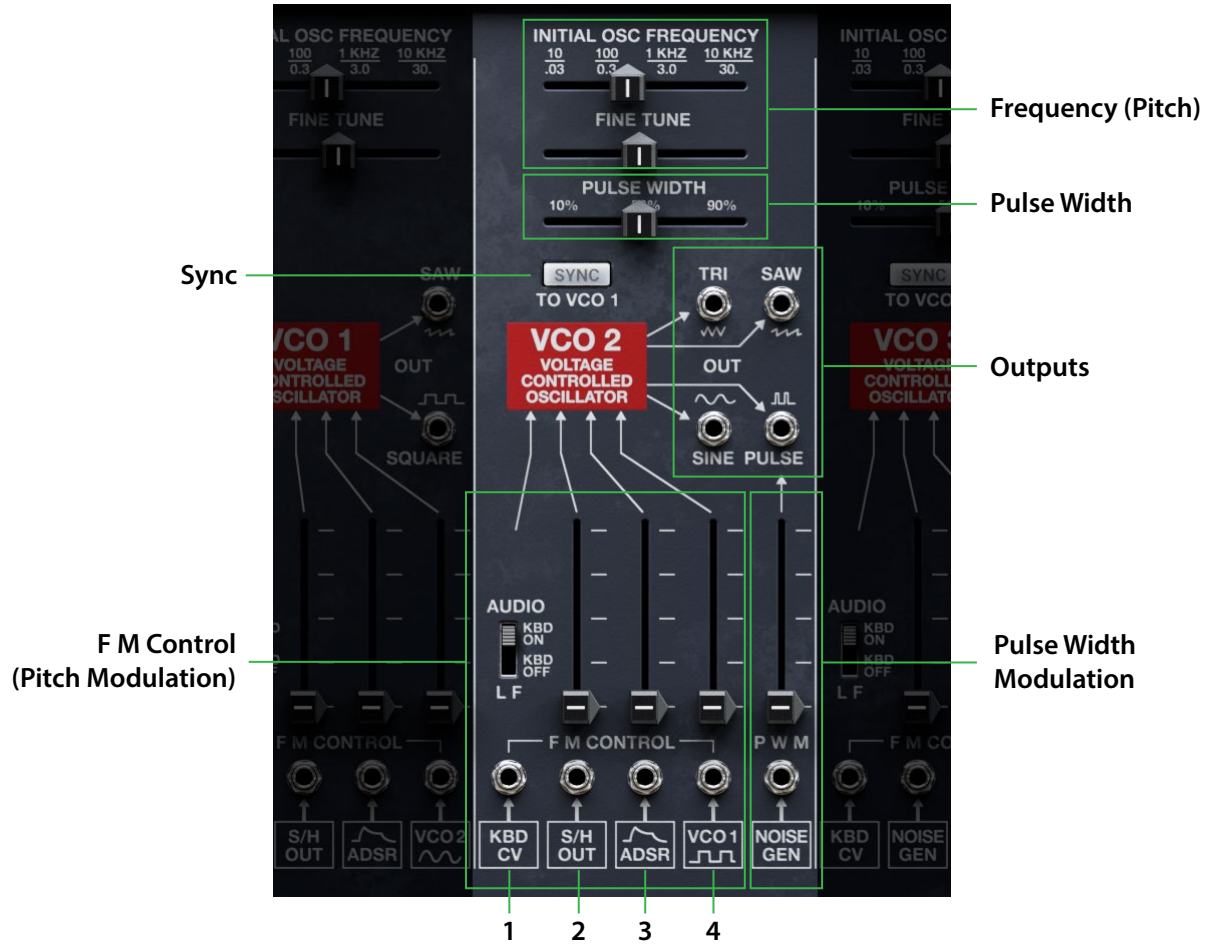
Related Trim Pots

VCO 1 Square Width

[40.00%…60.00%]

This adjusts the duty cycle of the VCO 1 Square Wave between 40% and 60%. The vintage 2600 included this trim pot for calibration, but it's also useful for timbral variation.

VCO 2



Overview

You can use all four waveforms simultaneously. The TRIANGLE is based on the SAW, and the SINE is based on the TRIANGLE. Tri Symmetry and Tri Offset trim pots adjust timbres of both TRIANGLE and SINE.

Frequency (Pitch)

INITIAL OSC FREQUENCY

This controls the tuning of the VCO, from -46.00 to +77.00 semitones. The silkscreen's Hz values are approximate. Hold SHIFT while adjusting to snap to octaves.

FINE TUNE

This detunes the oscillator by up to +/- 250 cents. Double-click to reset to 0.

Pulse Width

PULSE WIDTH

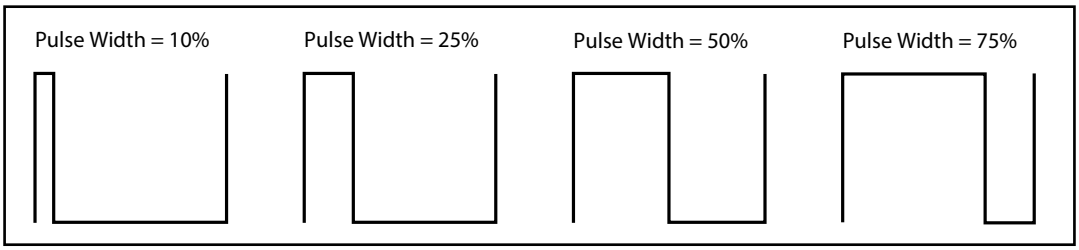
Pulse waveforms are simple, rectangular shapes. PULSE WIDTH sets the percentage of the waveform spent in the "up" position. A few examples are shown in the diagram below. Note that a square wave is just a pulse with the width set to 50.

The width controls the timbre of the oscillator, from pure and hollow at 50 to thin and reedy at the extremes.

At settings of 0 and 100–or when Pulse Width is modulated to these values–the pulse wave will be silent, since these eliminate the "pulse" altogether.

The real magic of the pulse wave comes when you modulate the width . Try using a medium-speed triangle LFO, or a sweeping envelope; see "P W M," below.

Pulse waveform at different widths



P W M

"P W M" stands for Pulse Width Modulation.

(PWM Control)

This CV input controls audio-rate modulation of the Pulse Width, with the center value set by the PULSE WIDTH slider. The jack is normalled to the NOISE output; for modern PWM, try patching in an LFO instead.

Sync

SYNC TO OSC 1

This mod to the vintage 2600 resets VCO 2 at the frequency of VCO 1. All of VCO 2's pitch-related controls will affect its timbre, rather than its pitch. Try setting the ADSR FM Control slider to around 85%.

F M Control

"F M" stands for Frequency Modulation, also known as pitch modulation. There are four inputs for modulating the frequency. The first is normalled to the keyboard, and has no slider to control the amount. The remaining three look similar, but internally their ranges are different, as described below.

(Range)

[Audio, L F]

Sets VCO2's frequency range, via both the INITIAL OSC FREQUENCY slider and CV input.

AUDIO/KBD ON sets the range to 10Hz…10KHz, with keyboard control.

L F (Low Frequency)/KBD OFF sets the range to .03Hz…30Hz and disconnects the keyboard. You can manually patch the keyboard CV back into the jack, if desired.

(F M Control 1)

This CV input modulates VCO 2's frequency without control of intensity (no slider above). It's normalled to the keyboard, but the keyboard is disconnected if LF/KBD OFF is selected above. This is the CV input to use when precise control of pitch is desired.

(FM Control 2)

This CV input modulates the pitch of VCO-2, with a high intensity (max ~1 Volts/octave). It's not calibrated, so it will not produce exact pitch results with the KBD CV. It is normalled to the SAMPLE & HOLD output.

(FM Control 3)

This CV input modulates the pitch of VCO-2, with a medium intensity (max ~2.3 Volts/octave). It is normalled to the ADSR output.

(FM Control 4)

This CV input modulates the pitch of VCO-1, with a low intensity (max ~4.9 Volts/octave). It is normalled to the VCO 1 square-wave output.

Outputs

You can use all four waveform outputs simultaneously.

TRI

This is VCO 2's triangle wave output. The VCO 1 Tri Symmetry and Tri Offset Trim Pots adjust the shape of the triangle; see "Related Trim Pots," below.

SAW

This is VCO 2's saw wave output. See also "Using the SAW jack as an input," below.

SINE

This is VCO 2's sine wave output. On the vintage 2600, this waveform was phase-inverted; you can control this via the VCO2 Sine Invert Trim Pot. The Sine is generated from the Triangle, and so is affected by the Triangle trim pots.

PULSE

This is VCO 2's pulse wave output.

Using the SAW jack as an input

For special applications, each of VCO 1/2/3's SAW jacks can also be configured as inputs. To do so, right-click on the jack to bring up the contextual menu, and select "Set As Input." To revert to being an output, right-click again and select "Set As Output."

Mixing two saw waves

One application is to combine two saw waves without need for a mixer. For example, configure VCO 1's SAW jack as an input, and connect it to VCO 3's SAW output. The two saw waves are then mixed together wherever either appears on the patch panel, including the RING MODULATOR VCO 1 input and the VCF MIXER's VCO 3 input. The original 2600 Patch Book's "Ceremonial Gong" sound uses this to good effect.

Using the PULSE output as an on/off switch

Another application is to convert a continuous modulation signal into a stepped on/off control. For instance, connect the SAW input to a VOLTAGE PROCESSOR output, and then use the PULSE output as a control signal. The pulse waveform will freeze, as if its frequency was set to 0 Hz. The voltage at the SAW input then chooses a position along the pulse waveform's cycle; see the diagram "Pulse waveform at different widths" on page 24.

During the "up" portion of the waveform, the PULSE jack outputs about 10 V. During the "down" portion, it outputs 0 V. The PULSE WIDTH controls the split point between ~10 V and 0 V. The 2600 Patch Book's "Split Keyboard: Bass 'OW' and Violin" sound uses this technique to create the keyboard split.

Note: inputs below the split point produce the "high" ~10 V output, and inputs above it produce the "low" 0 V output.

Related Trim Pots

VCO 2 Tri Symmetry

[-100.00…+100.00]

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. Note that both of the "Tri" Trim Pots affect both the Triangle and Sine waves, since the Sine is generated from the Triangle.

VCO 2 Tri Offset

[-100.00…+100.00]

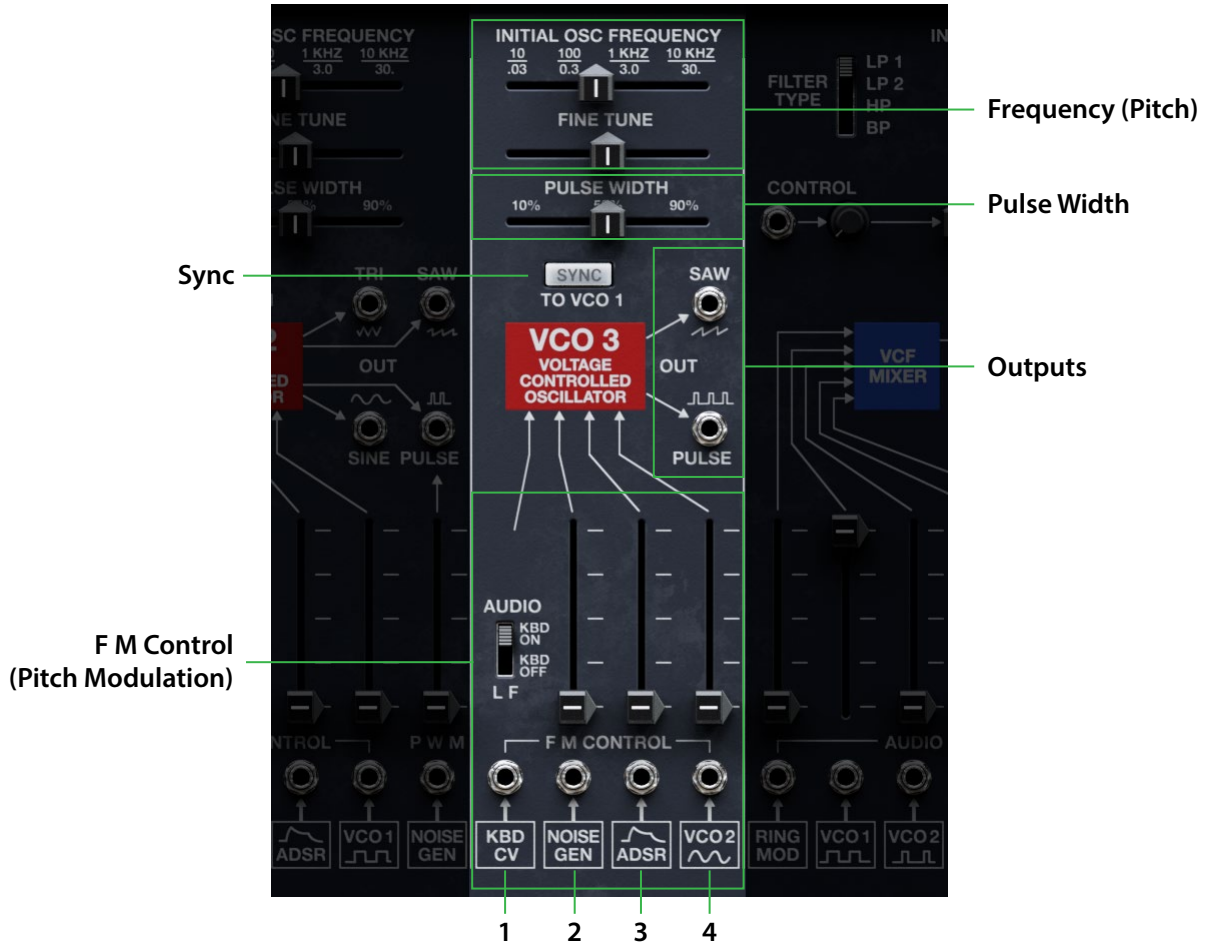
This adjusts the offset of the triangle waveform relative to DC. Values greater or less than 0 will cause the waveform to clip, creating additional harmonics.

