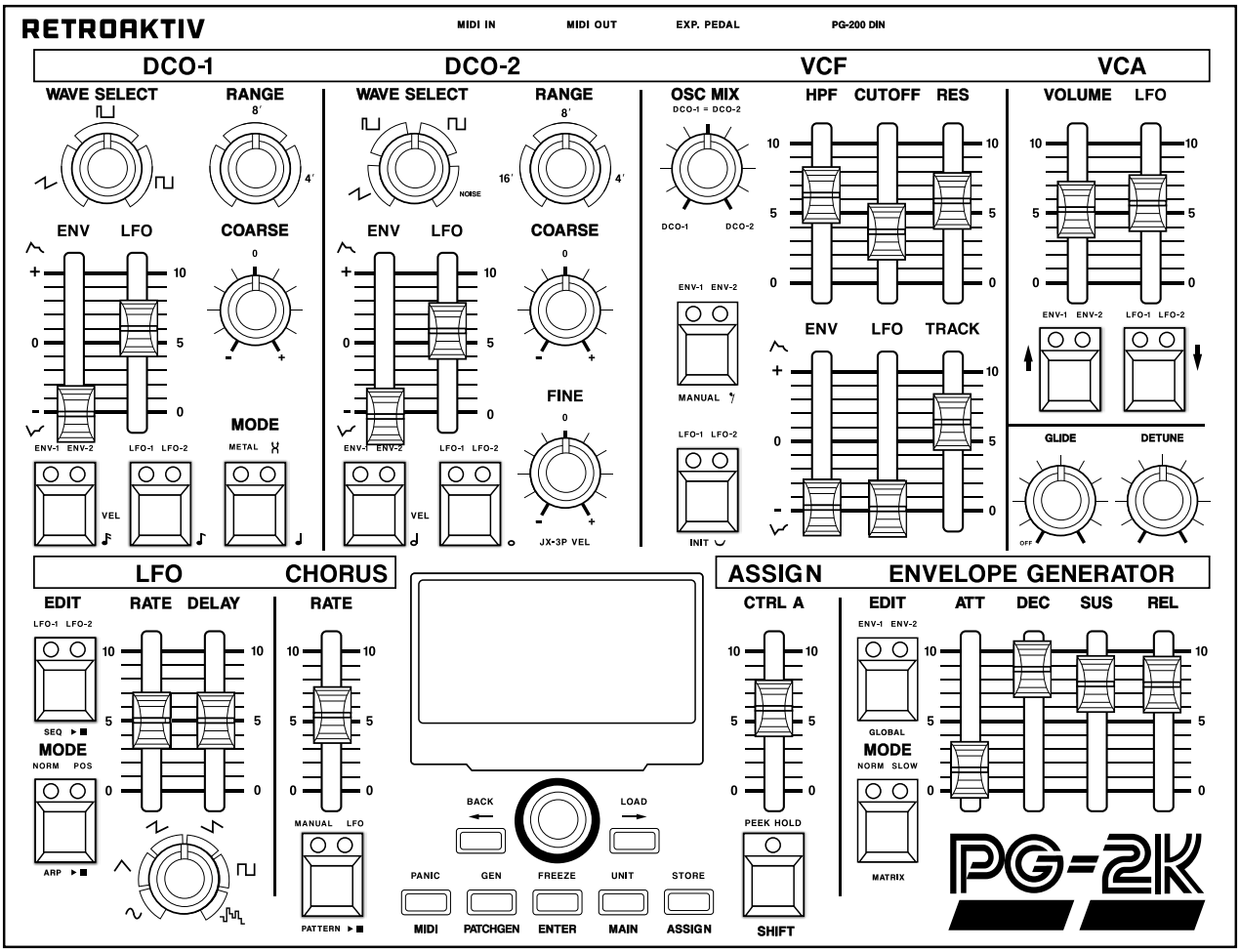
RETROAKTIV

PG-2K

SYNTHESIZER PROGRAMMER



FEATURES

Controls any stock JX-3P or MKS-30 synthesizer, as well as any Kiwi-3P, Kiwi-30, Kiwi-3P Matrix, or CC modified JX-3P/MKS-30. Can independently control any combination of 2 of these synths.

Control 2 units independently, or as a single 12-voice polyphonic synthesizer, using Multi-Unit Poly Mode.

On-board 32k of memory for storing PATCH, SEQ, PATTERN, ASSIGN, and SETUPs on the controller. Can be expanded to 160k with optional plug and play memory card upgrade..

Flexible "ASSIGN" MIDI matrix allows multiple parameters to be controlled independently in real-time, using aftertouch, mod wheel or any CC, an expression pedal, or the ASSIGN sliderson the PG-2K front panel.

Chord mode for playing any combination of notes using a single key.

All GLOBAL, TONE, and MATRIX features on Kiwi modified units can be accessed using menus on the PG-2K. This means no more searching through panel buttons to edit!

Intelligent patch generator creates new tones and patches at the push of a button. Choose from basses, pads, polysynths, bells, strings, brass and more. Patch generator works with all models.

CC to PG-200 protocol translation allows for DAWs and sequencers to record and playback parameter changes on stock MKS-30 and JX-3P units.

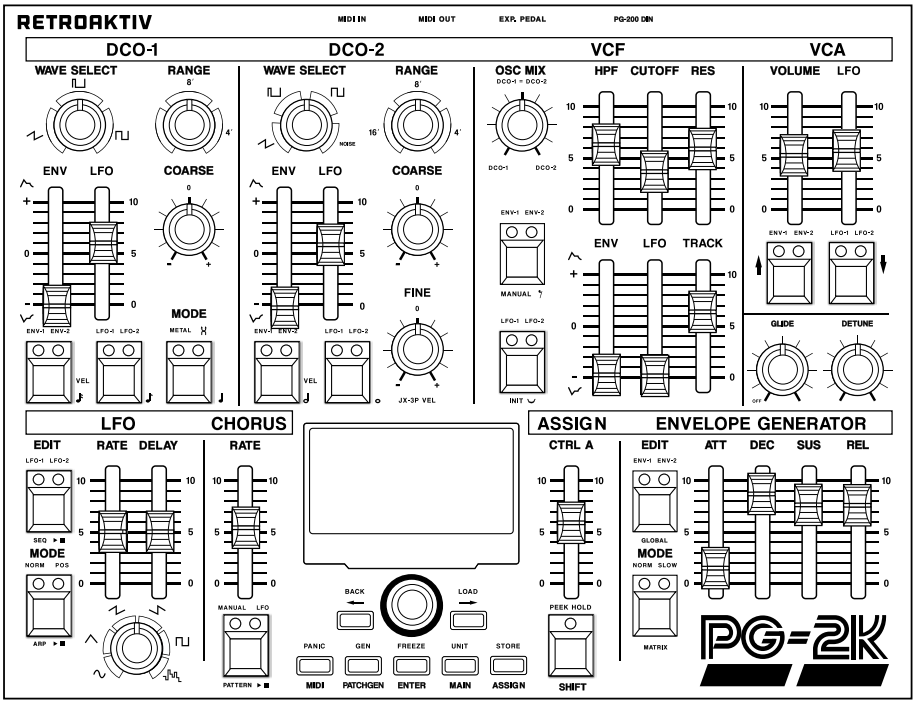
Each ASSIGN, PATCH, and SETUP can be changed using program and bank change messages. Independent control of all objects on all layers.

PG-2K allows users to store and name custom CC maps, allowing users to create their own custom control maps for other gear using the PG-2K panel.

Receive or transmit banks, individual patches, or a full memory backup of all stored user objects. Sysex utility allows users to quickly load, store, and back up all of their favorite soundbanks.

MIDI bootloader allows users to use sysex files to update their PG-2K

FRONT PANEL & JACKS



OLED DISPLAY

OLED display presents information about the operation being performed. This can display the current value being editied, or a menu.

SHIFT BUTTON

The [SHIFT] button is held to perform any of the front panel actions labeled in blue.

ENCODER & ENCODER BUTTON

The encoder is the black knob located directly below the OLED screen. This can be turned to edit parameters on the screen. Press and hold the encoder down to perform any of the panel actions labeled in red. Holding this while moving a slider will display the slider parameter's current value without editing it. (PEEK mode)

PG-200 JACK & POWER

PG-2K is powered by the JX-3P or MKS-30 via the PG-200 jack, using the included 6 pin DIN cable. The synth can still receive MIDI from the PG-2K when the DIN cable is plugged into the PG-200 jack.

MENU NAVIGATION BUTTONS

The menu navigation buttons are used to select editor pages in the PG-2K. The [LEFT] and [RIGHT] buttons are used to move the cursor in the menu pages.
The [ENTER] button is used to execute a variety of operations within a menu.
[MIDI], [PATCHGEN], [MAIN], and [ASSIGN] buttons are used to navigate to their respective menu pages.
Special functions are accessed by pressing a button while holding [SHIFT] or [ENCODER].

MIDI JACKS

PG-2K has 1 MIDI IN jack and 1 MIDI OUT jack. Note and controller data received at the MIDI IN jack can be passed to the MIDI OUT jack using Midi Echo (Soft Thru), selected in the PG-2K MIDI Menu.

CAUTION: Do not plug a PG-200 6P DIN cable into PG-2K while the JX/MKS is powered. This can blow the fuse on the programmer, as it can lead to a condition where only one power rail is connected. THE SYNTH SHOULD BE POWERED OFF WHEN CONNECTING PG-200 CABLE!

CONNECTIONS & GETTING STARTED

POWERING THE PG-2K

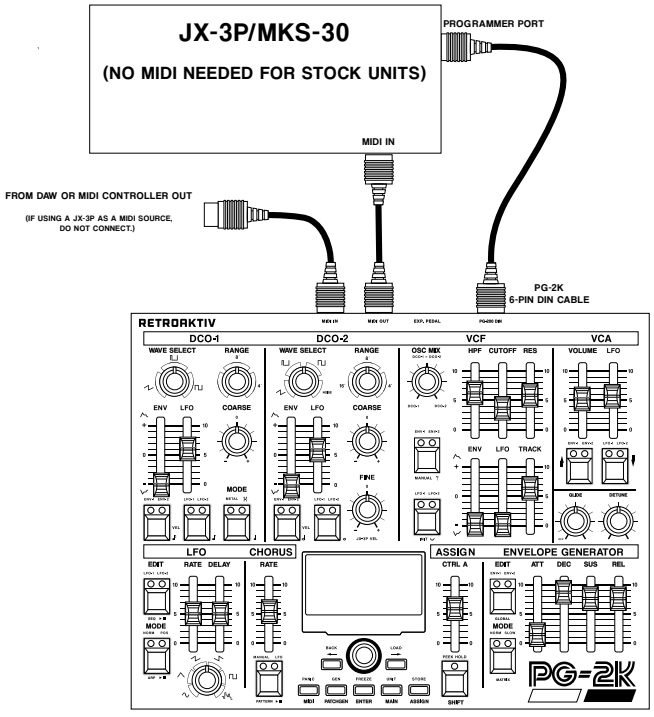
PG-2K is powered by the PG-200 port on the JX-3P or MKS-30 synth. To begin using the PG-2k, the programmer must be conected to the synthesizer with the included 6-pin DIN cable.