VCO 2 Sine Invert

[Off, On]

On the vintage 2600, many phase inversions happened naturally due to the circuitry. The VCO 2 sine wave is one example. Here, the inversion can be either enabled or disabled, as desired. Note that the inversion is useful when combining with other VCO 2 waveforms!

VCO 3



There were no duplicate modules on the vintage 2600. In comparison to VCO 1, VCO 3 adds Pulse Width and (in a mod from the vintage 2600) Sync. In addition to normal audio or LFO duties, VCO 3 makes unusual special-effects timbres using the NOISE GENERATOR as a modulator.

Frequency (Pitch)

INITIAL OSC FREQUENCY

This controls the tuning of the VCO, from -46.00 to +77.00 semitones. The silkscreen's Hz values are approximate. Hold SHIFT while adjusting to snap to octaves.

FINE TUNE

This detunes the oscillator by up to +/- 250 cents. Double-click to reset to 0.

Pulse Width

PULSE WIDTH

PULSE WIDTH controls the width of the top of the pulse waveform. 50% is a square wave, sounding pure and hollow. At the extremes, approaching 0% and 100%, the timbre becomes thin and reedy. For more information, see "Pulse Width" on page 23.

Sync

SYNC TO OSC 1

This mod to the vintage 2600 resets VCO 3 at the frequency of VCO 1. All of VCO 3's pitch-related controls will affect its timbre, rather than its pitch. Try setting the ADSR FM Control slider to around 85%.

F M Control

"F M" stands for Frequency Modulation, also known as pitch modulation. There are four inputs for modulating the frequency. The first is normalled to the keyboard, and has no slider to control the amount. The remaining three look similar, but internally their ranges are different, as described below.

(Range)

[Audio, L F]

Sets VCO 3's frequency range, via both the INITIAL OSC FREQUENCY slider and CV input.

AUDIO/KBD ON sets the range to 10Hz…10KHz, with keyboard control.

L F (Low Frequency)/KBD OFF sets the range to .03Hz…30Hz and disconnects the keyboard. You can manually patch the keyboard CV back into the jack, if desired.

(FM Control 1)

This CV input modulates VCO 3's frequency without control of intensity (no slider above). It's normalled to the keyboard, but the keyboard is disconnected if LF/KBD OFF is selected above. This is the CV input to use when precise control of pitch is desired.

(FM Control 2)

This modulates the pitch of VCO-3, with a high intensity (max ~1 Volts/octave). This is not calibrated, so it will not produce exact pitch results with the KBD CV. It is normalled to the Noise output.

(FM Control 3)

This modulates the pitch of VCO-3, with a medium intensity (max ~2.3 Volts/octave). It is normalled to the ADSR output.

(FM Control 4)

This modulates the pitch of VCO-3, with a low intensity (max ~4.9 Volts/octave). It is normalled to the VCO 2 sine-wave output.

Outputs

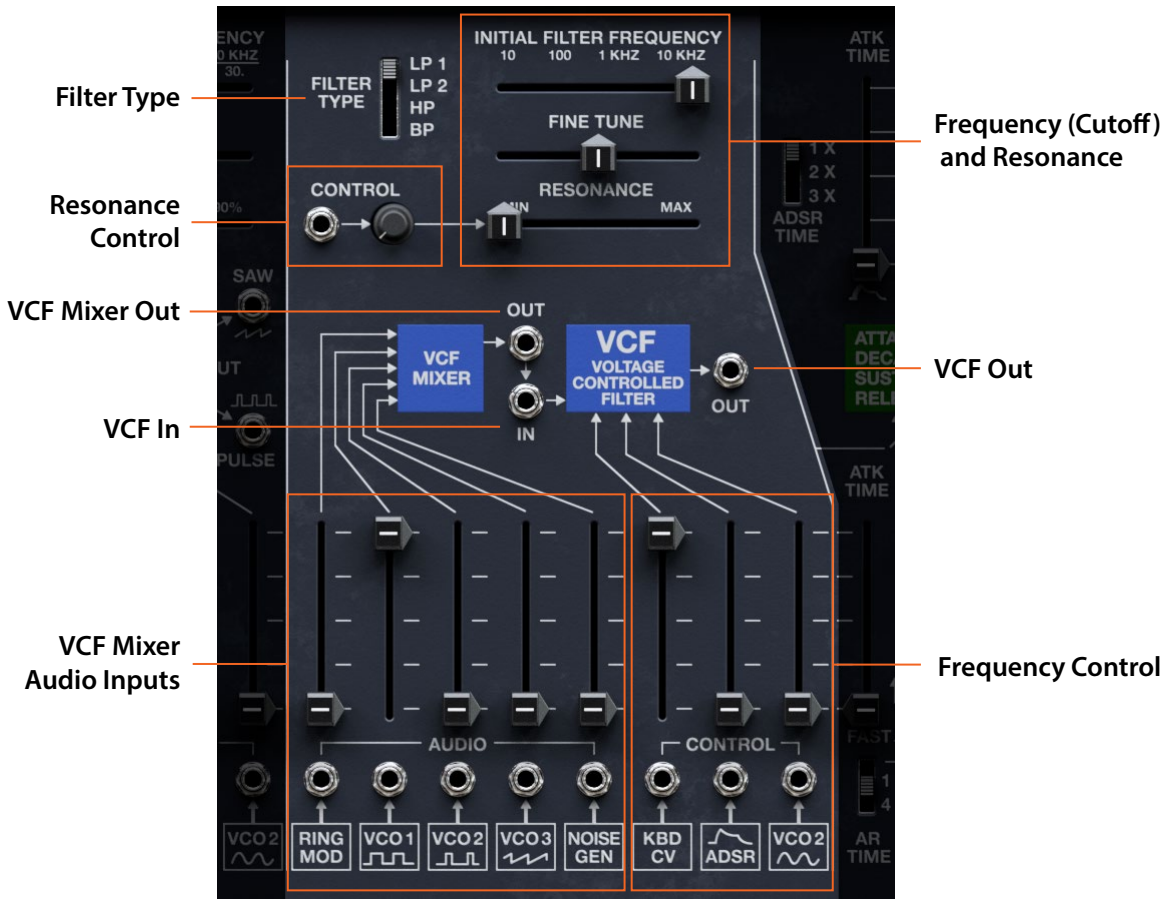
SAW

This is VCO 3's saw wave output. You can use this and the PULSE output simultaneously. See also "Using the SAW jack as an input" on page 25.

PULSE

This is VCO 3's pulse wave output. You can use this and the SAW output simultaneously.

VCF and VCF MIXER



Filter Type

During its 10 years on the production line, the vintage 2600 used two different 4-pole lowpass VCF modules: the 4012 and 4072. We've added a switch to select between the two, plus highpass and bandpass options.

FILTER TYPE

LP 1: This is the ARP 4012 4-pole lowpass module, from early 2600 models. Compared to LP 2, it's more full and rich with medium to high resonance, and the self-resonance point is higher.

LP 2: This is the ARP 4072 4-pole lowpass module, from later 2600 models. Compared to LP 1, it's more aggressive and nasal with medium to high resonance, and the self-resonance point is lower.

HP: This is a self-resonating 4-pole highpass ladder filter, similar in topology to the 4012.

BP: This is a self-resonating 4-pole bandpass ladder filter, similar in topology to the 4012.

Frequency (Cutoff) and Resonance

INITIAL FILTER FREQUENCY (Cutoff)

INITIAL FILTER FREQUENCY controls the VCF's cutoff frequency. The silkscreen's Hz values are approximate. Numeric values show semitones in MIDI note numbers; 60.00 = middle C. For pitch tracking, use 48, 60, 72 etc. with KBD CV slider at max.

FINE TUNE

FINE TUNE allows subtle adjustment to the filter cutoff frequency. To open the filter completely, set both INITIAL FREQUENCY and FINE TUNE to the maximum value (all the way to the right).

RESONANCE

RESONANCE emphasizes frequencies around the cutoff. At medium to high settings, this alters the timbre. At very high settings, the filter "self-resonates" and becomes a separate, whistling pitch.

Resonance Control

CONTROL

This CV input–a mod to the vintage 2600–allows modulation of the VCF Resonance, with the amount set by the knob on the right.

VCF MIXER Audio Inputs

In the vintage 2600, this mixer was hard-wired to the VCF input. We've added a mod so that its output can be re-routed as desired; see "OUT (VCF Mixer Out)" on page 30. Patch it into the MODE-SWEEP FILTER, for instance.

(Input jacks 1…5)

The VCF Mixer has five audio inputs, each with a slider to control level. Each has a different normalled connection, as shown in the table below, but aside from that they are identical.

Input	Normalled to…
1	RING MODULATOR
2	VCO-1 SQUARE
3	VCO-2 PULSE
4	VCO-3 SAW
5	NOISE GENERATOR

Frequency Control

There are three inputs for modulating the frequency. The first is normalled to the keyboard, and has no slider to control the amount. The remaining three look similar, but internally their ranges are different, as described below.

(Frequency Control 1)

This CV input modulates the VCF cutoff frequency. It's normalled to the KBD CV, and is the only input calibrated for 1 Volt/octave pitch modulation. On the vintage 2600, this input had no slider to control level; we've added one as a modification, so that it's easier to fine-tune the filter's response to pitch.

(Frequency Controls 2 and 3)

These two CV inputs modulate the VCF cutoff frequency. The range is slightly wider than the first CV input, at ~0.93 Volts/octave. They are normalled to the ADSR and VCO 2 SINE, respectively.

Inputs and Outputs

OUT (VCF Mixer Out)

This mod to the vintage 2600 provides the output of the 5-input VCF MIXER before it enters the VCF. Use this to route into the MODE-SWEEP FILTER, for instance.

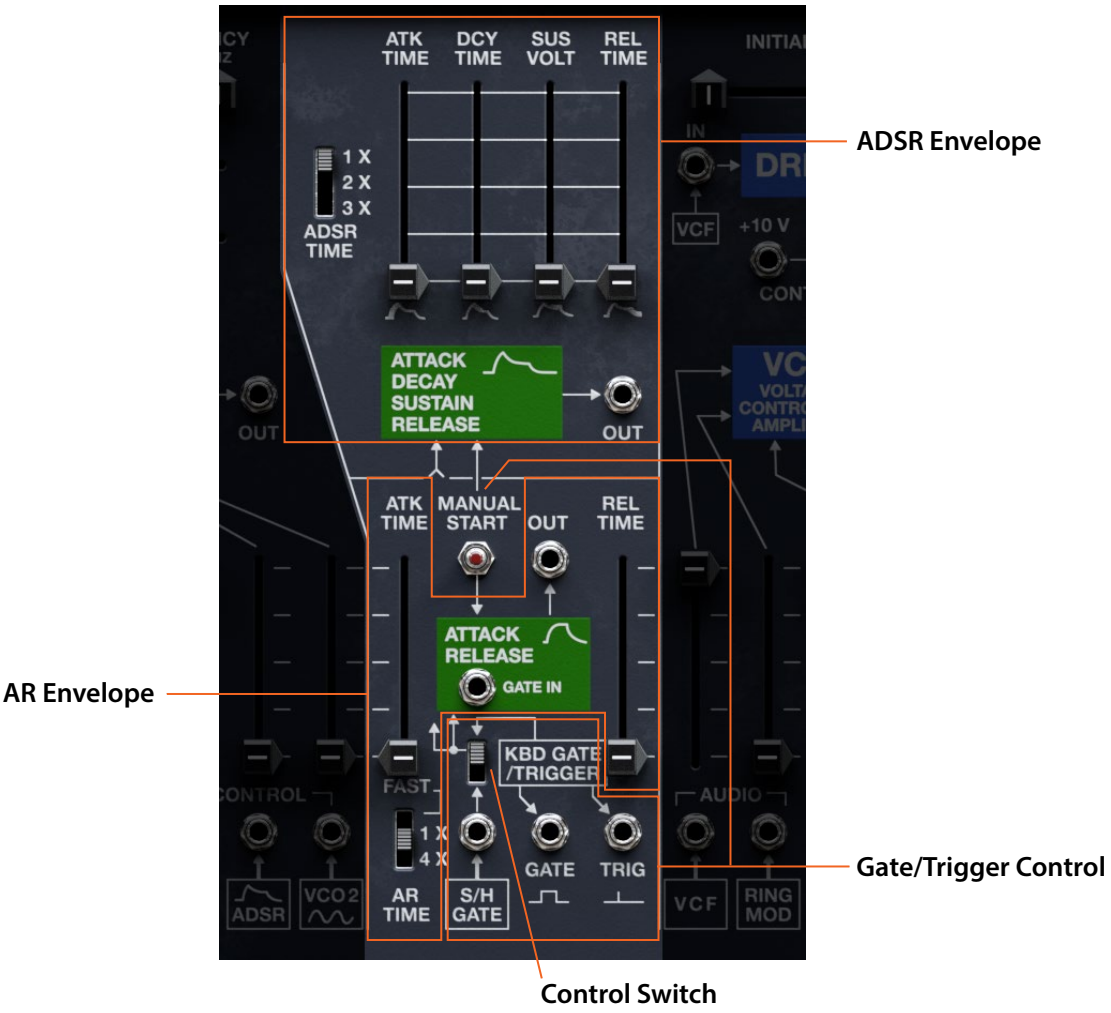
IN (VCF In)

This is the audio input to the VCF–a mod to the vintage 2600. It's normalled to the VCF MIXER output.

OUT (VCF Out)

This is the VCF's audio output. The signal is also normalled to the VCA and MIXER inputs.

AR and ADSR Envelopes



ADSR

This is the classic analog envelope, normalled to VCF control. The vintage 2600 had fairly short maximum times; use the ADSR TIME switch to extend them by 2x or 3x.

ATK TIME (Attack Time)

This sets how long the envelope takes to rise to the peak level.

DCY TIME (Decay Time)

This sets how long the envelope takes to settle from the peak to the Sustain level.

SUS VOLT (Sustain Voltage)

This sets the level at the end of the Decay time. Once it reaches the Sustain level, the envelope will stay there until note-off, unless it is restarted via the Trigger/Gate input.

REL TIME (Release Time)

This sets how long it takes the envelope to return to 0 after releasing a note (or after the Gate goes low).

ADSR TIME (ADSR Time Scale)

[1 X, 2 X, 3 X]

Changes the maximum time range of the ADSR controls. The vintage 2600 had fairly short maximum times; this mod allows them to be to 2 or 3 times longer.

OUT

This is the CV output of the ADSR envelope. The signal is also normalled to many control inputs, including all VCOs, VCF, and VCA, as well as one of the VOLTAGE PROCESSOR multipliers.

AR

Internally, this simple envelope is generated by processing the GATE signal through a lag processor.

ATK TIME (Attack Time)

This sets how long the AR envelope takes to rise to the peak level.

REL TIME (Release Time)

This sets how long it takes the envelope to return to 0 after releasing a note (or after the Gate goes low).

AR TIME (AR Time Scale)

[FAST, 1 X, 4 X]

Changes the maximum time range of the AR controls. In comparison to the vintage 2600, this mod allows the AR to be either twice as fast or 4 times slower.

OUT

This is the CV output of the AR envelope. The signal is also normalled to control the VCA.

GATE IN

This mod to the vintage 2600 lets you fire off the AR separately from the ADSR. Note: this isn't just a trigger. The AR is a lag filter; the shape and level of the input influences the shape and level of the AR envelope.

Gate/Trigger Control

MANUAL START

Pressing this switch generates a gate signal, triggering both the ADSR and AR.

Control Switch

[Keyboard, Ext]

Selects whether the ADSR and AR use the gate/trigger from the keyboard, or from the Ext Gate In jack (normalled to S/H GATE).

(Ext Gate In)

AR and ADSR GATE/TRIGGER In: Enabled by the switch above, this replaces keyboard control. It controls the ADSR, and feeds into the AR's lag filter. Use a gate, square/pulse, or downward saw wave. It's normalled to the S/H.

Keyboard Gate/Trigger

Normally, these jacks are the GATE and TRIGGER outputs from the keyboard. Unusually, they can also be individually switched to being inputs, merged with the keyboard; to do so, right-click on the jack and select "Set As Input." To revert to being outputs, right-click again and select "Set As Output."

GATE

Keyboard Gate goes high (+10 V) when the note is held down, and low (0 V) when it is released.

TRIG

Keyboard Trigger sends a brief pulse at the start of the note. In DUO mode, this is affected by the Duo Mode Trim Pot; see "Duophonic Mode" on page 50.

Related Trim Pots

AR/ADSR Gate Type

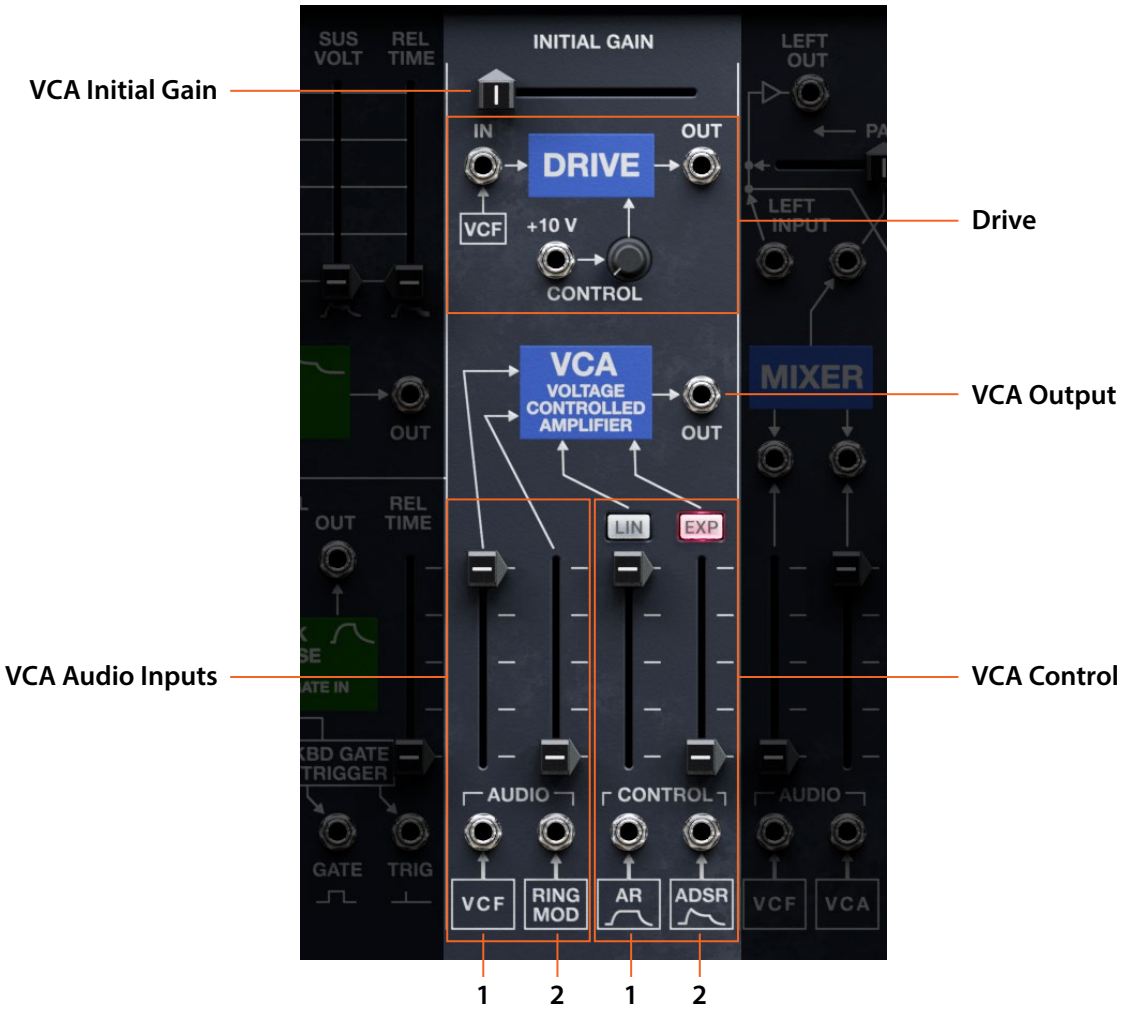
[Old, New]

Controls gate behavior with legato phrases when TRIGGER = MULT.

Old: gate drops with each note in the phrase.

New: gate stays high until all notes are released. Also affects relative timing of CV changes vs trigger.

VCA and Drive



DRIVE

This mod to the vintage 2600 adds a saturation/overdrive circuit. Use it to add harmonics or grit, or to boost low-level signals.

IN

The DRIVE input is normalled to the VCF output.

CONTROL

The knob scales the CONTROL input, and the result sets the gain into the overdrive circuit. The normalled connection is +10V, so if nothing else is patched to the CONTROL jack, the knob sets the gain directly.

OUT

This is the audio output of the DRIVE circuit. To hear the drive, you'll need to patch this somewhere–such as an input to the VCF or VCA.

VCA

VCA stands for "Voltage Controlled Amplifier," which means a circuit that lets you control volume with CV signals. This module includes a two-input mixer followed by a single VCA.

INITIAL GAIN

This slider directly controls the VCA level.

Important: For normal use, leave this slider at zero! If it's non-zero, the VCA remains open even if notes are not played.

(VCA Audio Input 1)

This is the first audio input to the VCA. It's normalled to the VCF output.

(VCA Audio Input 2)

This is the second audio input to the VCA. It's normalled to the RING MOD output. By default this is phase-inverted, as on the vintage 2600; enable/disable inversion via the VCA Aud In 2 Invert Trim Pot; see "VCA Aud In 2 Invert," below.

(VCA Control 1)

This controls the amount of amp modulation from the CV input below, normalled to the AR envelope. On the vintage 2600, this input always had a linear response; switch between LIN and EXP using the button above the slider.

(VCA Control 2)

This controls the amount of amp modulation from the CV input below, normalled to the ADSR envelope. On the vintage 2600, this input always had a exponential response; switch between LIN and EXP using the button above the slider.

LIN/EXP buttons 1 and 2

[LIN, EXP]

On the vintage 2600, Control 1 had a linear response (LIN), and Control 2 had an exponential response (EXP). These buttons let you switch freely between the two.

LIN works well with the AR envelope normalled to Control 1, as well as LFOs.

EXP has much higher maximum gain, and provides punchier attack/decay with the ADSR normalled to Control 2, as well as the Aux Envelope.

OUT (VCA Output)

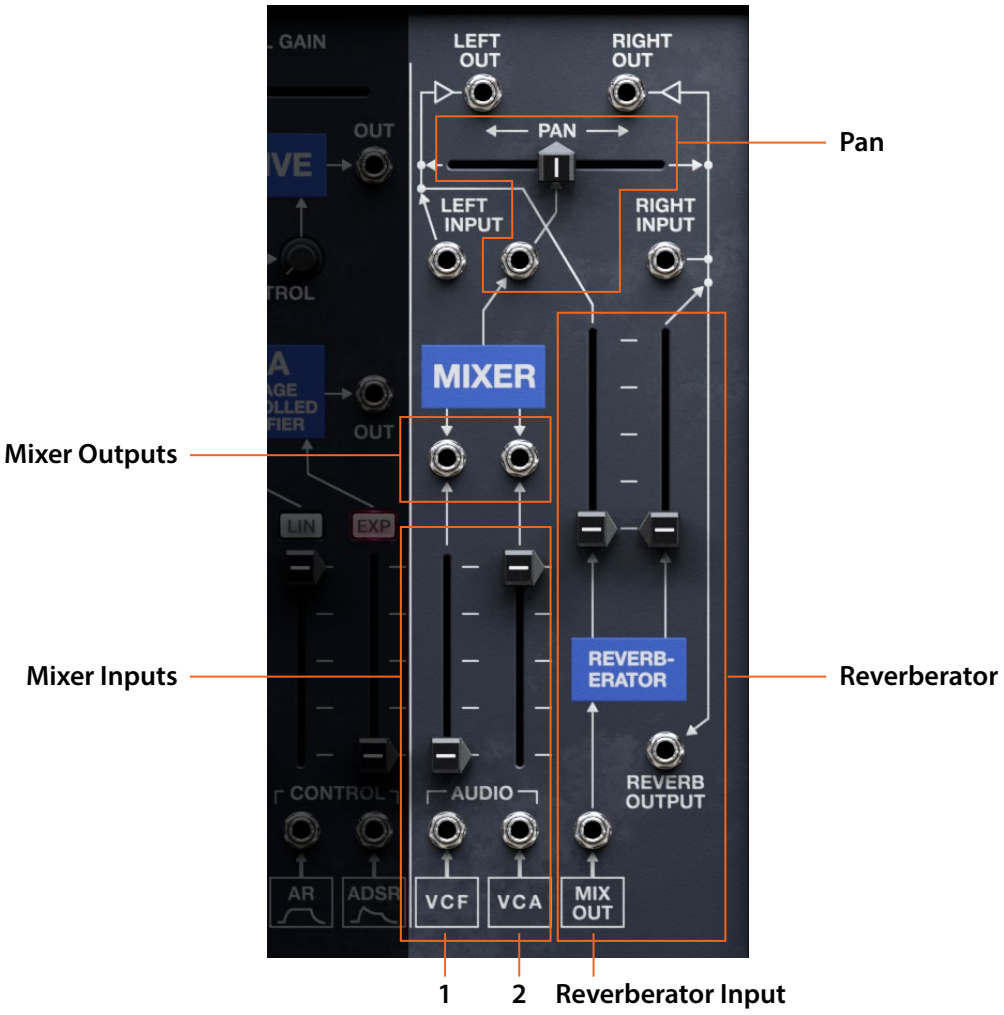
This is the audio output of the VCA. The signal is also normalled to the MIXER input.