BEFORE PLUGGING PG-200 CABLE INTO SYNTH OR PG-2K, MAKE SURE THAT SYNTH IS POWERED OFF.

Connect PG-200 port on the PG-2K to the PG-200 port on the synthesizer usingthe 6-pin cable included with PG-2K. Turn the synthesizer on. A splash screen will appear on the PG-2K showing the PG-2K logo as well as the current firmware version. Check the PG-2K listing on the Retroaktiv website (www.retroaktivsynthesizers.com) for the latest firmware. If there is a more recent version of firmware than what is displayed when booting the PG-2K unit, we recommend upgrading the firmware before beginning to work with the PG-2K.

DO NOT INSTALL KIWI FIRMWARE UPDATES WITH THE PG-2K CONNECTED TO THE SYNTH!

PG-2K splash screen. Firmware version displayed beneath logo.



SETTING UP COMMUNICATION WITH THE SYNTH

Before you can begin creating sounds on the PG-2K, you must set up the communication protocol you wish to use with your synthesizer. To set up communications, press the [MIDI] button on the PG-2K. The MIDI: Unit 1 Settings page should appear on the OLED. Here is where all of the communication settings are selected, which tell the PG-2K how to talk with the synth you are using.

Unit 1: This sets the make and model of the synth to be controlled. Options available are:

JX-3P/MKS-30: Use this setting if you are controlling a stock JX-3P or MKS-30 synthesizer, using PG-200 protocol. In this case, only the 6P DIN connection between PG-2K and the synth is needed to edit sounds.

Kiwi-3P: Use this setting if you are controlling a Kiwi-3P. This setting uses MIDI CCs to communicate with the synthesizer. A MIDI connection from PG-2K to the synth is needed to edit sounds.

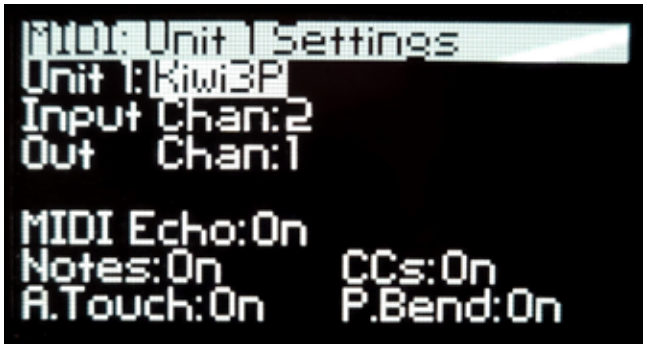
Kiwi-3P Matrix: Use this setting if you are controlling a Kiwi-3P Matrix. This setting uses MIDI CCs to communicate with the synthesizer. A MIDI connection from PG-2K to the synth is needed to edit sounds.

Kiwi-30: Use this setting if you are controlling a Kiwi-30. This setting uses MIDI CCs to communicate with the synthesizer. A MIDI connection from PG-2K to the synth is needed to edit sounds.

Tauntek: Use this setting if using an MKS-30 that has Tauntek firmware, which enables CCs to be received by the MKS-30. A MIDI connection from PG-2K to the synth is needed to edit sounds.

If using a MIDI communication protocol, we recommend starting out with Input Chan and Output Chan on the PG-2K set to channel 1. The synthesizer should be set to receive MIDI on channel 1. The midi settings parameters will be discussed in further detail in the MIDI Menu setion of this manual. Here, we are simply getting set up so a sound can be edited using the PG-2K. If the Unit 1 and Output Chan settings are both correct, moving a slider on PG-2K should be editing the sound you hear on the synth.

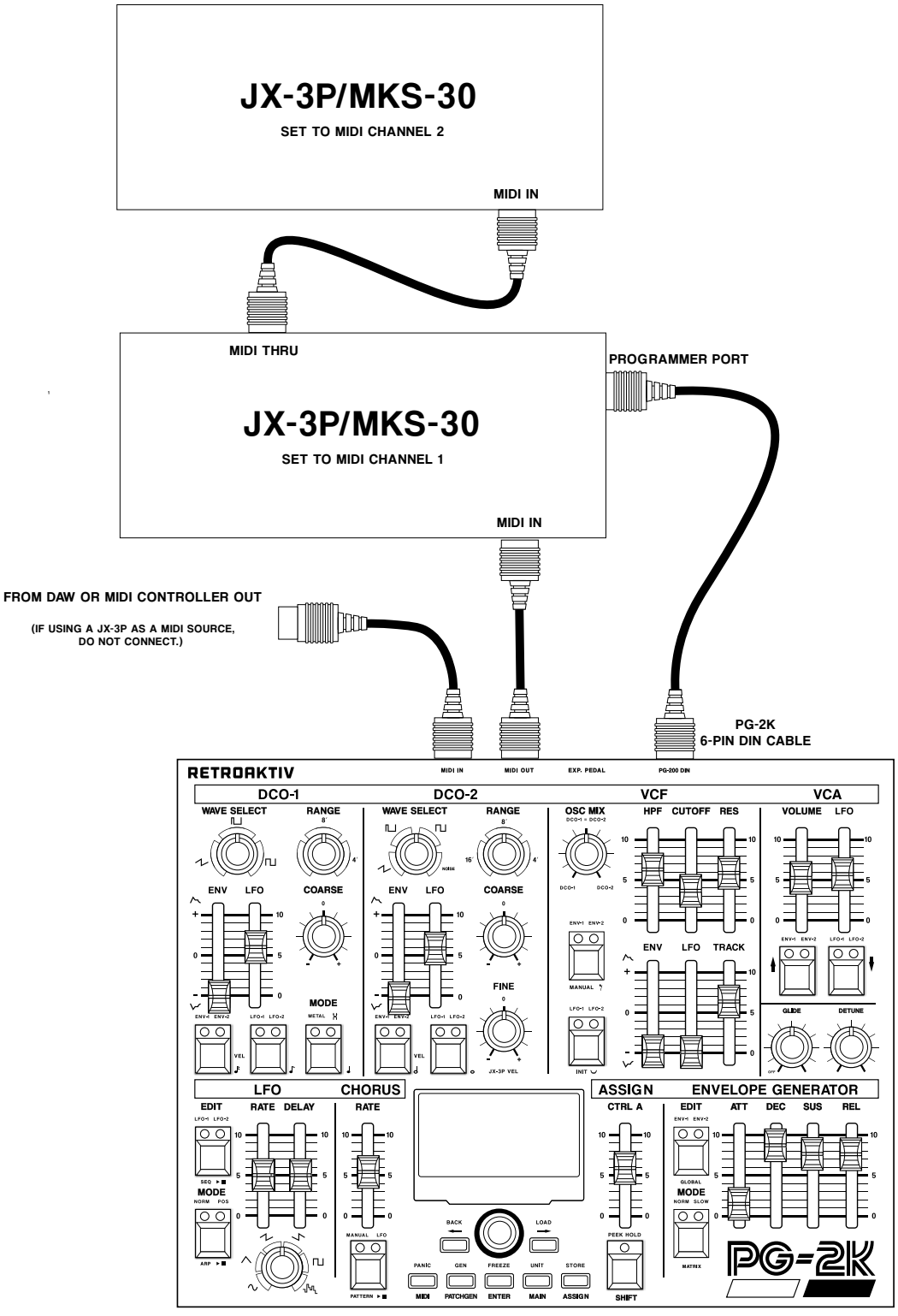
The PG-2K MIDI: Unit 1 Settings menu setting shown below contains example settings for getting started. Use the connection diagram shown on the previous page, and select the model of synth the PG-2K is controlling. If using a stock JX-3P or MKS-30, no MIDI connections are necessary. If using a synth that supports MIDI, set the synth to receive control data on channel 1, and send note data to the PG-2K on channel 1.



Basic MIDI menu settings on the PG-2K

MULTI-UNIT OPERATION

PG-2K can control 2 MKS-30/JX-3P units independently, or as a single 12-voice synthesizer. Users can play the 2 synths as a "STACK", where the two synths are layered, similar to the UPPER & LOWER tone architecture found on synths like MKS-80 and MKS-70/Super JX. The two synths can also be daisy chained by using PG-2K's Multi-Unit Poly Mode, which turns the 2 synths into a single 12-voice synth, effectively doubling the polyphony of an Alpha JX-3P. The figure below shows the most basic connection scheme for multi-unit operation.



Basic MIDI configuration for 2 Unit Operation

USING TWO UNITS IN 'STACK' MODE

To play two units in stack mode, Unit 1 and Unit 2 output channels should be different, and Unit 1 and Unit 2 input channels should be set to the same channel. This means that both synths will receive note data from the same source, but each synth is set to receive on a different channel, so controller data intended for each synth does not get sent to the wrong unit.

USING TWO UNITS IN MULTI-UNIT POLY MODE

When in Multi-Unit Poly Mode, the 2 units become a single 12-voice synthesizer. This means rather than stacking two 6-voice synths over each other, we load the same sound onto both, and use them as a 12-voice synthesizer. The Unit 1 and Unit 2 MIDI: Settings are the same as in STACK mode, however MULTI-UNIT POLY MODE must be set to ON.

PG-2K MIDI: Settings Unit 2 - Multi-Unit Poly Mode

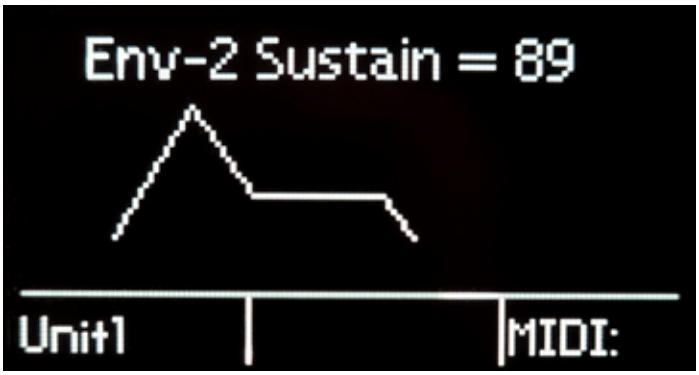
Since Multi-Unit Poly Mode (M.U.P.M.) is essentially turning two 6-voice synths into a single 12-voice synth, it is recommended that both synths be the same model. This means that if using 2 MKS-30s, they should either both be stock units, or they should both be Kiwi-30/Kiwi-30 Matrix units. This is because the envelope and LFO times, as well as many other time-based controls vary considerably from model to model. If using a stock MKS-30 with a KIWI-30 in M.U.P.M., every other note will have a drastically longer or shorter envelope time than the one before.

If using "stock" MKS-30/JX-3P units in M.U.P.M., it is recommended that they both be able to receive MIDI and CC to PG-200, as the PG-2K has only one PG-200 port, and it cannot be shared by the units. For example, two MKS-30 units with Tauntek CC firmware will work as one synth in M.U.P.M., whereas two stock units would not.

It is critical that OMNI be turned OFF on both synths in M.U.P.M. If OMNI mode is enabled, then both synths will respond to every note being played.

MENUS AND NAVIGATION

The PG-2K will boot up and display the MAIN menu screen. The diagram below shows the contents displayed on the MAIN screen.