Related Trim Pots

VCA Aud In 2 Invert

On the vintage 2600, many phase inversions happened naturally due to the circuitry–including the second input to the VCA. Here, the inversion can be enabled or disabled as desired.

Mixer, Outputs, and Reverberator



Pan

PAN

This slider pans the input signal between the LEFT OUT and RIGHT OUT. The input, below, is normalled to the MIXER output.

MIXER

This can serve either as a two-in, one-out mixer, or as two independent signal attenuators.

(Mixer Inputs 1 and 2)

These are the inputs to the main MIXER, normalled to the VCF output and VCA output respectively.

(Mixer Outputs 1 and 2)

These are the outputs from the two MIXER channels. Connecting a cable removes the channel from the mixer output, so that you can use it as a stand-alone attenuator for either audio or CV signals.

Inputs and Outputs

LEFT INPUT and RIGHT INPUT

These audio inputs are added to the output of the PAN control, mixed into the left or right channel respectively.

LEFT OUT and RIGHT OUT

These are the final left-channel and right-channel outputs from the 2600 voice, before it goes to the insert effects. You can use this to create feedback paths.

REVERBERATOR

This spring reverb tank provides lovely vintage ambience. It's a mono reverb; the stereo effect is created by inverting the phase for the right output. You can disable this inversion; see "Reverb R Invert," below.

(Left Level)

This slider controls the REVERBERATOR level for the left output.

(Right Level)

This slider controls the REVERBERATOR level for both RIGHT OUT and REVERB OUTPUT. The vintage 2600 inverted the signal to RIGHT OUT, to create a pseudo-stereo effect. You can disable this inversion; see "Reverb R Invert," below.

(Reverberator Input)

This is the input to the REVERBERATOR. It's normalled to the MIXER output.

REVERB OUTPUT

This is the signal from the REVERBERATOR. Connecting a cable removes the reverb signal from the RIGHT OUT.

Related Trim Pots

Reverb R Invert

The vintage 2600 inverted the reverb signal to RIGHT OUT, to create a pseudo-stereo effect. This is not compatible with mono audio, including some effects (e.g. VOX Wah). This trim pot enables/disables the inversion.

Reverb Type

[2600FS Lo, 2600FS Hi]

This selects the spring reverb tank. *2600FS Lo* is the default. *2600FS Hi* is high volume, and may distort the model's output amps with return levels above 50%.

Mixer Pan Invert

On the vintage 2600, many phase inversions happened naturally due to the circuitry–including the input to the panner. Here, the inversion can be either enabled or disabled as desired.

MIDI Control

Use these jacks to route signals from your MIDI controller into the patch panel.

KBD CV

This represents the current note in Volts per octave (one semitone = 1/12 Volt). When Transpose = 0, C3 = 0 Volts; below that, the CV is negative. In DUO mode, this is the CV for the low note.

VELOCITY

This converts MIDI Velocity into a CV signal.

MOD WHEEL

This converts MIDI Mod Wheel into a CV signal.

AFTERTOUCH

This converts MIDI Aftertouch and/or Poly Aftertouch into a CV signal. To select between channel AT, Poly AT, or both, use Aftertouch Source in the Settings dialog.

AT VIBRATO DEPTH

Aftertouch is hard-wired to modulate Vibrato Depth, as on the Korg ARP 2600 FS. This sets the amount of vibrato when Aftertouch is at maximum.

MIDI A and MIDI B

These convert two user-selectable MIDI CCs into CV signals. To assign the CCs, use the Settings dialog (see “MIDI A CC and MIDI B CC” on page 15). Note that assignments are global, and not per-Performance.

PITCH BEND

This converts MIDI Pitch Bend into a CV signal. The intensity of the signal is scaled by the BEND RANGE knob, below.

BEND RANGE (Pitch Bend Range)

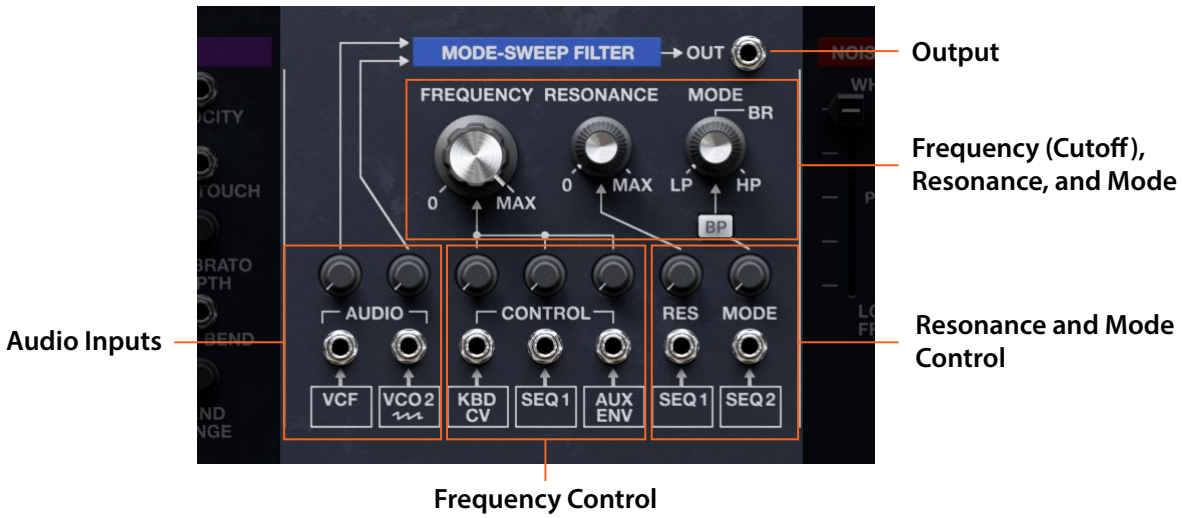
[0.00…24.00]

This controls the depth of MIDI Pitch Bend, in semitones. The Pitch Bend Curve Trim Pot controls the response over the specified range.

FREE RUN RESET

This resets the VIBRATO LFO, AUX LFO, and SAMPLE & HOLD when they are set to FREE (Free Run). To achieve identical results on each playback with a DAW, use automation to trigger this at the start of the sequence.

MODE-SWEEP FILTER



Frequency (Cutoff), Resonance, and Mode

Inspired by a classic "expansion module," this 2-pole, state-variable filter can be swept continuously between lowpass and highpass modes, with band reject in the middle.

FREQUENCY

[-4.00 (6.49 Hz)…+138.00 (23679.65 Hz)]

This sets the MODE-SWEEP FILTER's cutoff frequency, in semitones formatted as MIDI note numbers; 60.00 = middle C. For pitch tracking, use 48, 60, 72 etc. with the KBD CV knob at max.

RESONANCE

Resonance emphasizes frequencies around the cutoff. True to the original hardware version, resonance is mild through most of the knob's range; the effect starts to become audible about halfway up, and only becomes prominent near the top. At maximum, resonance has a gritty whistle, but does not self-oscillate.

MODE

This knob crossfades between lowpass (0.00), band reject (50.00), and highpass (100.00). Intermediate values mix between the modes. Note that this has no effect when the BP (Bandpass) switch is On.

BP (Bandpass)

[Off, On]

Off: The MODE knob controls the filter mode.

On: The filter switches to a bandpass-only mode. MODE will have no effect.

Audio Inputs

(Audio Inputs 1 and 2)

The Mode Sweep Filter has two audio inputs, each with a knob to control level. The first is normalled to the VCF output, for serial filter routing; the second is normalled to the VCO-2 SAW output. Other than the normalled connections, the two inputs are identical.

Frequency, Resonance, and Mode Control

CONTROL (Frequency Control 1…3)

These three CV inputs modulates the Mode Sweep Filter cutoff frequency, scaled by the knobs above, each with a maximum intensity of 1 Volt/octave. They are normalled to the KBD CV, Motion Sequencer SEQ 1, and AUX ENVELOPE outputs, respectively.

RES

This CV input jack modulates the Mode Sweep Filter resonance amount, scaled by the knob above. It's normalled to the Motion Sequencer's SEQ 1 output.

MODE

This CV input jack modulates the Mode setting, from LP through BR to HP, scaled by the knob above. It's normalled to the Motion Sequencer's SEQ 2 output.

Output

OUT

This is the MODE SWEEP FILTER's audio output. To hear the filter, you'll need to patch this somewhere–such as an input to the VCF or VCA.

NOISE GENERATOR

As is common on the 2600, the NOISE GENERATOR serves multiple purposes. It's an audio signal in its own right; it works in conjunction with SAMPLE & HOLD; and it's a modulation source.

(Color)

This controls the frequency content of the noise. It's a continuous slider, but three positions are named: *WHITE*, *PINK*, and *LOW FREQ*.

WHITE is truly random noise, but sounds very bright.

PINK rolls off at 6dB/Oct, and sounds more natural to human ears, like a nearby waterfall.

LOW FREQ is like distant wind or water.

(Level)

This slider controls the level for both the output jack and all normalled connections. Above 50.00 or so, the signal starts to clip (at 20V P-P), increasing RMS level and creating a slightly rougher texture.

NOISE GEN OUT

This is the output of the NOISE GENERATOR. Note that it's affected by the LEVEL slider.

Related Trim Pots

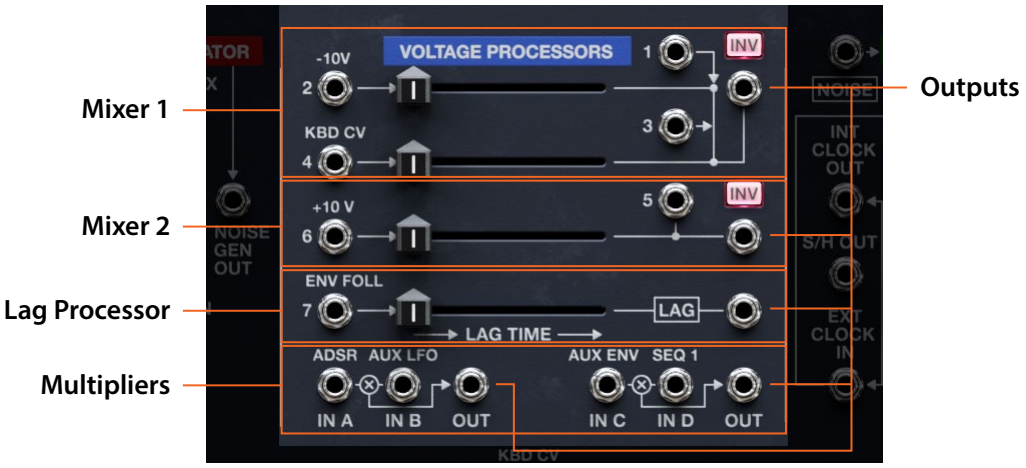
Noise Mode

[Old, New]

Old produces even, broad-spectrum noise.

New produces noise with an emphasis around 3 kHz.

Voltage Processors



These utility modules can mix, multiply, invert, and smooth (via the Lag Processor) audio or CV signals.

Mixer 1

The first Voltage Processor mixes four inputs together, numbered 1-4. Inputs 2 and 4 have normalled connections and slider-controlled levels; inputs 1 and 3 have no normalled connections, and are always at unity gain.

1 and 3 (Inputs 1 and 3)

Inputs 1 and 3 have no normalled connections, and are always at unity gain.

2 (Input 2)

Input 2 is normalled to -10 V, which is a maximum-value ***negative*** CV signal. The level is controlled by the slider to the right.

4 (Input 4)

Input 4 is normalled to the Keyboard CV. The level is controlled by the slider to the right.

(Output)

This is the summed mix of Inputs 1 through 4.

INV (Invert)

On the vintage 2600, many phase inversions happened naturally due to the circuitry. Here, the inversion can be either enabled or disabled, as desired.

Mixer 2

The second Voltage Processor mixes two inputs together, numbered 5 and 6.

Input 5

Input 5 has no normalled connection, and is always at unity gain.

Input 6

Input 6 is normalled to +10 V, which is a maximum-value ***positive*** CV signal. The level is controlled by the slider to the right.

(Output)

This is the summed mix of Inputs 5 and 6.

INV (Invert)

On the vintage 2600, many phase inversions happened naturally due to the circuitry. Here, the inversion can be either enabled or disabled, as desired.

Lag Processor

The LAG PROCESSOR slows down sudden changes in the input voltage–useful for smoothing sharp edges in control signals, for instance. An instantaneous change at input becomes a ramp, from ~0.5 ms to ~0.5 sec long. It can also be used as a 6 dB/oct filter for audio signals, with a max cutoff of 1.6 kHz.

7 (Input 7)

This is the input to the LAG PROCESSOR, normalled to the ENV FOLLOWER.

LAG TIME

This slider controls the amount of lag/filtering.

(Output)

This is the output of the LAG PROCESSOR.

Multipliers

These two additions to the vintage 2600 are signal multipliers. The first multiplies inputs A and B; the second multiplies inputs C and D. They are set up for CV control, but can also be used as VCAs (with one audio input and one CV input) or simple ring modulators (with two audio inputs).

A and B (Inputs A and B)

These inputs are normalled to the ADSR and AUX LFO, respectively.

OUT (A x B Output)

This is the output of the first signal multiplier.

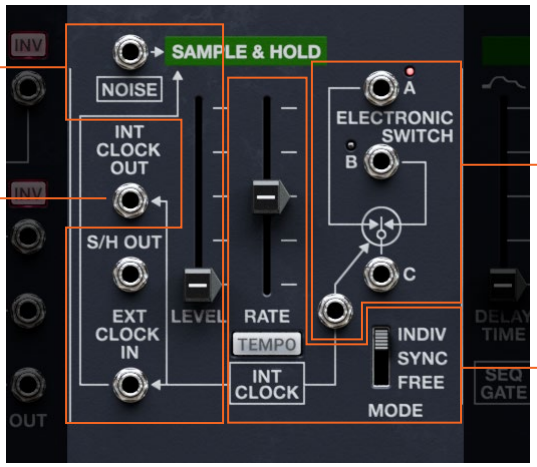
C and D (Inputs C and D)

These inputs are normalled to the AUX ENVELOPE and SEQ 1 OUT, respectively.

OUT (C x D Output)

This is the output of the first signal multiplier.

Sample & Hold and Electronic Switch



With the NOISE GENERATOR as input, this makes the classic S/H effect when routed to cutoff or VCO frequency. It also hides a square-wave LFO, via the INT CLOCK OUT.

Sample & Hold

LEVEL

This slider controls the level for both the output jack and all normalled connections.

(Sample & Hold Input)

This is the input to the SAMPLE & HOLD circuit. It's normalled to the NOISE GENERATOR output.

S/H OUT

This is the output of the SAMPLE & HOLD circuit. Note that it's affected by the LEVEL slider.

EXT CLOCK IN

This CV input controls the S&H timing, and disconnects the built-in S&H LFO. Use a signal with a sharp upwards edge, such as a gate or a square, pulse, or downward saw wave.

Sample & Hold Internal Clock (LFO)

The SAMPLE & HOLD section has its own square-wave LFO, with its speed controlled by the RATE slider.

RATE

This slider controls the speed, or rate, of the Sample & Hold. Higher means faster.

When TEMPO is *On*, the speed is set in rhythmic values, from 32nd note triplet (fastest) to double breve (four whole notes, and slowest).

TEMPO

When TEMPO is *On*, the Sample & Hold synchronizes to the system tempo. Use the RATE slider to select the rhythmic value.

MODE (Sync Mode)

[INDIV, SYNC, FREE]

INDIV: An independent S&H LFO runs for each note, and resets at the beginning of the note.

SYNC: The S&H LFO is shared by all notes, and resets at the start of a phrase. Phrases are defined by the Sync Notes Source Trim Pot. Use this to sync to the Motion Seq. ***Important:*** Timing syncs, but each voice will have its own values.

FREE: The S&H timer is shared by all notes, and resets only via the FREE RUN RESET button. ***Important:*** Timing syncs, but each voice will have its own values.

INT CLOCK OUT

This CV output carries the S&H LFO, for use as either a gate signal or an LFO.

Electronic Switch

A, B, and C

The ELECTRONIC SWITCH connects either jacks A & C or jacks B & C, alternating the two connections in response to the clock input. The lights show whether A or B is active; when operating polyphonically, the lights show the oldest voice only.

The connections work in either direction, so the switch has either two inputs (A/B) and one output (C), or one input (C) and two outputs (A/B). The first connection to any of the three jacks determines the configuration of the other two. To clear the configuration, disconnect all three jacks.

(Clock In)

Normally, the switch is controlled by the Sample & Hold LFO, as shown by the silkscreen. This CV input–a mod to the vintage 2600–disrupts the normalled connection, allowing you to drive the switch from another source. Use a signal with a sharp upwards edge, such as a gate or a square, pulse, or downward saw wave.

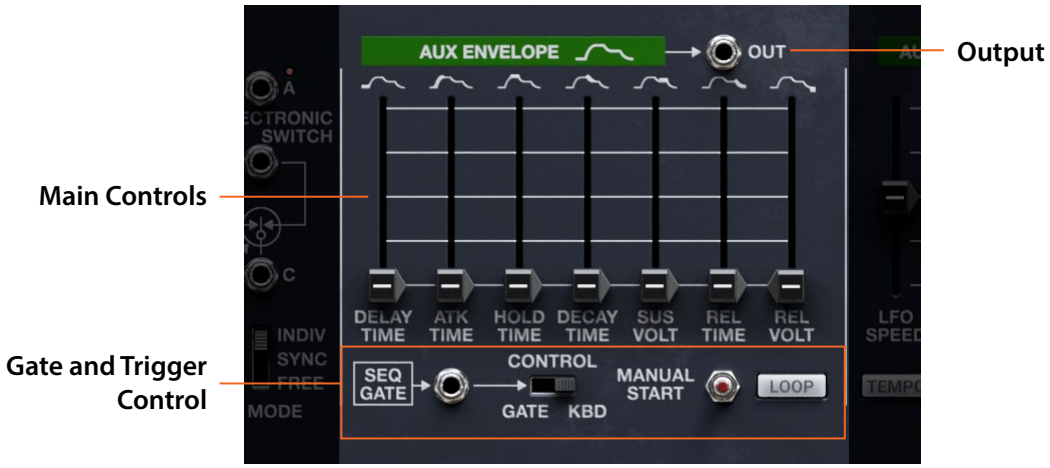
Creating an auto-panner with the Electronic Switch

To create a square-wave auto-panner:

1. **Connect an audio signal to jack C**
2. **Connect Jack A to the output section's LEFT INPUT, and Jack B to the RIGHT INPUT**

For other interesting applications of the Electronic Switch, check out Section 5.15II of the original 2600 manual.

AUX ENVELOPE



Main Controls

DELAY TIME

This sets the time between the envelope being triggered and the start of the Attack Time. The initial voltage is set by the REL VOLT slider (yes!).

ATK TIME (Attack Time)

This sets how long the envelope takes to rise from the Release Voltage to the peak level.

HOLD TIME

This sets the time between the end of the Attack Time and the start of the Decay Time.

DECAY TIME

This sets how long the envelope takes to settle from the peak to the Sustain level.

SUS VOLT (Sustain Voltage)

This sets the level at the end of the Decay time. Once it reaches the Sustain level, the envelope will stay there until note-off, unless it is restarted via the Gate input.

REL TIME (Release Time)

This sets how long it takes the envelope to reach the Release Voltage after releasing a note (or after the Gate goes low).

REL VOLT (Release Voltage)

This sets the level at the end of the Release time. Since the envelope rests here, it's also the initial voltage at the start of the DELAY TIME.

Gate and Trigger Control

(GATE In)

This CV input controls the AUX ENVELOPE, as an alternative to the keyboard. It applies when the CONTROL switch is set to GATE. Use a gate, square/pulse, or downward saw wave. It's normalled to the SEQ GATE output.

Control

[GATE, KBD]

This switch selects whether the AUX ENVELOPE uses the gate from the keyboard, or from the gate input jack (normalled to SEQ GATE).

MANUAL START

Pressing this switch generates a gate signal, triggering the AUX ENVELOPE. You can control this via the Mod Matrix, MIDI Map, or automation.

LOOP

[Off, On]

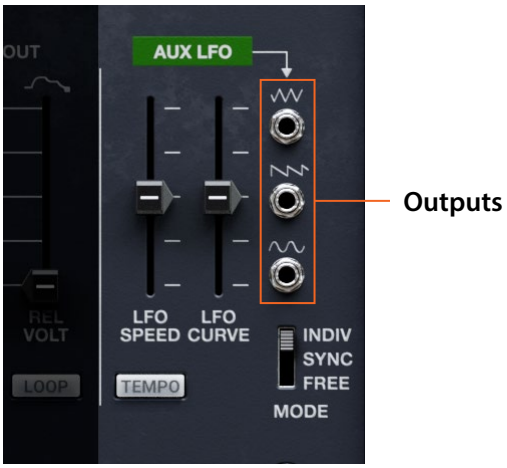
When LOOP is On, the envelope plays through the Release (not resting at Sustain) and then starts over from Delay, as long as the note is held. When the note is released, it plays through Release and then ends.

Output

OUT

This is the CV output of the AUX ENVELOPE, a mod to the vintage 2600. The signal is also normalled to the MODE-SWEEP FILTER and one of the VOLTAGE PROCESSOR multipliers.

AUX LFO



This addition to the vintage 2600 provides a CURVE slider, for continuous control of LFO shape, as well as a downward saw waveform.

LFO SPEED

This controls the speed, or rate, of the LFO. Higher means faster.

When TEMPO is *On*, LFO speeds are set in rhythmic values, from 32nd note triplet (fastest) to double breve (four whole notes, and slowest).

LFO CURVE

LFO CURVE modifies the waveform to be either more logarithmic or more exponential. Its effects vary depending on whether the waveform is unipolar or bipolar.

The Triangle and Sine waveforms are bipolar. For these outputs, positive Curve values emphasize highest and lowest parts of the waveform; negative Curve values emphasizes the middle.

The Saw waveform is unipolar. For the Saw, positive Curve values create logarithmic shapes, emphasizing the highest part of the waveform; negative Curve values create exponential shapes, emphasizing the lowest part of the waveform.

TEMPO

When TEMPO is *On*, the LFO synchronizes to the system tempo, and the LFO SPEED slider selects rhythmic values.

MODE (Sync Mode)

[INDIV, SYNC, FREE]

INDIV: An independent LFO runs for each note, and the LFO phase is reset at the beginning of the note.

SYNC: The LFO is shared by all notes, and resets automatically at the start of a phrase. Phrases are defined by a user-specified envelope; see “Sync Notes Phrase Source” on page 59. Use this setting to sync to the Motion Seq.

FREE: The LFO is shared by all notes, and resets only via the FREE RUN RESET button.

Outputs

(Triangle)

This CV output carries the AUX LFO’s Triangle wave , which is bipolar - producing both positive and negative voltages.

(Downward Saw)

This CV output carries the AUX LFO’s Saw wave–useful for modern filter modulation effects. The Saw is unipolar, producing only positive voltages.

(Sine)

This CV output carries the AUX LFO’s Sine wave , which is bipolar - producing both positive and negative voltages.

KEYBOARD

With the vintage 2600, the keyboard was a separate accessory! These controls model the duophonic 3620 keyboard, and add a true polyphonic mode.

(Voice Mode)

POLY: This let you play up to 16 notes at once, as set by Poly # Notes (near the right end of the status bar at the bottom of the window).

DUO: This lets you play two notes at once. The KBD UPPER jack carries the highest note, and must be patched to a CV input. Careful playing technique is advised. The Duo Mode Trim Pot setting is important.

MONO: This plays a single note at once, like the 2600's original 3604 keyboard. Try this for basses, leads, and drones, and for predictable outcomes when patching from the LEFT/RIGHT OUT and REVERB OUTPUT jacks.

KBD UPPER

This jack is active only in DUO mode, and carries the CV for the high note. The scale is the same as the main KBD CV: one semitone = 1/12 Volt. For duophonic operation, this must be patched to a CV input such as the KBD Control input for one of the VCOs or filters.

INTERVAL LATCH

This applies to DUO mode only. When active, it maintains a constant interval between the KBC CV and the KBD UPPER CV. To use, hold two keys and then press and hold the button; the interval persists until the button is released. This works well with control via the Mod Matrix or MIDI Map.

REPEAT

[KBD, OFF, AUTO]

REPEAT creates repetitive attacks, like tremolo picking on mandolin or banjo. Speed is controlled by the VIBRATO LFO, as on the vintage 3620 keyboard.

KBD: With the KBD setting, the repetition continues only as long as the note is held, and stops when the note is released.

OFF disables REPEAT, which is the default.

AUTO: With the AUTO setting, repeats continue indefinitely until a new note is played.

TRIGGER MODE

[MULT, SINGLE]

Applies to DUO and MONO modes. MULT triggers the ADSR and Aux Envelope with every key-press; the AR is not affected. SINGLE doesn't re-trigger when playing legato (like modern Mono Legato).

LATCH

[OFF, ON]

LATCH holds notes or chords indefinitely until you play a new note or chord, at which point the previous notes are cut off and the new ones will sound. This works well with the ARPEGGIATOR.

Related Trim pots

Pitch Bend Curve

[Linear, New 3620, Old 3620]

Linear has the least curvature, and *Old 3620* has the greatest. More curvature means less change around the center detent, and more change at the extremes, for subtle control even when the BEND RANGE is high. This Trim Pot also affects the PITCH BEND jack output.