PG-2K MAIN Screen

The MAIN screen displays the following information:

1 - Current active parameter name and value

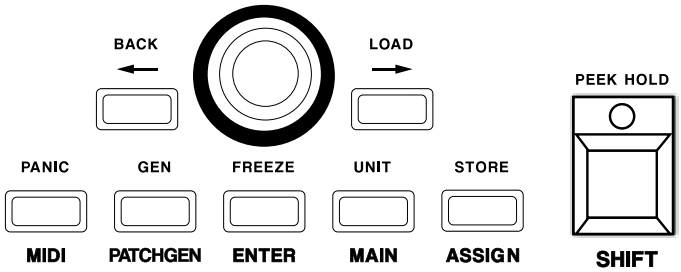
2 - Unit: The box in the lower left corner of the screen displays the unit currently being controlled by the MPG.

3 - Oct: The center box on the bottom of the MAIN screen shows the current octave transposition setting.

4 - MIDI Input Monitor - Displays channel of incoming MIDI activity received at PG-2K MIDI IN port.

To return to the MAIN screen at any time, press the [MAIN] button in the navigation console. Pressing MAIN repeatedly will cycle between editing the MAIN, AUX, or BOTH synths. SHIFT + MAIN will also toggle the layer.

The encoder and arrow buttons are used to navigate menus and change settings. The SHIFT function refers to the switch on the encoder knob. To engage the SHIFT function (used for double-button combos such as SHIFT+MIDI button = MIDI Panic), press and hold the encoder knob. To increment a value with the encoder, simply turn the encoder knob. To increment or decrement by 8, hold the SHIFT button in while turning the encoder.



PG-2K Navigation Console

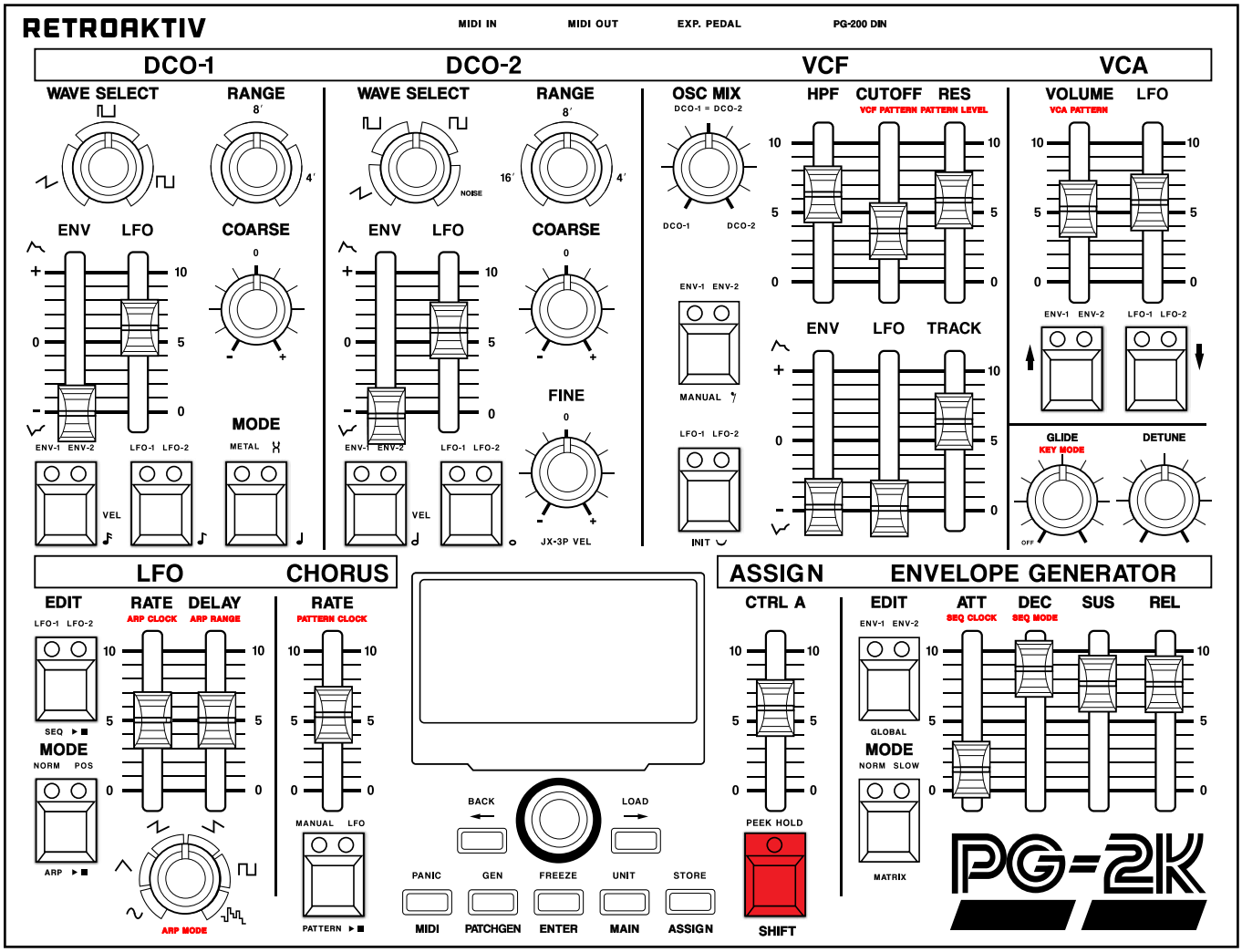
Use the [MIDI], [PATCHGEN], [ASSIGN], and [MAIN] buttons to navigate to the different menu pages. To move the cursor on a menu page, use the [LEFT] and [RIGHT] buttons. To change the value of a highlighted menu setting, use the [ENCODER] dial.

THE "SHIFT" BUTTON

The SHIFT button is used to access or edit a second function. To use the second function of a slider or button, press and hold the SHIFT button while actuating the target button, or moving the target switch. The second function of buttons is labeled on the front panel in blue, to indicate that pressing the button while SHIFT is held, will edit the second function.

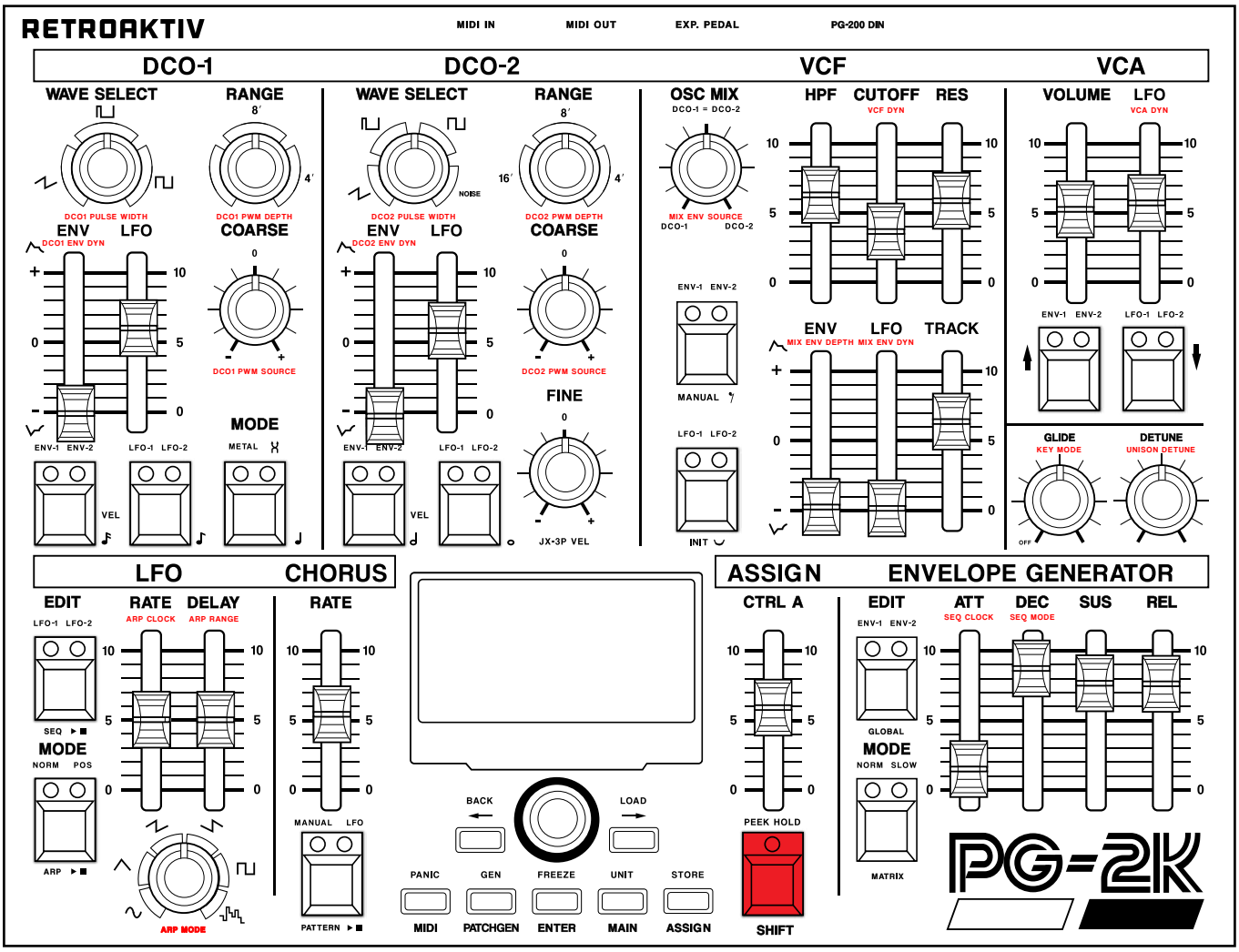
SECOND FUNCTION CHARTS

KIWI-3P SECOND FUNCTIONS



- SHIFT + LFO MODE BUTTON= Arpeggiator Start/Stop
- SHIFT + LFO EDIT BUTTON= Sequencer Start/Stop
- SHIFT + CHORUS BUTTON = Pattern Generator Start/Stop
- SHIFT + ENV EDIT BUTTON = Matrix Editor
- SHIFT + ENV MODE BUTTON = Global Menu
- SHIFT + ENV SEL BUTTON = Patch Pattern Enable
- SHIFT + GLIDE SLIDER = Key Mode
- SHIFT + DETUNE SLIDER = Detune Mode
- SHIFT + LFO RATE SLIDER = Arpeggiator Clock Source
- SHIFT + LFO DELAY SLIDER= Arpeggiator Range
- SHIFT + LFO WAVE SELECT = Arpeggiator Mode
- SHIFT + LFO RATE SLIDER = Arpeggiator Clock Source
- SHIFT + ATTACK SLIDER = Sequencer Clock Source
- SHIFT + DECAY SLIDER = Sequencer Mode
- SHIFT + CHORUS SLIDER = Pattern Clock Source
- SHIFT + CUTOFF SLIDER = Pattern To VCF Enable
- SHIFT + VOLUME SLIDER = Pattern To VCA Enable
- SHIFT + RESONANCE SLIDER = Pattern Level

KIWI-30 & KIWI-3P MATRIX SECOND FUNCTIONS



NOTE: Sliders associated with pulse width functions are not available on KIWI-30 units. All other second functions are identical on KIWI-30 and Kiwi-3P Matrix units. Note: Mix Env Dyn, Mix Env Depth, and Mix Env Sel do not appear to be implemented on the Kiwi-30 or Matrix. If they do become active, we'll support them as indicated here.