P Bend Smoothing

[Off, Faster, Smoother]

Depending on your MIDI controller, higher BEND RANGE and Pitch Bend Curve settings may cause audible steps in Pitch Bend. This lag filter smooths out the steps. *Off* disables smoothing. *Faster* is more responsive; *Smoother* has more filtering but is slower to react.

Mono Priority

[Low, High, Last]

This Trim Pot applies when Voice Mode is set to Mono. It determines what happens when more than one note is being held down.

Low: The lowest note will sound. Many vintage monophonic analog synths work this way.

High: The highest note will sound.

Last: The most recently played note will sound.

Duophonic Mode

[New 3620, Old 3620, Odyssey]

This controls voice handling when KEYBOARD is set to DUO.

New 3620: CVs update only on note-on. When TRIGGER = MULT, only highest and lowest notes cause triggering.

Old 3620: CVs update only on note-on. When TRIGGER = MULT, middle notes (ignored for CV) still cause triggering. Good for playing two-note chords.

Odyssey: CVs update on both note-on and note-off. When TRIGGER = MULT, middle notes (ignored for CV) still cause triggering. Good for melodies over a held bass note.

ARPEGGIATOR

The ARPEGGIATOR transforms held notes into arpeggiated patterns.

(Enable)

[Off, On]

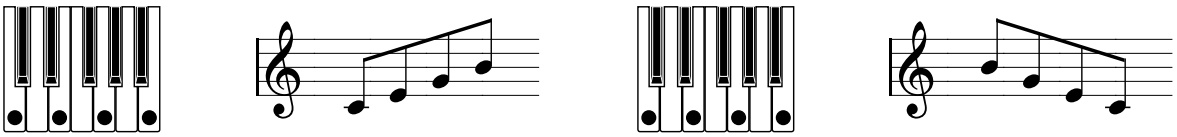
Turns the Arpeggiator on and off.

(Pattern)

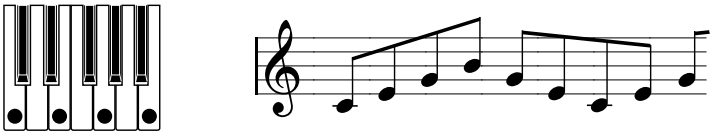
[UP, DOWN, UP/DOWN 1, UP/DN 2, RANDOM]

This rotary switch selects the Arpeggiator's note pattern. Most are self-explanatory. *UP/DOWN 1* and *UP/DN 2* each go up and then down; *UP/DN 2* plays the top-most and bottom-most notes twice.

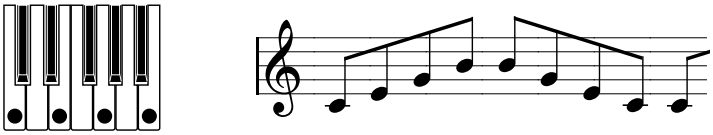
UP and DOWN



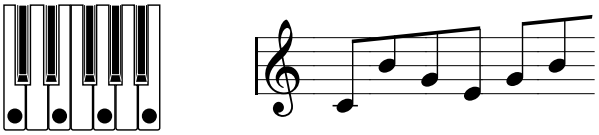
UP/DOWN 1



UP/DN 2



RANDOM



OCTAVES

[1, 2, 3]

OCTAVES controls the range of the arpeggiated notes. *1* uses the pitches as played. *2-3* transpose upwards by the specified number of octaves.

RATE

RATE controls the speed of the Arpeggiator. Try modulating this from the Mod Wheel!

GATE

GATE sets the length of the arpeggiated notes, as a percentage of the Resolution.

SWING

[-100…+100]

SWING adjusts rhythmic feel.

+100: The 2nd rhythmic division is pushed to the 3rd triplet, for a full swing feel.

-100: The 2nd rhythmic division is pulled to the 2nd triplet, for a reverse-swing feel.

SORT

[OFF, ON]

OFF: The Pattern is based on the order in which notes were originally played. For instance, UP plays notes in original order, and DOWN plays notes in reverse order.

ON: The Arpeggiator plays notes according to the selected Pattern, sorted from lowest to highest, and ignores the originally played order.

PORTAMENTO and TRANSPOSE

Portamento

(Enable)

[OFF, ON]

This switch turns Portamento on and off.

MOMEN. (Momentary)

When this button is held down, Portamento turns on; when it's released, Portamento turns off. The original 3620 keyboard had both sliding and momentary switches, and we've preserved that decision here.

(Time)

This slider controls the time that it takes for the pitch to glide between notes. The higher the slider setting, the longer that the glide takes.

Transpose

TRANSPOSE

[-2, 0, +2]

This shifts the keyboard control voltage up or down by two octaves. Note that this takes effect instantly, and can be used as a performance control.

Related Trim Pots

Gated Portamento

[Off, On]

Off: Portamento continues to run after the key is released–noticeable with long times and detached playing.

On: Portamento changes pitch only when keys are down, and stops when keys are released.

VIBRATO LFO

With the vintage 2600, this LFO was on the keyboard instead of the patch panel.

LFO SPEED

This controls the speed, or rate, of the LFO. Higher means faster.

When TEMPO is *On*, LFO speeds are set in rhythmic values, from 32nd note triplet (fastest) to double breve (four whole notes, and slowest).

The VIBRATO LFO also controls the speed of the keyboard REPEAT, as on the vintage 3620 keyboard.

TEMPO

When TEMPO is *On*, the LFO synchronizes to the system tempo, and the LFO SPEED slider selects rhythmic values.

VIB DELAY (Vibrato Delay)

This sets the time between LFO reset and signal appearing at the DELAYED (sine) output. The MODE switch determines when the LFO resets. Delay does not apply to the triangle and square outputs.

VIBRATO DEPTH

The LFO is hard-wired to the KBD CV signal; this controls the amount of pitch modulation. Assign mod wheel via the MOD MATRIX. The Vibrato Depth Curve Trim Pot controls how the slider changes from min to max.

MODE (Sync Mode)

[INDIV, SYNC, FREE]

INDIV: An independent LFO runs for each note, and the LFO phase is reset at the beginning of the note.

SYNC: The LFO is shared by all notes, and resets automatically at the start of a phrase. Phrases are defined by a user-specified envelope; see “Sync Notes Phrase Source” on page 59. Use this setting to sync to the Motion Seq.

FREE: The LFO is shared by all notes, and resets only via the FREE RUN RESET button.

EXT VIB IN

This CV input modulates the KBD CV signal, with amount controlled by the slider above. It’s normalled to the VIBRATO LFO’s Sine output. Use this to patch in the Triangle or Square waves, for instance.

Outputs

(Triangle)

This CV output carries the VIBRATO LFO’s Triangle wave, which is bipolar - producing both positive and negative voltages.

(Square)

This CV output carries the VIBRATO LFO’s Square wave. The Square is unipolar, producing only positive voltages.

DELAYED (Sine)

This CV output carries the VIBRATO LFO's Sine wave, with delay applied as per the VIB DELAY slider. The waveform is bipolar, producing both positive and negative voltages.

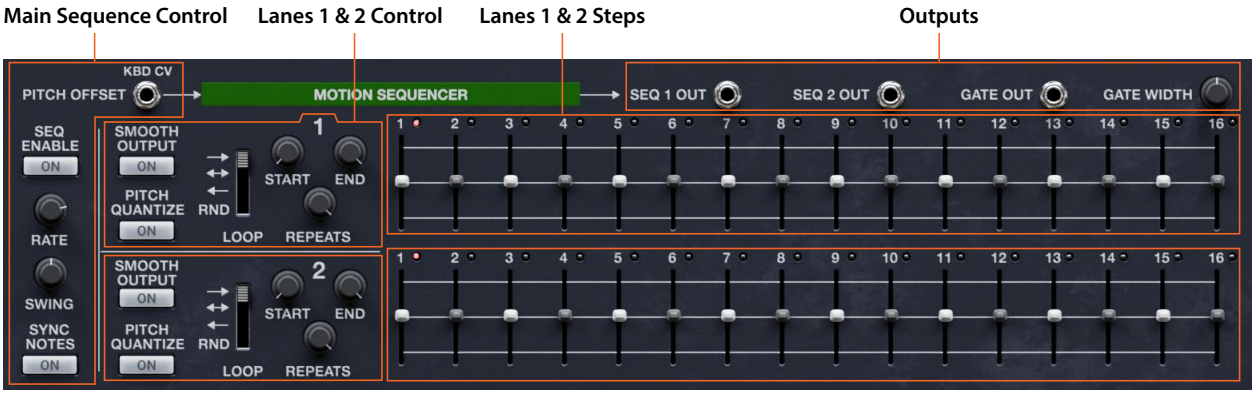
Related Trim Pots

Vibrato LFO Reset

[0, 90]

This controls the phase of the Vibrato LFO when it resets. *0* degrees sounds like it's coming down from the top; *90* degrees starts in the middle, dips down and then up again.

MOTION SEQUENCER



Inspired by the ARP 1600 series, this modern sequencer adds smoothing, modulatable start and end points for two separate patterns, swing, and more.

Main Sequence Control

PITCH OFFSET

This CV input is active only when PITCH QUANTIZE is enabled. With the normalled KBD CV input, it offsets the quantized SEQ 1/2 outputs so that they transpose the pitches from the keyboard.

SEQ ENABLE

[Off, On]

Starts and stops the MOTION SEQUENCER.

RATE

[2x Breve…1/32 triplet]

Controls the speed of the MOTION SEQUENCER. Slowest is 2x Breve (four whole notes); fastest is 1/32 note triplet.

SWING

[-300%…+300%]

0%: Rhythms are straight, with no swing.

+100%: Full "swing." Up-beats become triplets, moving one third of the way toward the next down-beat.

+300%: Up-beats move all the way to the next down-beat.

Swing resolution is adjusted to match the RATE; the maximum resolution is a quarter-note, and so at longer rates swing will have no effect.

SYNC NOTES

[Off, On]

Off: Each note's Motion Sequence plays independently.

On: If the sequence is already playing, new notes start on the same Steps as the oldest note. Notes can still vary due to modulation. Use this to sync to LFOs.

Outputs

SEQ 1 and SEQ 2

These are the outputs of MOTION SEQUENCER Lanes 1 and 2, respectively. The voltage ranges are either -10…+10 V or -2…+2 V, depending on whether the Lane's PITCH QUANTIZE switch is *Off* or *On*.

GATE OUT

This is a pulse signal at the same rate as the MOTION SEQUENCER. The width of the pulse is controlled by the GATE WIDTH knob.

GATE WIDTH

[0…100]

The GATE output is a pulse wave at the RATE of the sequencer, to use as an LFO, gate, or trigger. This knob controls the width of the pulse. Full width of 100 is a constant DC offset; for most uses, try 99 or lower.

Lanes 1 & 2 Control

START

[1…16]

Sets the first Step played, and the return point of the loop. Must be less than or equal to the END Step. Can only be modulated upwards.

END

[1…16]

Sets the end of the loop. If Repeats are complete, the Lane stays on this Step through the end of the note. Can only be modulated downwards.

REPEATS

[Off, 1…100, Inf (Infinite)]

Controls the number of times that the Lane will loop before resting on the End Step. The default is *Inf*, which causes the loop to repeat as long as the note is held. Set to *Off* for one-shot effects.

(Loop Mode)

[Forward, Backward, Forward-Backward, RND (Random)]

This switch controls the way that the Lane plays. Forward and Forward-Backward should be self-explanatory.

Backward: The lane plays forward from the Start Step until the End Step, and then starts to loop backward.

RND (Random): Steps play in a different order each time the loop repeats. Steps before START and after END are ignored.

SMOOTH OUTPUT

[Off, On]

Off: The value changes abruptly at each Step.

On: The value glides linearly between Steps, as if moving a knob continuously.

PITCH QUANTIZE

[Off, On]

When *Off*, the lane's step levels are -10…+10 V, continuous. When it is *On*, levels are -2…+2 V, -24 to +24 semitones. To control pitch, connect SEQ 1/2 OUT to the KBD input of a VCO or VCF.

Lanes 1 & 2 Steps

Step 1…16

[-24.00…+24.00]

This sets the Step's output level, from -24.00 to +24.00. Hold SHIFT while adjusting to snap to integers. The output voltage range is either -10…+10 V or -2…+2 V, depending on whether the Lane's PITCH QUANTIZE switch is *Off* or *On*.

Trim Pots and Voice Variation

Trim Pots

These under-the-hood settings let you change subtle behaviors of the synth, and are saved with the individual Performance. Most of the Trim Pots are mentioned in context, with the settings to which they are related; those which are not are described below.

Oversampling

[2x, 4x]

2x oversampling optimizes CPU usage.

4x oversampling provides more pristine audio quality with VCF self-resonance, Ring Modulation, Drive, and/or VCO modulation of VCO or filter frequency, especially when playing very high pitches.

This can be overridden by the **Oversampling Mode** parameter in Settings (see "Oversampling Mode" on page 16). If **Oversampling Mode** is set to *Always Use 2x* or *Always Use 4x*, the same text will appear here instead of the Performance's saved value.