KIWI-30 Second Functions:

- SHIFT + LFO MODE BUTTON= Arpeggiator Start/Stop
- SHIFT + LFO EDIT BUTTON= Sequencer Start/Stop
- SHIFT + ENV EDIT BUTTON = Matrix Editor
- SHIFT + ENV MODE BUTTON = Global Menu
- SHIFT + GLIDE SLIDER = Key Mode
- SHIFT + LFO RATE SLIDER = Arpeggiator Clock Source
- SHIFT + LFO DELAY SLIDER= Arpeggiator Range
- SHIFT + LFO WAVE SELECT = Arpeggiator Mode
- SHIFT + LFO RATE SLIDER = Arpeggiator Clock Source
- SHIFT + ATTACK SLIDER = Sequencer Clock Source
- SHIFT + CUTOFF SLIDER = VCF Env Dynamics
- SHIFT + VOLUME SLIDER = VCA Dynamics
- SHIFT + DCO-1 ENV SLIDER = DCO-1 Env Dynamics
- SHIFT + DCO-2 ENV SLIDER = DCO-2 Env Dynamics
- SHIFT + OSC MIX SLIDER = Mix Env Select
- SHIFT + VCF ENV SLIDER = Mix Env Mod Depth
- SHIFT + VCF ENV SLIDER = Mix Env Dynamics

Kiwi-30 Matrix Second Functions:

- ALL functions of KIWI-30, plus the following:
- SHIFT + DCO-1 WAVE SELECT = DCO-1 Pulse Width
- SHIFT + DCO-2 WAVE SELECT = DCO-2 Pulse Width
- SHIFT + DCO-1 RANGE = DCO-1 Pulse Width Mod Depth
- SHIFT + DCO-2 WAVE SELECT = DCO-2 Pulse Width Mod Depth
- SHIFT + DCO-1 COARSE = DCO-1 Pulse Width Mod Source
- SHIFT + DCO-2 WAVE SELECT = DCO-2 Pulse Width Mod Source

MANUAL MODE

To send the current slider and button settings on the front panel to the synth, go to the MAIN menu by pressing [MAIN]. Now press [SHIFT] + [VCF ENV SELECT]. A dialog box will pop up, reading "Sending all control positions".

INIT PATCH

Press [SHIFT] + [VCF LFO SEL] to generate a blank "init patch". This is a useful tool when creating a brand-new sound from scratch.

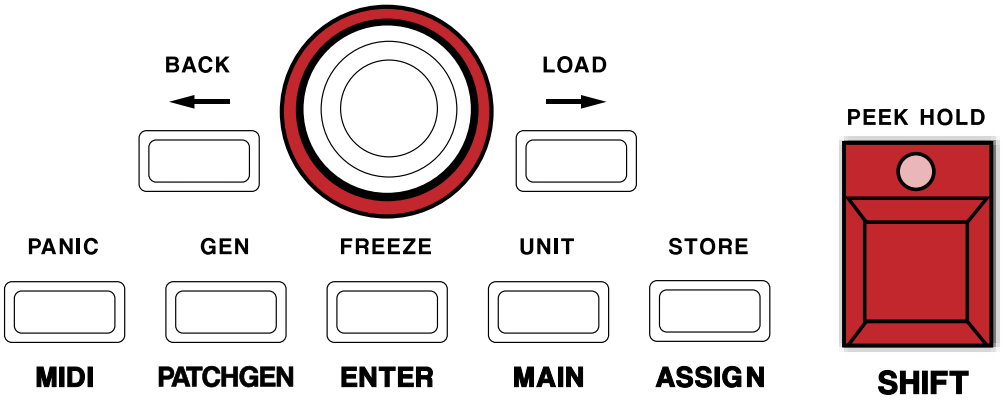
THE ENCODER BUTTON

The rotary encoder on the PG-2K also acts as a button, which if held down, will perform a second function. The encoder has the following functions when held down:

PEEK Mode: Moving a slider while holding the [ENCODER] button will display the current value of the slider on the PG-2K display, without actually editing the slider value. If the slider has a second function, turning the encoder to the left or the right while holding down, will display the values of the primary and secondaty function of the slider.

INC/DEC By 8: If the [ENCODER] is held while turning the encoder to edit a value, the edited value will change by +/- 10.

PEEK HOLD: Currently disabled.



PEEK and PEEK HOLD functions. Hold [ENCODER] to PEEK. Hold [SHIFT] + [ENCODER] for PEEK HOLD.

USING ENCODER TO SCROLL FASTER

Holding the [ENCODER] button while turning the encoder will scroll through parameter values more quickly. Holding the arrow buttons down in a menu will also scroll quickly.

EDITING USING PG-2K

PG-2K was designed to provide the most intuitive, hands-on programming experience possible for owners of Kiwi-3P, Kiwi-30, Kiwi-Matrix, and stock JX-3P/MKS-30 synths. Some basic explanations of the PG-2K user interface will get you programming your synths quickly. The OLED screen on the PG-2K provides detailed information about any parameters being edited from the front panel. Waveforms, envelope shapes, and other details are displayed on the MAIN screen any time a parameter is edited.

WHY 0 - 255?

Stock JX-3P and stock MKS-30 synths communicate using PG-200 language instead of MIDI. Where MIDI uses values ranging from 0-127 (7-bit), PG-200 uses values ranging from 0-255 (8-bit). The PG-2K will always display the 0-255 values when editing parameters.

THE MOD SOURCE BUTTONS AND BIPOLAR ENVELOPE SLIDERS

The PG-2K uses LED buttons to indicate which modulation source is selected for each section of the synth. When no source is selected on a mod select switch (All LEDs OFF), the modulation amount associated with that button is 0. Each mod selects button can be OFF (No Mod) - SOURCE 1 - SOURCE 2 - SOURCE 3 (If available). **If ENV 3 or LFO 3 is selected, both LEDs on the mod select button will be ON**. (Env/LFO 3 only available on Kiwi-30 & Kiwi-3P MATRIX) We've combined the envelope amount and envelope polarity parameters on each synth, into a single bipolar slider.

THE EDIT SELECT BUTTONS AND LFO3/ENV3

The LFO and ENVELOPE sections of the PG-2K support editing of multiple instances of each. Pressing the EDIT button will toggle which LFO or ENV is being edited. If using a Kiwi-30 or Kiwi 3P Matrix (Which have 3 envelopes and 3 LFOs) ENV3 and LFO3 will be indicated by both LEDs being lit on the EDIT button.

KIWI-30 & KIWI 3P MATRIX EDITING

Kiwi 30 and Kiwi 3P Matrix models have more parameters that can be edited, than there are sliders and buttons on the PG-2K front panel. It is still simple to access and edit any of those parameters without menu diving, by pressing and holding [SHIFT] while moving the slider that has the desired "second parameter control" assigned to it. **For a full diagram, showing all second functions, refer to pages 10-11 in this manual.** Some second parameters, such as KEY MODE, ANALOG FEEL, etc. require keying notes to hear the edits being made. This is hard to do if one hand is using [SHIFT], and the other hand is moving the slider. For these parameters, the second function will remain active without holding [SHIFT], until the [SHIFT] button is pressed again.

SPECIAL FUNCTION MENUS

Special function menu pages are labeled in blue on the PG-2K front panel. Pressing [SHIFT] + the associated button will jump to the special menu. Special menus are only available for Kiwi synths, as these parameters are not available on stock units. The following special menus are available:

Sequencer Menu - [SHIFT + LFO EDIT]
Pattern Generator Menu - [SHIFT + CHORUS MODE]
Apreggiator Menu - [SHIFT + LFO MODE]
Global Parameters Menu - [SHIFT + ENV EDIT] (Currently disabled)
Modulation Matrix Menu - [SHIFT + ENV MODE]

NOTES FOR USE WITH STOCK UNITS

To edit a stock JX-3P or stock MKS-30 unit, the PG-200 cable must be used to communicate with the synth. The stock units do not use MIDI CC or sysex messages to communicate. You will notice that when using the PG2K to control stock synths, some parameters on the PG2K do nothing. This is because stock units only support parameters that were found on the original PG-200 controller.

STOCK JX-3P VS STOCK MKS-30

Although the MKS-30 and JX-3P both understand PG-200 protocol, there is a slight difference between the two units. The MKS-30 has an extra pin called "BUSY", which allows the MKS-30 to tell PG-2K when it's ready for another bit to be transmitted, which allows the MKS-30 to receive data 3 times faster than JX-3P can. JX-3P does not have an active BUSY pin, therefore the data reception rate for stock 3P will be slower than MKS-30.

THE PATCH GENERATOR

When using the PATCH GENERATOR with stock units, no "subcategories" are used. This is because for stock units, there is an entirely different patch generator than the patch generator used on the Kiwi modded units. Because the differences between the two types of units is so vast, we took a separate approach to the patch generator algorithms based on the synth being used.

CC TO PG-200 TRANSLATION

PG-2K can send CCs which when recorded and played back into the PG-2K, the PG-2K will translate those messages into PG-200 messages. This allows slider movements to be recorded and played back. Of course, the stock JX-3P will only allow either MIDI note data or PG-200 data to be received at one time unless modded. A stock MKS-30 can receive the note data and PG-200 data simultaneously, which makes it ideal for using the PG-2K CC Translate function with.

STORING SOUNDS IN PG-200 FORMAT

PG-2K will automatically store your sounds in PG-200 format if you're using a stock unit. Once stored on PG-2K, your sounds and sound banks cab be exported as sysex files, eliminating the need for using WAV and tapes for backing up sound banks. Unfortunately the 3P has no way to export sounds in PG-200 format. Once a sound is created and stored on PG-2K it can be sent to the synth using PG-200 protocol, or sent to a DAW using sysex.

SEQUENCER

The PG-2K sequencer will not work with stock JX-3P, as the stock unit does not have support for MIDI or PG-200.

STACK MODE AND MULTI-UNIT POLY MODE

STACK mode can be used with any combination of supported synths. If using 2 stock units, at least one will need to be modded to repond to CCs (There is only one PG-200 port, and that supports just one synth). If using the multi-unit feature on PG-2K (Turns 2 synths into a single synth with double the polyhony), we recommend that both synths be the same (MKS-30 and JX-3P would be considered "the same" here). The differences across all of the KIWI units make using different ones together not ideal. For example 50% VCF cutoff on Kiwi-3P is different from the same setting on Kiwi-3P Matrix. This will affect how seamless the 2 units sound when in multi-unit mode.

PG-2K MEMORY STORAGE

PG-2K has 32k of on-board storage, which can store banks of PATCH, SETUP, ASSIGN, and SEQUENCE objects. PG-2K uses its own file librarian system, allowing it to store banks of JX-3P, MKS-30, Kiwi-3P, Kiwi-30, and Kiwi-Matrix sounds, and allow these to be recalled on any model. To do this, **we created a "universal" patch format, which stores patch data in such a way that it can be used to store and recall any format, including the original PG-200 format.**

Stock PG-2K can store 2 banks of 64 Tones, and 1 bank each of 16 ASSIGN, USER CC MAP and SETUP objects. If PG-2K has a memory expansion card installed, it can hold 8 banks of 64 TONE, and 2 banks each of 64 ASSIGN, USER CC MAP and SETUP objects.

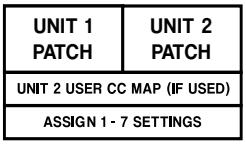
The PG-2K contains 64 factory presets, programmed by Espen Kraft. These presets were programmed on Kiwi-3P, and will work best with that synthesizer. Make a note that **if translating between Kiwi and stock sound banks, the translation may not result in a carbon copy of the original sound, since those two models have very different parameter sets.**

PG-2K can convert sounds made for stock units into sysex files, which allows users to back up JX-3P and MKS-30 sounds without using the old-fashioned tape backup method, which is a hassle, and often unreliable.

PATCH objects include all original PG-200 TONE parameters as well as all Kiwi TONE parameters, for all KIWI models. Below is a diagram showing what PATCH, SETUP, and ASSIGN objects consist of.

PATCH

SETUP



ASSIGN

SETUP STRUCTURE

A SETUP is a "snapshot" of all of the current settings on all layers in the controller. Use this object type to store a "stacked" multi-unit patch, or a patch with an ASSIGN attached. A bank of 64 setups on the PG-2K contains 128 patches and 7 assigns. SETUP consists of the following:

- Unit 1 PATCH settings
- Unit 2 PATCH settings
- Any User CC MAP being used
- Current ASSIGN settings (Assign A, Exp Pedal, Aftertouch, and CC Assigns 1-3)

PATCH STRUCTURE

A PATCH is a "snapshot" of either the UNIT 1 or UNIT 2 LAYER in the controller. All tone parameters are saved in a PATCH. The PG-2K is capable of storing patches intelligently, in the format of the synth they were created on. Patch structure will vary depending on which model of synthesizer the PG-2K is controlling.

ASSIGN STRUCTURE

An ASSIGN is a "snapshot" of all of the ASSIGN menus. An ASSIGN consists of the following ASSIGN Sources:

- CTRL A Slider
- Expression Pedal
- Aftertouch
- CC Source 1
- CC Source 2
- CC Source 3

USER CC MAPS

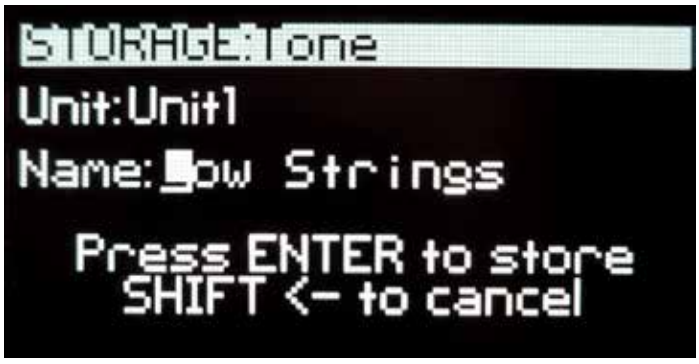
A CC MAP consists of all sliders EXCEPT CTRL A, VOLUME, and the buttons. Each slider can be used in a CC MAP to transmit a specified CC. Users can create their own CC maps for controlling other equipment with PG-2K. There are 8 User CC maps available in PG-2K memory.

STORING AND RECALLING OBJECTS

To store and name an object:

- Press SHIFT + ASSIGN (STORE), and select thetype of object, and the location that it will be stored.
- Press ENTER, and the storage dialog will appear.
- Enter the new name of the object to be stored. When naming an object, [**SHIFT]+ [RIGHT] will clear the current name**. **Tapping the encoder button will cycle through number, punctuation, upper and lower case characters quickly. (A - a - ! - 1)**
- Press [STORE] or [ENTER]. A "Success!" message will be displayed, and the object is now stored in memory.

.



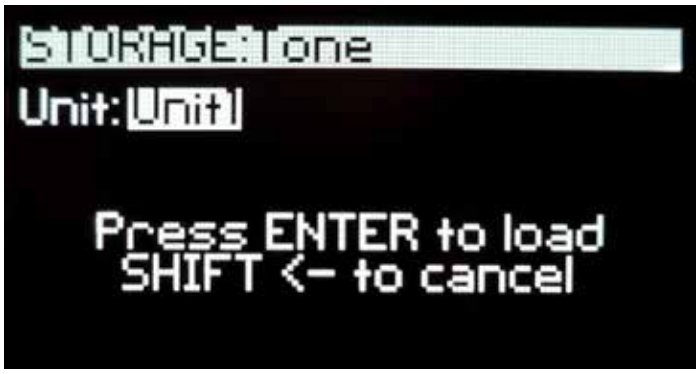
Naming an object

To load an Object

- Press SHIFT+RIGHT (LOAD), and a select the object type to be loaded.
- Use the arrow keys or the encoder to navigate through the BANK. To advance BANK, press the SHIFT+RIGHT(LOAD) button again.
- Press ENTER to load the selected object.

Select object type to LOAD

Select the object to LOAD



Select UNIT to LOAD object to

To delete an Object

- Press [SHIFT] + [LEFT]

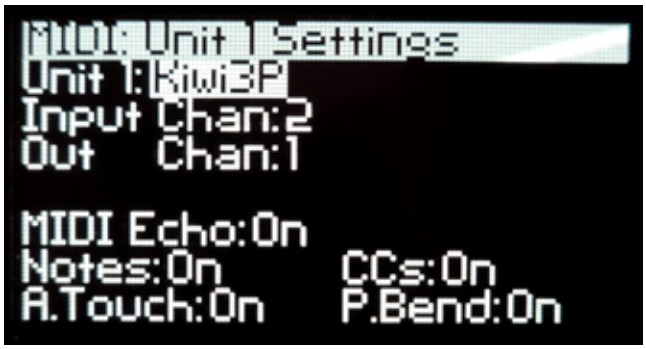
To delete a Bank

- Press [ENCODER] + [LEFT]

THE MIDI MENUS AND FUNCTIONS

MIDI: UNIT 1 SETTINGS

The MIDI Settings menu contains all of the parameters that determine which MIDI channels the PG-2K receives data on, and which channels outgoing data will be transmitted on. This page is also where we configure program change handling, as well as CC to sysex translation.



The MIDI:Settings Menu

Unit: This sets the type of synth being controlled by PG-2K. This must match the model of the unit being controlled. The following synths are supported:

- JX-3P/MKS-30 (Stock units)
- Kiwi-3P
- Kiwi-30
- Kiwi-3P Matrix
- Tauntek MKS-30
- Organix CC

Input Channel: Sets the input ports that PG-2K will listen for incoming note and controller data on. If MIDI Echo is turned on, then notes received at PG-2K MIDI IN on this channel will be passed to the synth via the PG-2K MIDI OUT, on the Output channel.

Out Channel: Sets the output ports that PG-2K will transmit UNIT 1 controller data on. The **Out Ch** for the determines which MIDI channel the PG-2K will transmit data received on Input channel, as well as any slider data on UNIT 1. For example, if MIDI INPUT CH is set to CH1, and MIDI OUTPUT CH is set to CH2, then incoming notes on CH1 will be transmitted out to UNIT 1 on CH2. The synth on UNIT 1 must be set to receive on CH2 for this to work. This scheme allows PG-2K to prevent feedback loops by reading incoming data on one channel, but transmitting it on a different channel. When this data comes back to the PG-2K, it is not passed through the unit again, because CH2 is not CH1. This effectively breaks any feedback loop when loop recording. This may be confusing at first, but please make an effort to make sense of this, as this is a powerful tool when recording slider movements and automating using CCs.

Translate: To translate incoming CC messages into PG-200 (for CC automation of stock JX-3P and MKS-30), set this to SEND/TRANSLATE CC. When in TRANSLATE CC mode, incoming CCs on the INPUT CH will be converted into PG-200 messages and sent to the synth on the PG-200 PORT. (See the CC table at the end of this manual for a reference.) In this mode, moving a slider will produce only a CC, which can be recorded and played back into the PG-2K to be translated into PG-200 protocol for the synth.

MIDI Filters:

- **Note** - Filters incoming note data. Set to ON to pass notes and BLOCK to block notes.
- **CC** - Filters incoming CC data.
- **Pitch** - Filters incoming pitch bend data.
- **Aftertouch** - Filters incoming aftertouch data.

MIDI: UNIT 2 SETTINGS

Unit 2 Midi: Settings page is nearly identical to the Unit 1 MIDI: Settings page, however, Unit 2 can be configured as a CC map, which allows the user to create a custom CC map on the PG-2K control surface, allowing them to control other gear using CCs.

Editing of Unit 1 and Unit 2 simultaneously has been disallowed due to how different each of the Kiwi synths is from the others. Many of the parameters on these synths have vastly different functions and response curves, making simultaneous editing redundant.

If Unit 2 is set to OFF, then the PG-2K will not give users the option to choose which unit is being edited. If Unit 2 is set to MKS-30, JX-3P, or CC, then the user will have the option to choose which unit is being edited, by using the MAIN button (When on the MAIN screen).

If using a CC map for unit 2, please refer to the section in this manual called USER CC MAPS for information about creating, storing, and loading USER CC MAP objects.

MIDI: GLOBAL SETTINGS

The MIDI: Global Settings Page

Multi-unit Poly Mode: When enabled, this function allows Unit 1 and Unit 2 to act as a single synthesizer, which doubles polyphony. **When enabled Note/CC/control data will be received on Unit 1 In Ch only (Unit 2 In Ch will be ignored), and the PG-2K will send note data to the synths on the Unit 1 OUT channel and Unit 2 OUT channel. For this mode to work, Unit 1 OUT and Unit 2 OUT must be set to different OUT channels.**

Multi-Unit Poly Mode mode is for setups that utilize two identical synthesizers. When enabled, this allows for a 12-voice synth. Note: This only works correctly for Kiwi modified or CC enabled matching units. Mixing a Kiwi-3P and a Kiwi-30 for example, will not yeild satisfactory results, as the two synths have different envelope and LFO curves. The units MUST be the same for this function to work properly.

When Multi-Unit Poly Mode is enabled, the PG-2K will consider the 2 connected Alpha JX-3Ps to be a single 12-voice polyphonic synth. For the 2 synths to act independently, they must each be set to receive on a different MIDI channel. The Unit 1 input channel will be the only active MIDI IN channel when Multi-Unit Poly Mode is enabled.

Chord Mode:

- **On/Off - When enabled, playing a single note on the keyboard will play the selected chord.**

The PG-2K CHORD MODE function allows users to input a chord, and then play it by keying a note. The chord will be transposed anywhere on the keyboard where a new note is keyed. When enabled, a menu dialog will appear, showing the notes in the current CHORD. (ChordNt) Each of the notes in the chord can be entered manually, using the cursor and encoder, or the chord can be entered into the PG-2K by holding SHIFT and playing a chord into the unit. To clear the current chord, press SHIFT to delete the current chord contents. Chord Mode will allow 8 notes to be on at one time. Depending on the size of the chord and how many notes being held, the PG-2K will not "steal" voices. It will instead play the chords with any available voices.

Chord Mode Parameters

Program Change: PG-2K can handle program change messages in a variety of ways. There are 4 different Program Change Modes on PG-2K:

- **Block** - When a program change is received, it will be blocked.
- **Echo** - When a program change is received, it will be passed on to the selected Output Port.
- **Echo + Int** - When a program change is received, it will be passed on to the selected Output Port, and PG-2K objects will respond to program changes.
- **Internal** - When a program change is received, PG-2K objects will respond to program changes.