Post-FX Volume

[-Inf…0…+18 dB]

This allows a volume boost of up to 18 dB, useful with naturally-quiet patches or when using the ARP 2600 FX as an effects processor. The boost is applied after the three insert effects.

VCO 1 Square Width

See "VCO 1 Square Width" on page 22.

VCO 2 Tri Symmetry

See "VCO 2 Tri Symmetry" on page 25.

VCO 2 Tri Offset

See "VCO 2 Tri Offset" on page 25.

VCO 2 Sine Invert

See "VCO 2 Sine Invert" on page 26.

VCA Aud In 2 Invert

See "VCA Aud In 2 Invert" on page 35.

Reverb R Invert

See "Reverb R Invert" on page 37.

Reverb Type

See "Reverb Type" on page 37.

Mixer Pan Invert

See "Mixer Pan Invert" on page 37.

Gated Portamento

See "Gated Portamento" on page 53.

Vibrato LFO Reset

See "Vibrato LFO Reset" on page 55.

Pitch Bend Curve

See "Pitch Bend Curve" on page 50.

Pitch Bend Smoothing

See "P Bend Smoothing" on page 50.

AR/ADSR Gate Type

See “AR/ADSR Gate Type” on page 33.

Noise Mode

See “Noise Mode” on page 41.

Duophonic Mode

See “Duophonic Mode” on page 50.

Drift Range

[0.0…10.0 cents]

Oscillators 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.

Sync Notes Phrase Source

[AR, ADSR, Aux Env, Key Gate]

For LFOs, S&H, and SEQ, SYNC NOTES is defined by phrases. When the env/gate selected here completes its release stage for the last sounding note, the phrase ends. Choose the volume-control source with the longest release.

Mono Priority

See “Mono Priority” on page 50.

Voice Variation

The ARP 2600 includes two separate but related mechanisms to model the subtle variations in sound between individual voices of an analog synthesizer. First, each voice is assigned to a different virtual hardware unit, whose oscillators, filters, envelopes, and LFOs behave slightly differently, modeling analog hardware component variations. The specific set of virtual hardware is determined by the CMT ID; see “CMT ID” on page 16.

Just like in an analog synth, voices remember their state, such as filter cutoff and resonance, envelope levels, oscillator phase, and so on. These persist as long as the Performance is selected.

No two oscillators in a voice behave the same way; nor do two voices in a Performance. Unless the CMT ID is the same, two ARP 2600 instruments will also sound slightly different! But even with these differences, MIDI sequences are completely repeatable; the same voice in the same instrument always behaves the same way.

In addition to all of the above, each oscillator’s pitch can drift slightly over time, modeling the slight pitch instabilities found in analog hardware; see “Drift Range,” above.

You can adjust the intensity of these effects, or disable them entirely if you prefer, on a per-Performance basis.

Master

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

This controls the amount of variation in pitch modulation. Note that oscillator pitch itself is controlled by the Drift Range Trim Pot.

Filter

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

Oscillator

This controls the amount of variation in Pulse Width and Pulse Width modulation.

Envelope

This controls the amount of variation in envelope segment times.

LFO

This controls the amount of variation in LFO frequency and delay times.

Portamento

This controls the amount of variation in portamento times.

Amp

This controls the amount of variation in amp levels.

EFFECTS

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 EFFECTS tab 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**.

4. 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.

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, with a different sound the reverb built into the ARP 2600 panel.

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.

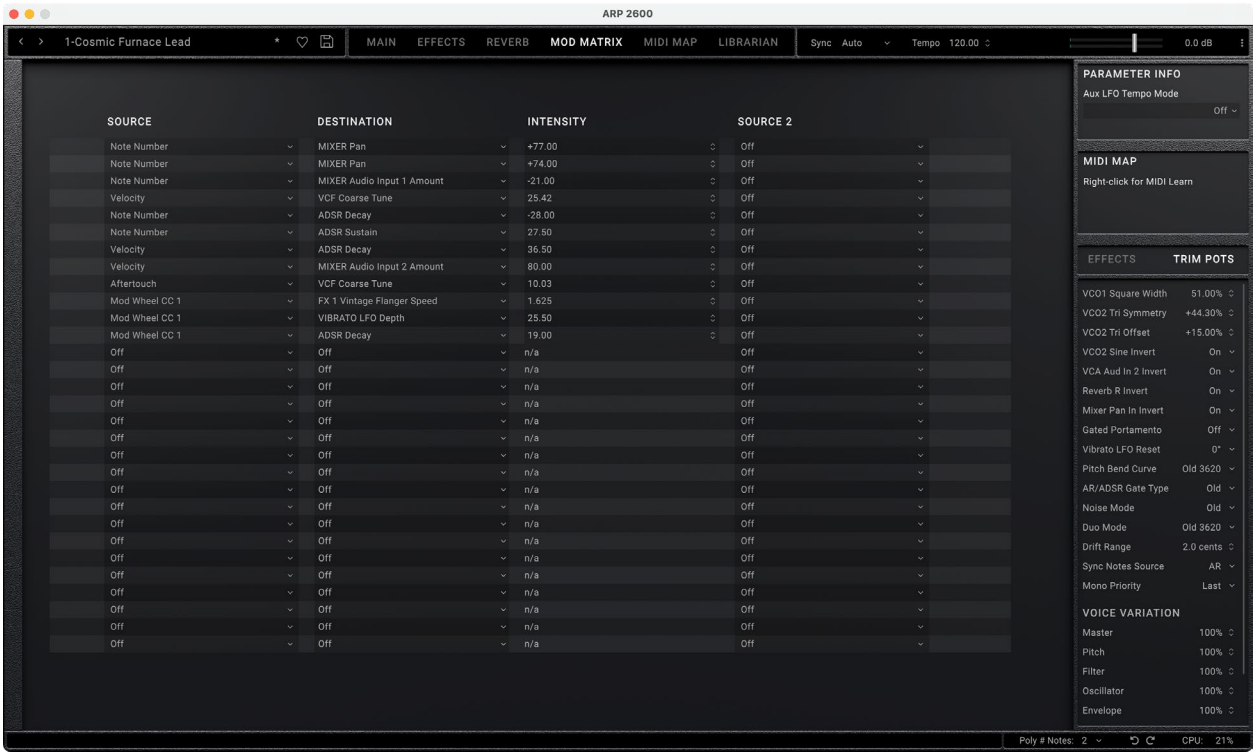
REVERB

Overview

This page shows FX 2 and 3 (the second and third insert effects), and then the dedicated Reverb slot at the bottom. The Reverb slot 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 64. 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 EFFECTS page; see “EFFECTS” on page 61.

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 Filter Cutoff, 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 68.

Creating and deleting modulation routings

Adding modulation routings on the Main and Effects pages

You can quickly add a routing directly from the ARP 2600 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 ADSR Attack Time, 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.

Deleting a modulation routing

To delete a modulation routing:

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

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.

Velocity

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

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.

Release Velocity

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

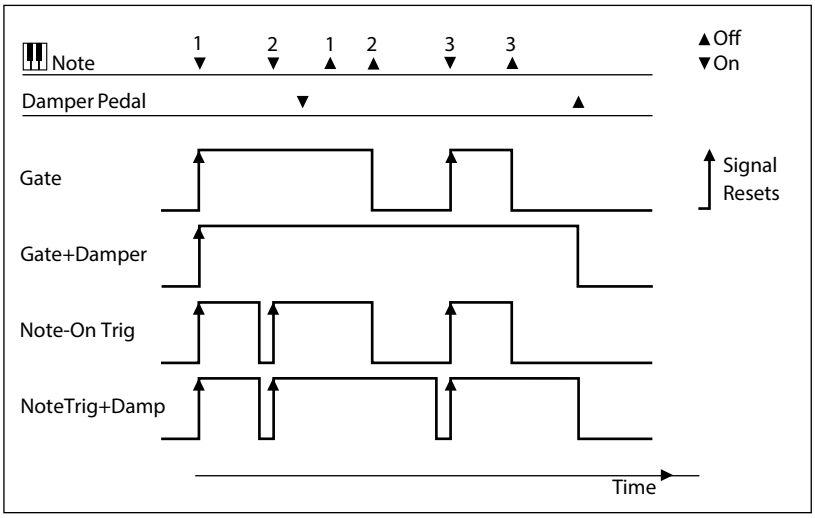
Gate and Gate+Damper

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.

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 15.

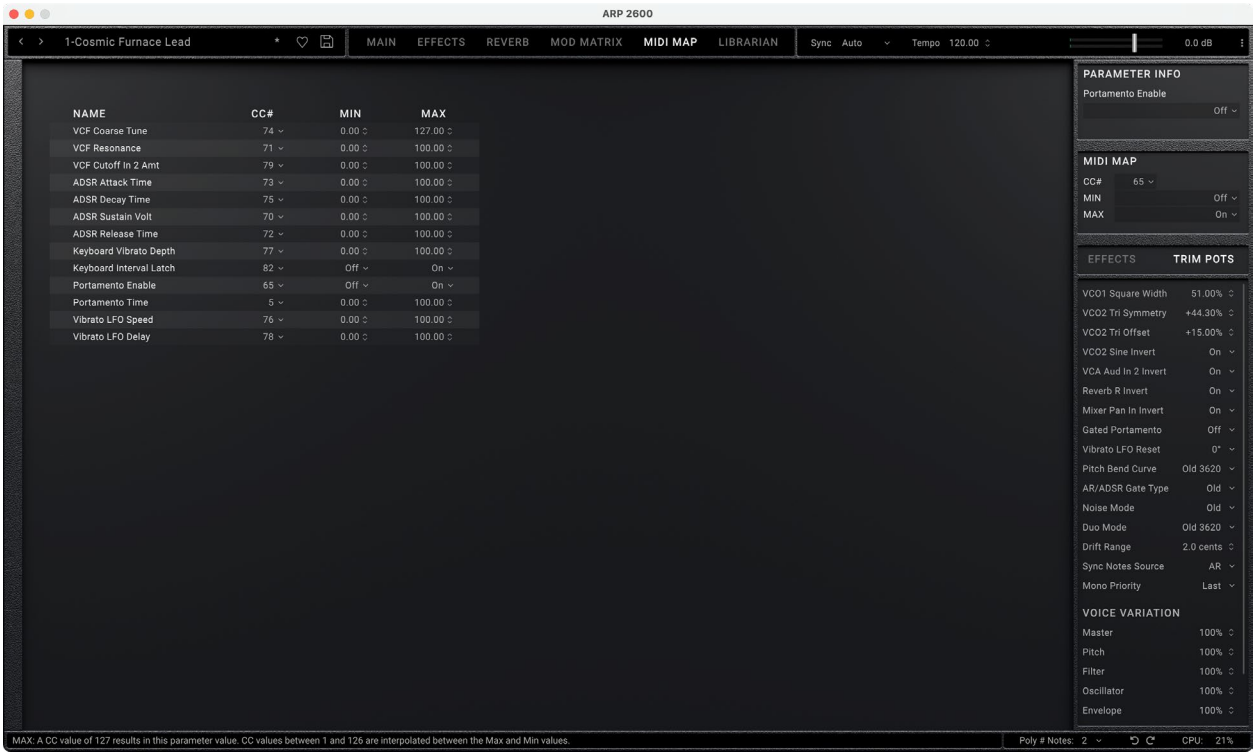
CC +

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 ARP 2600 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 modulation routing:

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 ARP 2600 database) with the suffix "arp2600midimap."

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

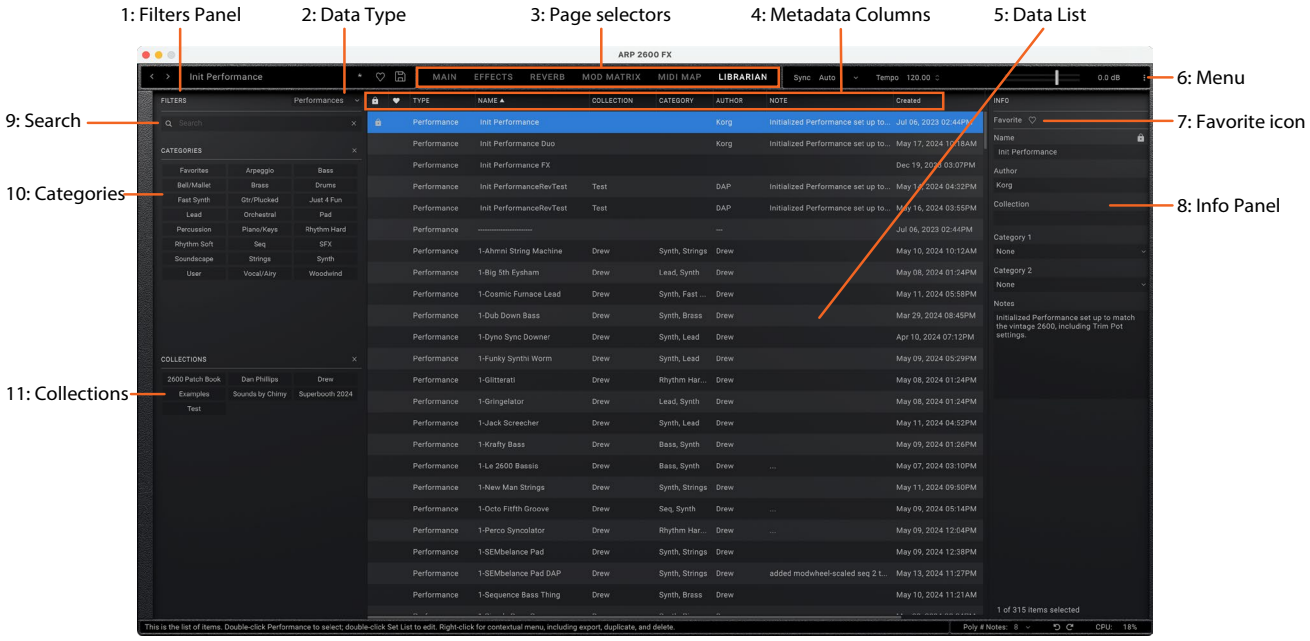
If you like, you can quickly reset the MIDI Map to the default assignments. To do so:

1. **Select Load MIDI Map… 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 ARP 2600. 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, Scales, 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: Page tabs

The buttons in the top of the main window select whether you're editing sounds–including the patch panel, effects, modulation, or MIDI mapping–or working with the Librarian.For more information, see "3: Page tabs" on page 6.