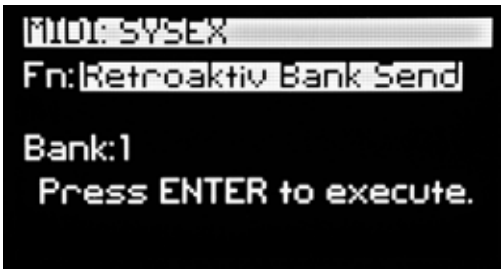
When **Internal** program change is selected, **each type of MPG-8X object can be recalled using MIDI program changes**. Using this function, any tone, tone, assign or setup can be selected using MIDI program change and bank change messages. Each of the following object types can be recalled on PG-2K using MIDI program change messages.

- **Tone U1**
- **Tone U2**
- **User CC Map**
- **Assign**
- **Setup**

The PG-2K can accept program change messages from any channel, and each object type and unit can respond to them. When CHANNEL is set to OFF, this indicates that the object type will note be changed when a program change message is received.

MIDI: SYSEX MENU

The MIDI: SYSEX Menu is used to import and export sound banks, patches, and other object types.

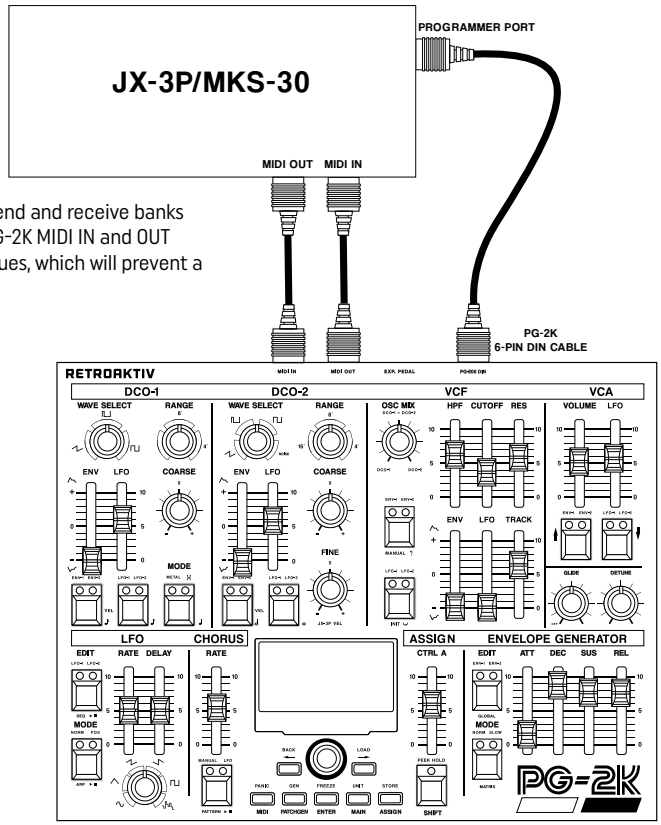


The MIDI:Sysex Menu

The following operations are possible using the SYSEX utility.

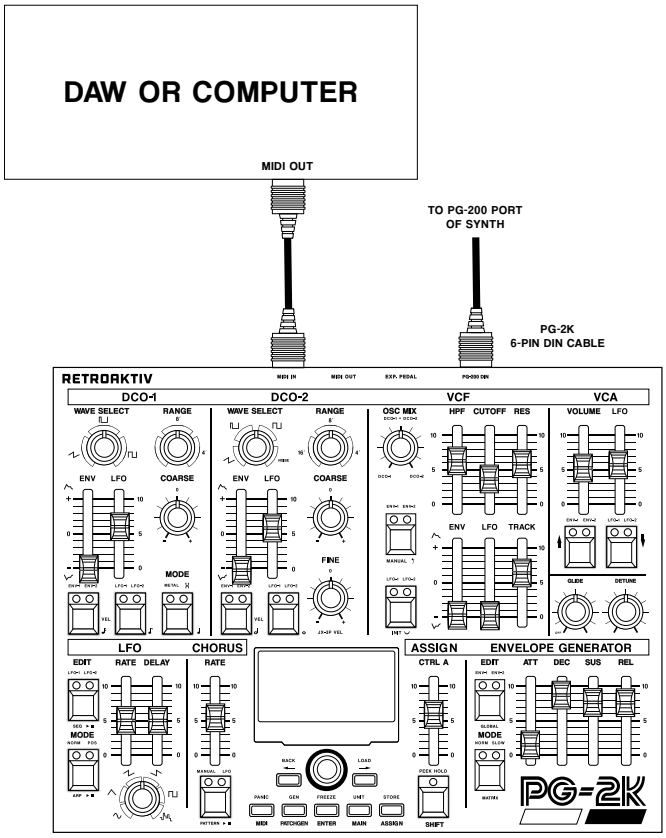
- Send and receive a bank from Kiwi-3P, Kiwi-30 or Kiwi Matrix
- Send and receive Kiwi patches
- Send and receive bank in Retroaktiv PG-2K format. (Works across all synth models)
- Send and receive any PATCH, USER CC, SETUP, or ASSIGN in Retroaktiv format
- System backup of all stored object in internal and expansion memory

When importing objects from the Kiwi modified synth, bidirectional communication with the synth is required. The PG-2K will give instructions based on which model of synth the controller is importing from. Below is an example of bi-directional communication with the synth. (Take proper feedback precautions here.)



When using bidirectional communication to send and receive banks from the synth, it is recommended that the PG-2K MIDI IN and OUT channel be set to separate (non-identical) values, which will prevent a feedback loop.

SETUP FOR IMPORTING OBJECTS FROM COMPUTER OR DAW



IMPORT BANK FROM KIWI

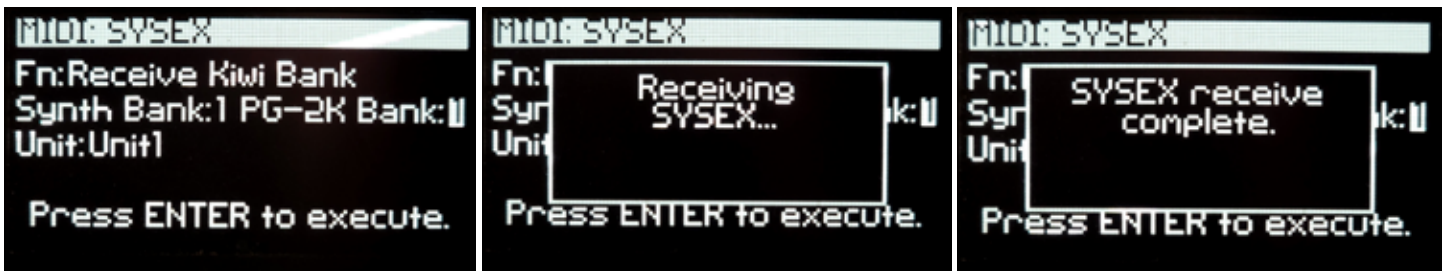
Import a bank from Kiwi-3P, Kiwi-30, Kiwi 3P Matrix: To import a bank from a Kiwi synth, set up bi-directional communication with the Alpha JX-3P as shown in the figure on page 20. Navigate to **Fn: Receive Bank** in the MIDI: SYSEX menu.

- **Bank** - This is the destination bank in PG-2K memory where the imported bank will be stored.
- **Unit** - This is the synth unit that the bank will be imported from.

* It is not possible to import an MKS-30 or JX-3P bank from the synth, as the synths both use the tape backup method, which is not supported by PG-2K. Individual sounds can be transferred to stock synths from PG-2K, but a button press is required to select the storage location on the synth.

- **Select the unit & destination** - Select which unit to import from, and select the bank to import to.
- **Press ENTER to begin importing** - PG-2K will display "Receiving Sysex Data" message.
- **Success** - PG-2K will display 'Success' message when the objects are imported into PG-2K memory.

When using bidirectional communication to send and receive banks from the synth, it is recommended that the PG-2K MIDI IN and OUT channel be set to separate (non-identical) values, which will prevent a feedback loop.



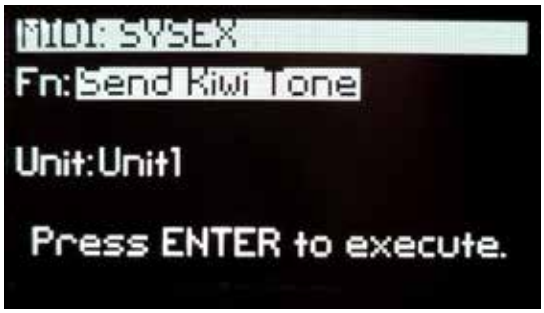
EXPORT A BANK TO KIWI SYNTH

Export a bank to synth: To export a bank to a Kiwi synth, only the connection shown on page 20 is needed. Navigate to **Fn: Send JX-3P Bank** in the MIDI: SYSEX menu.

- **Bank** - This is the PG-2K bank to be exported to the JX-3P.
- **Unit** - This is the unit that the bank will be exported to.
- **Press ENTER on PG-2K to begin exporting** - Data will begin transferring to JX-3P.

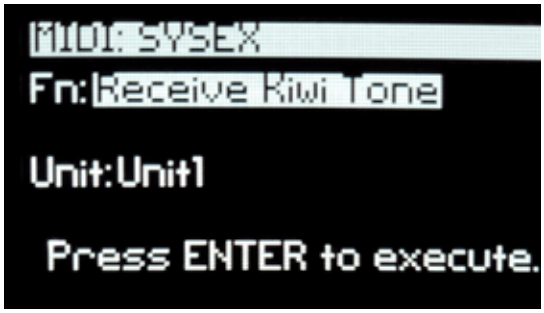
EXPORT A TONE TO KIWI SYNTH

Export a tone to synth: To export the current PG-2K tone data to the edit buffer of the synth, navigate to **Fn: Send Kiwi Tone** in the MIDI: SYSEX menu. Select which unit the PG-2K will send the tone to and press [ENTER]. Note: Once the tone is transferred from PG-2K to the synth, the user must manually store the tone on the synth.



IMPORT A TONE TO PG-2K FROM KIWI SYNTH

Import a tone from synth: To import the current tone data from the edit buffer of the synth to the edit buffer of PG-2K, navigate to **Fn: Recv Kiwi Tone** in the MIDI: SYSEX menu. Select which unit on the PG-2K edit buffer the tone will be imported to and press [ENTER]. Note: Once the tone has been imported to the PG-2K, the tone must be saved into the PG-2K memory bank if it is to be stored on-board PG-2K.

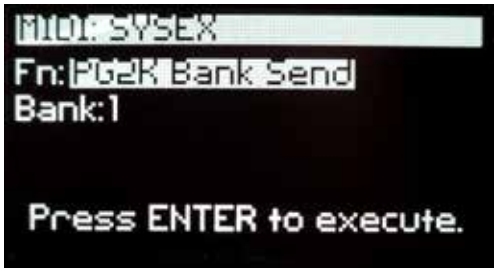


PG-2K BANK SEND & RECEIVE

As mentioned in the STORAGE section of the manual, PG-2K has its own patch format. PG-2K format patches are "universal", meaning that they will work across all Kiwi-3P, Kiwi-30, and Kiwi-3P Matrix models, as well as stock MKS-30 & 3P. When importing and exporting PG-2K type banks, bidirectional communication is not necessary. The import and export procedure is simple and fast. It is recommended that users back up their sound banks in PG-2K format as well as Kiwi format. **Rear switch on Kiwi-3P must be in PROGRAMMER position.**

Export a PG-2K Bank: To export a PG-2K bank, only the connection shown on page 21 is needed. Navigate to **Fn: PG-2K Bank Send** in the MIDI: SYSEX menu.

- **Bank** - This is the PG-2K bank to be exported to the JX-3P.
- **Press ENTER on PG-2K to begin exporting** - Data will be sent from PG-2K MIDI OUT port.

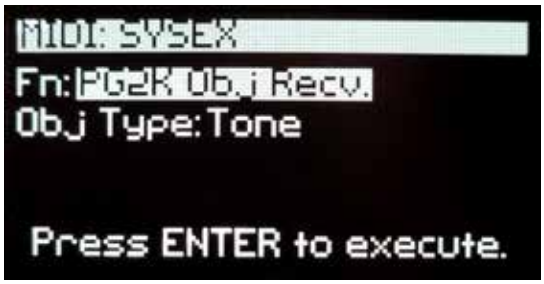


Import a PG-2K Bank: To import a PG-2K bank, only the connection shown on page 21 is needed. Navigate to **Fn: PG-2K Bank Recv** in the MIDI: SYSEX menu.

- **Bank** - This is the destination PG-2K bank to be imported to.
- **Press ENTER on PG-2K to begin Importing** - A success message will be displayed when the bank is received.

PG-2K OBJECT SEND & RECEIVE

Individual PG-2K objects can be imported and exported. ASSIGNs, TONEs, CC Maps and SETUPs can be imported and exported.



Import a PG-2K Object: To import a PG-2K object, navigate to **Fn: PG-2K Obj Recv** in the MIDI: SYSEX menu.

- **Obj Type** - This is the object type being imported.
- **Press ENTER on PG-2K to begin Importing** - A success message will be displayed when the object is received.

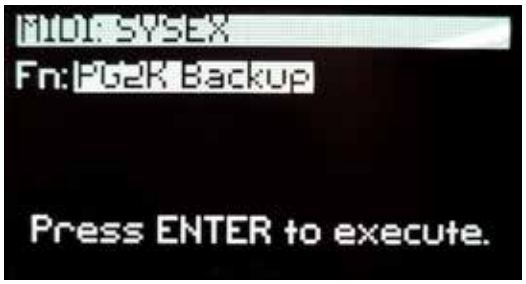
Export a PG-2K Object: To Export a PG-2K object, navigate to **Fn: PG-2K Obj Send** in the MIDI: SYSEX menu.

- **Obj Type** - This is the object type being exported.
- **Press ENTER on PG-2K to begin exporting** - The object will automatically send when [ENTER] is pressed.

PG-2K FULL MEMORY BACKUP & RESTORE

To backup PG-2K memory contents, navigate to **Fn: Storage Backup.** Press ENTER on PG-2K when your PC/DAW is ready to receive the backup data file. When the file is complete, PG-2K will display a 'Completed' message.

To restore PG-2K memory contents, navigate to **Fn: Storage Restore.** Press ENTER on PG-2K so it is waiting to receive the backup file. Send the file to the PG-2K from your DAW/PC. A 'Success' message will be displayed when complete. **Storage Restore will overwrite all of your objects. Be sure you have backed up all of your memory before executing a restore.**



REFORMAT PG-2K MEMORY

To reformat PG-2K memory, power up PG-2K while holding [MIDI] + [ASSIGN]. All memory contents will be erased when this is done.

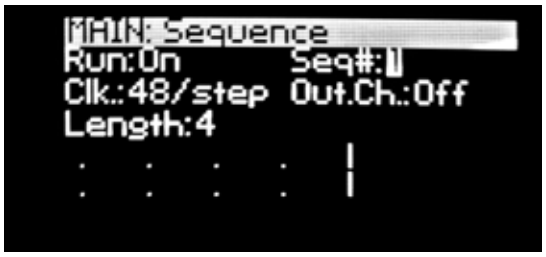
REFORMAT PG-2K USER SETTINGS

To reformat PG-2K user settings, power up PG-2K while holding [CHORUS]. All user settings contents will be erased when this is done.

THE SEQUENCER EDITOR

The Kiwi 3P, Kiwi-30, and Kiwi-3P Matrix allow for MIDI editing of sequences created using the 3P's on-board sequencer. Sequences are stored inside of the synth, and the PG-2K simply allows the user to edit the sequences in the synth's edit buffer. Bi-directional communication with the synth is necessary for sequence editing, so the PG-2K can access, alter, then resend the contents of the synth's sequence edit buffer.

To edit a SEQUENCE, press [SHIFT] + [LFO EDIT (SEQ)] button. The Sequence menu will be displayed on the screen.



The Sequence menu contains the following parameters:

- **Run** - Sequencer Enable. Must be ON for a SEQ to be played.
- **Seq #** - Sequence to be edited/played. (Kiwi-30 & Kiwi-3P Matrix only.)
- **Clk** - Selects clock source for sequencer.
- **Out Ch** - Sequencer Output channel. OFF is the recommended setting for this.
- **Length** - Sets the length of the sequence.

STEP RECORDING

Recording a sequence is easy, using the PG-2K step-record editor.

Important Note: When an edit has been made, use [SHIFT] + [VCA ENV SEL (UPLOAD)] to load the sequence data into the synthesizer's sequencer. Changes won't be heard until the data is uploaded.

- **Record a Note ([SHIFT] + PLAYED NOTE)** - Navigate to where the new note is to be entered in the sequence. Holding shift while playing a note on the keyboard will record that note into the sequence.
- **Delete a Note ([SHIFT] + [LEFT])** - Navigate to the note to be deleted. When highlighted, press [SHIFT] + [LEFT] to delete the note.
- **Note Length ([ENCODER] + [NOTE VALUE])**- Users can select note durations using the [ENCODER] button in combination with any button marked with a red musical note. User can select from 16th, 8th, quarter, half, and whole notes.
- **Rest ([ENCODER] + [VCF ENV SEL (REST)]) -** Enters a REST of the currently selected note duration into the sequencer piano roll.
- **Jump to SEQ Start ([ENCODER] + [LEFT]) -** Jumps to start of sequence.
- **Jump to SEQ End ([ENCODER] + [RIGHT]) -** Jumps to end of sequence.
- **Overdub ([ENCODER] + turn encoder dial) -** Selects step-record track.
- **Clear Sequence ([SHIFT] + [MIDI])** - Clears the current sequence in the PG-2K editor.

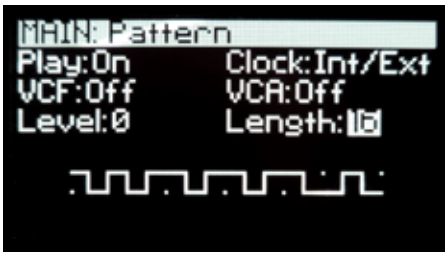
SEQ START & STOP

- **Start/Stop Sequence ([ENCODER] + [LFO EDIT SEL])**- This button combination will start and stop a sequence.

THE PATTERN EDITOR

The Kiwi 3P has a unique pattern generator that can be used to modulate the VCF and VCA, as well as to clock other things, such as the arpeggiator and the sequencer. The pattern generator can add interesting rhythmic elements to Kiwi-3P sounds. PATTERN is not available on Kiwi-30 or Kiwi-3P Matrix.

To jump to the PATTERN EDIT page, press [SHIFT] + [CHORUS (PATTERN]. The pattern editor will be displayed on the screen.



The Pattern menu contains the following parameters:

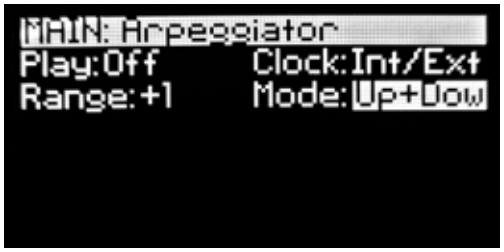
- **Play** - Pattern Enable. Must be ON for a pattern to be played.
- **Clock** - Selects clock source for sequencer.
- **VCF** - Toggles PATTERN to VCF modulation.
- **VCA** - Toggles PATTERN to VCA modulation.
- **Level**- Sets depth of pattern modulation to VCF and VCA.
- **Length** - Sets the length of the pattern.
- **Start/Stop Pattern ([ENCODER] + [CHORUS])**- This button combination will start and stop a pattern.

Each step of the pattern can either be ON or OFF. Use the cursor and the encoder to create patterns using the pattern editor.

THE ARPEGGIATOR

The Kiwi-3P, Kiwi-30, and Kiwi-3P Matrix have an arpeggiator built in.

To jump to the ARPEGGIATOR page, press [SHIFT] + [LFO MODE (ARP)]. The arpeggiator menu will be displayed on the screen.



The Arpeggiator menu contains the following parameters:

- **Play** - Enable.
- **Clock** - Selects clock source for sequencer.
- **Range** - Sets the range of the arpeggiator.
- **Mode** - Sets the direction of the arpeggiator.
- **Start/Stop ARP ([ENCODER] + [LFO MODE])**- This button combination will start and stop the arpeggiator.

THE KIWI MOD MATRIX

The Kiwi 3P, Kiwi-30, and Kiwi-3P Matrix each has a modulation matrix that allows users to route modulation sources such as mod wheel and aftertouch, to synth parameters. Kiwi 3P has a slightly different mod matrix than that of the Kiwi-30 and Kiwi-3P Matrix. (Note that the KIWI MOD MATRIX is different from the ASSIGN on the PG-2K, which we will discuss in hte next section.)

To jump to the MATRIX page, press [SHIFT] + [ENV MODE]. Depending on which synth is being edited, one of the two menus below will be displayed on the screen.

Kiwi-3P Mod-matrix page

Kiwi-30 & Kiwi-3P Mod-matrix page

The Kiwi-3P mod-matrix allows users to select mod sources, and toggle each possible destination routing for that source. The Kiwi-30 and Kiwi-3P Matrix mod-matrix works slightly differently. This version allows users to select from a list of sources and route each to a destination chosen from a list of possible destinations. Each TONE can have up to 8 mod matrix connections. Mod matrix connections are stored with each TONE.

MIDI: USER CC MAPS

The PG-2K allows users to create their own user CC maps, which allow the PG-2K's control surface to be programmed to transmit CCs from any slider, making it ideal for controlling external gear.

To navigate to the CC map page, press the [MIDI] button until USER CC Map is displayed in the menu bar.

The MIDI:CC Map Menu

Creating a User CC Map:

When on the Unit 2 MIDI: Settings page, select USER CC as the Unit 2 type. Now, moving any slider will display that slider's current CC# routing, as well as the MIDI channel that CC slider will transmit on. The encoder can then be used to enter which CC# each slider transmits on. **Each slider can transmit on any CC and any channel independently.**

Pressing [ENTER] when in the User CC Map menu will cycle through all sliders that have active CC routings, making it simple to see which sliders in a map are active.

The Default state of the User CC Map feature is OFF. A User CC Map can only be used on the UNIT 2 layer of the PG-2K. To activate the User CC function, toggle the OFF setting so it reads UNIT 2.