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 ARP 2600 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.

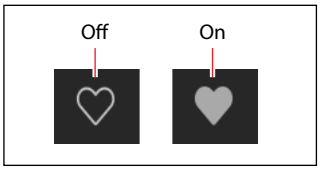
6: Menu

This menu gives access to the Settings window (including velocity and aftertouch curves, interface options, Scale and 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, Scales, 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 75.

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.

Open Scale Editor

When an unlocked Scale is selected, this opens the Edit Scale window (see “Scales” on page 77). To edit a locked factory Scale, first use Duplicate, above, to create an unlocked copy.

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 ARP 2600 to another
- Back up and restore data

Importing data

To import data into ARP 2600:

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 ARP 2600 database.

Make Unique: the item will be imported, and its UUID (see "UUIDs" on page 75) will be changed so that it does not conflict with the version already in the ARP 2600.

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

ARP 2600 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 74.

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 ARP 2600 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 ARP 2600 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.

Importing and exporting Set Lists

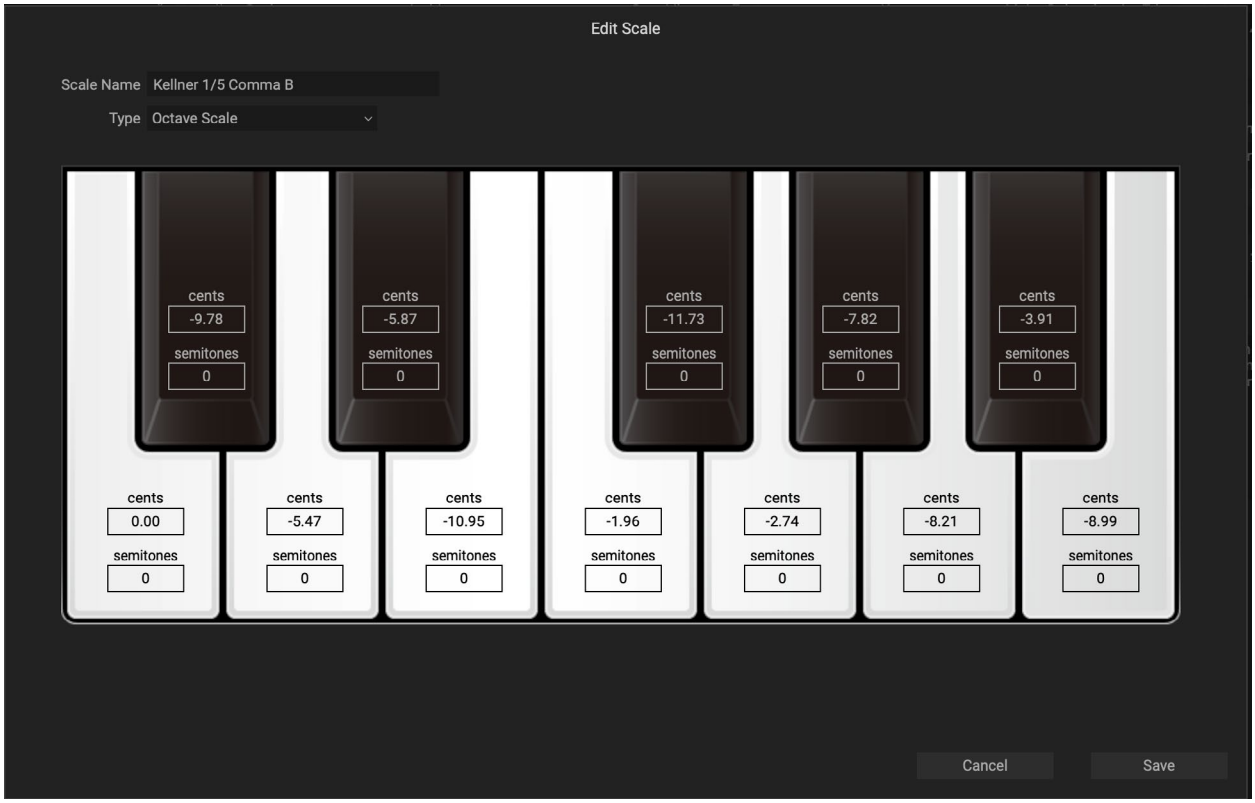
Set Lists refer to up to 64 Performances. When you export a Set List, both the Set List and its referenced Performances are saved together. This makes it easy to import and export groups of sounds.

File Types

The ARP 2600 uses the file types below.

Type	Extension	Contents
Performance	arp2600perf	A single item of the specified type.
Scale	korgscale	
Effect	kceffect	
Set List	arp2600setlist	One Set List and all of its referenced Performances
Bundle	arp2600bundle	Multiple items of any type.
MIDI Map	arp2600midimap	MIDI Map: only on disk, not shown in Librarian

Scales



Overview

Scales allow you to re-tune individual notes to play music from many different cultures, recreate historic temperaments, or experiment with new sonorities. The system supports both repeating 12-note scales and full 128-note tuning maps. 12-note Scales can be transposed using the separate Scale Key parameter (see page 15). Scales are saved with the "korgscale" extension, and can be shared with other KORG instruments including the wavestate and modwave.

Editing Scales

To edit Scales:

1. **Go to the Librarian window.**
2. **Set FILTERS (at the top of the left panel) to Scales.**

The main section of the window will change to show the installed Scales.

3. **Double-click on an unlocked Scale, or right-click on an unlocked Scale and select Open Scale Editor from the contextual menu.**

Only unlocked user Scales can be edited. To create an editable version of a locked, factory scale, right-click on the Scale and select **Duplicate** from the contextual menu.

4. **Edit the scale as desired; see "Scale settings," below.**

   Note: even if the Scale is currently active as the Performance or Global Scale, edits only take effect after the Scale has been saved.

5. **Press Save to save the edited Scale, or Cancel to exit and discard the changes.**

Important: Save always overwrites the existing Scale data, even if you change the name. To create a new Scale, use the **Duplicate** command first, and then edit the duplicate Scale.

Using Scales

Scales are selected in the Settings window. The selection is saved globally for the standalone application, and separately for each plug-in instance in a DAW session. For more information, see "Scale" on page 15.

Scale settings

Scale Name

[Text]

This lets you edit the name of the Scale.

Important: Save always overwrites the existing Scale data, even if you change the name!

Type

[Octave Scale, Octave Scale, A=Master Tune, 128 Note Scale]

There are three supported scale types:

Octave Scale is a standard 12-note scale which repeats every octave.

Octave Scale, A=Master Tune is similar to the above, except that the Scale is automatically adjusted so that the pitch for A matches the Master Tune setting (e.g., A=440Hz), regardless of the Scale Key.

128 Note Scale allows separate tuning of each MIDI note, for Scales which don't repeat on octave boundaries.

Cents

[–100…+100]

Each note can be detuned by up to 100 cents, flat or sharp.

Semitones

[–127…+127]

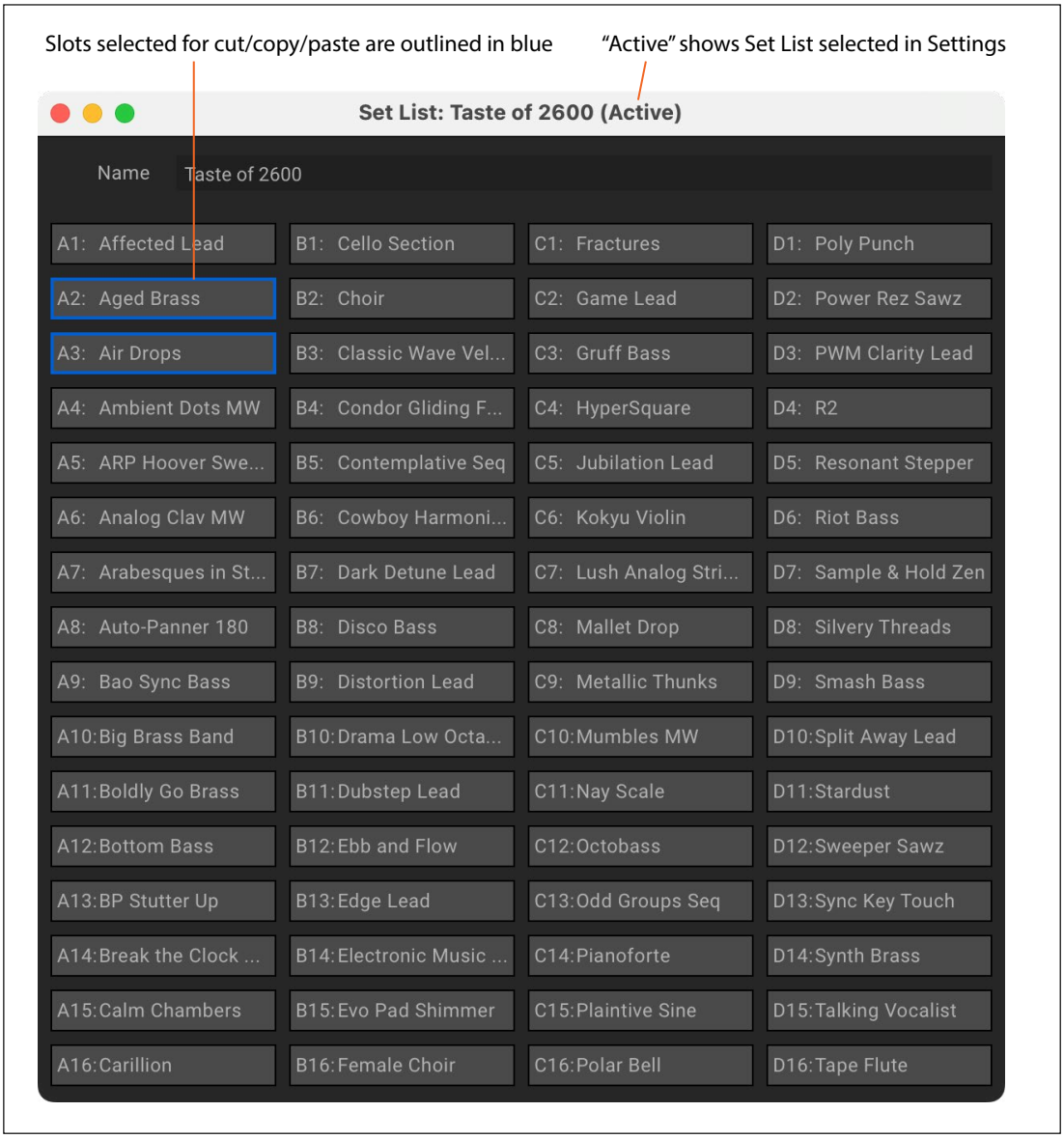
The **Semitones** parameter lets you detune a note by up to the entire MIDI range. As a simple example, to make the C key play a D pitch, set **Semitones** to *+2*. This is useful for scales which do not repeat on octave boundaries, or for repeated notes within an octave scale.

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 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 on one of the selected Slots. For details on how these work, especially Cut and Shift Slots, see "Cut and Shift Slots" on page 81.

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 81 and "Insert Before" on page 81.

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 12.

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.
- If the sound is polyphonic, reduce the Performance's **Poly # Notes** parameter (see "13: Poly # Notes" on page 7). Since some 2600 patches don't require any note-ons to make sound, the specified number of voices runs all the time, and uses CPU resources regardless of whether or not notes are being played.
- If CPU load is too heavy with a specific sound, due to polyphony for instance, set its **Oversampling** Trim Pot to *2x (see "Oversampling" on page 58)*.
- If the CPU load seems heavy in general, set the global **Oversampling Mode** to *Always Use 2x* (see "Oversampling Mode" on page 16).
- 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: 16 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)