Clearing a User CC Map:

To clear all slider routings in a User CC Map, press [SHIFT]+[MIDI].

Storing and Loading User CC Maps:

PG-2K internal memory can store 24 User CC Maps. To store or load a map, go to the User CC Map menu, and press the STORE or LOAD button once. A list of currently stored CC maps will be displayed. Select the desired slot to be loaded or stored, then press the [STORE] or [LOAD] button. **A CC map can be stored with a SETUP.**

CC TO PG-200 TRANSLATE

PG-2K allows users to record and translate button presses and fader movements with any DAW or sequencer, by allowing CC to PG-200 translation.

To enableCC to PG-200 translate mode, navigate to MIDI: Settings menu, and toggle the Mode to Send/ Translate CC.
When this mode is enabled, moving sliders and toggling button parameters will send a CC message from the PG-2K instead of a PG-200 message.

When using the PG-2K to translate CC messages into PG-200 messages, PG-2K will transmit CCs when a slider is moved, and will translate those CCs to PG-200 if received at PG-2K MIDI IN. **This table shows the implementation of the PG-2K MIDI CC to PG-200 translation.**

DCO-2 Fine Tune: 12
DCO-2 Coarse Tune: 13
DCO Env Mod: 14
DCO LFO Mod: 15
Osc Mix: 16
High Pass: 17
Resonance: 18
Cutoff: 19
VCF Env Mod: 20
VCF LFO Mod: 21
VCF Key Follow: 22
VCA Level: 23
LFO Rate: 24
LFO Delay: 25
Env-1 Attack: 26
Env-1 Decay: 27
Env-1 Sustain: 28
Env-1 Release: 29
DCO-1 Range: 72
DCO-1 Wave: 73
DCO-2 Range: 74
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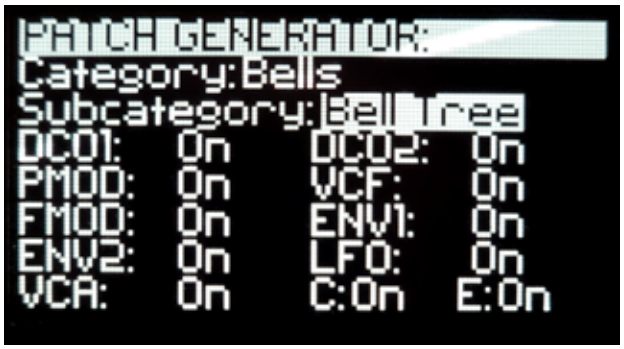
THE PATCH GENERATOR

The Patch Generator tool is a powerful feature that creates intelligently randomized tones, as well as preset "Init tones". This tool provides an endless supply of new, musical tones, which can be created by pressing a button. Here's how it all works:

The Patch Generator uses categories and subcategories so users can tell it which type of sound to create. Below is a chart showing the various categories and subcategories, as well as a brief description of the types of sounds each will generate. Note that these category and subcategory names are being used as "musical adjectives" to describe characteristics of a sound. For example, the harpsichord category in the patch generator doesn't create hyper-realistic harpsichord sounds, it creates synth sounds that have the same characteristics as a harpsichord. This common reference we all have allows us to easily categorize the types of sounds we want the patch generator to create.



The Patch Generator Menu

GENERATING A TONE

To generate a tone, select a category/sub-category, then select which synth layers the tone will be generated on.

Each section of the synth has its own ENABLE in the patch generator menu. Sections shown in the menu correspond to the sections labeled on the front panel. (DCO, Pitch Mod, VCF, Filter Mod, VCA, Amp Mod, LFO, Envelope Times, Envelope Levels, and Chorus) **Setting a section's ENABLE to OFF prevents the patch generator from randomizing any of the parameters in that section when a new tone is created.** To disable all sections, press PATCHGEN button. Pressing the PATCHGEN button again enables all sections. This shortcut makes it simple to do something such as disable all sections, then set just one section to ON.

The tone generator does not randomize any patch settings (KEY SHIFT, KEY MODE, ASSIGN MODE, BEND etc), volume and balance settings (UP/LO BAL, VOL & X-FADE), aftertouch settings, or the VCA ENV AMT. These settings can be set manually.

To generate a patch generator tone from any menu, press SHIFT+PATCHGEN. The currently selected category and sub-category of tone will be generated when this operation is executed.

PATCH GENERATOR "VARIATION" FUNCTION

The PG-2K patch generator contains many algorithms and "choices" when generating a new sound. Sometimes the patch generator will generate a great sound, which we find ourselves wishing we could hear more variatons of. If the patch generator makes a sound that you want to hear variations on, press **[SHIFT] + [ENTER]** while in the patch generator menu. This will generate a new sound using the same algorithms and choices as the last sound created.

GENERATE A PATCH FROM MAIN SCREEN

To generate a patch from the MAIN MENU of the PG-2K, press **[SHIFT] + [PATCHGEN]**. Whichever category and subcategory was last selected in the PATCHGEN menu will be used when generating a patch from the MAIN screen.

MANUAL MODE

To send the current slider and button settings on the front panel to the synth, go to the MAIN menu by pressing [MAIN]. Now press **[SHIFT] + [VCF ENV SEL].** A dialog box will pop up, reading "Sending all control positions".

GENERATE INIT TONE

An INIT tone can be generated by pressing **[SHIFT] + [VCF LFO SEL].**

PATCH GENERATOR CATEGORIES

PG-2k has two patch generators on-board; one for stock JX-3P/MKS-30 units, and another for Kiwi modified units. The Kiwi patch generator has subcategories, whereas the stock patch generator only uses the main categories.

Categories and Sub-Categories :

Random - Random- This generates completely randomized tones without any intelligent guidance. Chaos, noise, FX, and other strange sounds can be generated with this category.

Bass

- **Sub Bass** - More low-frequency content, less highs.
- **Sustain Bass** - Basses that sustain when note held.
- **Pluck Bass** - Basses that decay in volume to zero.
- **Perc Bass** - Snappy, organ percussion, percussive, punchy.
- **Pulsate Bass** - Basses that have rhythmic modulation applied.

Polysynth

- **No-mod Poly** - Synths that have no VCF or pitch modulation applied.
- **Polyrez Poly** - Polysynth Algorithm 1
- **Polycomp** - Polysynth Algorithm 2
- **Release Poly** - Polysynth with AMP env release.

(continued on next page)

Pads

- **No-mod Pad** - Pads that have no VCF or pitch modulation applied.
- **Release Pad** - Pads utilizing longer release times.
- **RhythmicPad** - Pads that use LFO rhythmic modulation.
- **Env Detune Pad** - Oscillators are modulated with envelopes.
- **Fifths Pad** - Pads with DCOs tuned to perfect fifths.
- **LFO Sync Pad** - Pads with OSC sync and slave OSC modulated with LFO.

Sound FX - Sound effects, noise, chaos.

Piano/Clavichord- Decay to zero amp env, like a piano or plucked instrument.

Strings- Synth strings, lush, dreamy.

Brass- Synth brass, solo brass, ensemble brass.

Bells

- **Synth Bells**- Synth bells algorithm 1
- **Bell Tree/Metal** - Clang, bell tree, metallic, chimes.
- **Steel Drums** - Steel Drum types of sound. Only works well with Kiwi-3P.
- **Vibrato Bell** - Synth bells algorithm 2
- **Fifths Bell** - Bell algorithm 3. DCOs tuned to fifths.

Init

- **Saw Init**- Simple no-mod saws
- **Sync Env Init**- Simple no-mod saws with slave osc synced to DCO1. Env mod applied to slave osc.
- **Sync LFO Init**- Simple no-mod saws with slave osc synced to DCO1. LFO mod applied to slave osc.
- **Fifths Init**- Simple no-mod saws with oscs tuned to fifths.

"Any" Category-Randomly selects a random category and sub-category of tone.

ASSIGN

The ASSIGN functions on the PG-2K are a powerful MIDI modulation matrix, which allows users to create complex modulation of multiple synth parameters using one control source, such as the ASSIGN sliders, an expression pedal, aftertouch, or any CC.

Each of the 7 assignable control sources can control up to 5 simultaneous parameters independently on any layer of either synth plugged into the PG-2K. This allows us to do something like sweep the filter cutoff up on the UPPER layer, while sweeping the cutoff down on the LOWER layer. Using the assigns and combinations of assigns, a sound can be animated in ways not possible on other controllers.

To access the ASSIGN menu, press the ASSIGN button once. The ASSIGN menu will be displayed on the OLED. This menu gives us access to all of the parameters contained in the assignable control matrix.

The Assign Menu

ASSIGN SOURCE

There are 6 different ASSIGNs (Control sources):

CTRL A Slider
Expression Pedal Jack
Aftertouch
CC Source 1 (Any CC# 0-127)
CC Source 2 (Any CC# 0-127)
CC Source 3 (Any CC# 0-127)

The CTRL A slider is located in the ASSIGN section of the PG-2K front panel.

The Expression Pedal source is connected to the EXP PEDAL jack on the rear panel of the PG-2K. Only use passive expression pedals with the PG-2K. **Do not use a powered expression pedal.** This can result in damage to the controller.

The Aftertouch ASSIGN responds to incoming aftertouch messages on the UNIT 1 and UNIT 2 MIDI IN channels.

CC Source 1-3 are controlled by incoming CC messages (CC#0 - CC#127) on the UNIT 1 and 2 MIDI IN channels. These ASSIGNs are a great way to create automated "lanes" using a DAW. **To automatically assign a CC as an ASSIGN SOURCE, press [ENCODER] and send the CC of your choice to the PG-2K. The CC Source will auto-fill in the ASSIGN menu.**

DESTINATIONS AND ROUTING

Each of the 7 ASSIGN sources has 5 available destinations (parameters on the synth) it can control. Each parameter being controlled by an assign has its own range, polarity, UNIT destination (Unit 1, 2, or BOTH), and layer destination (UPPER/LOWER/BOTH)

- **Dest (1-5)**: Selects which destination is being edited in the ASSIGN menu.
- **PARAM**: Selects which parameter will be the current destination.
- **MIN**: sets the minimum value of the current assign destination.
- **MAX**: sets the maximum value of the current assign destination.
- **UNIT**: Selects which units the current destination will be routed to.
- **INVERT/NORMAL**: Sets the direction (up or down) this parameter value will move in when the SOURCE value is changed.

For example, if we use CTRL A as a SOURCE, then select Filter Cutoff as Destination 1, moving the CTRL A slider will affect the Filter Cutoff parameter. To set the range of the filter control, we select the MIN and MAX values. If MIN = 50 and MAX = 75, then moving the CTRL A slider from bottom to top of its travel, will sweep the Filter Cutoff between 50 and 75. If we want the response to be inverted, so moving the CTRL A slider up sweeps the Filter Cutoff down from 75 to 50, then INVERT can be selected.

All of the 5 destinations within each ASSIGN can be routed in this way to any parameters on the synth. This allows the user to create complex real-time modulations, which would normally require many hands or many overdubs to accomplish, in a single movement.

To deactivate an ASSIGN layer, simply select NONE as the destination in a layer, and the routing will be deactivated for that layer.

There are a few guidelines to follow to maximize the MIDI performance of the PG-2K when using assigns. An ASSIGN has the potential to generate large amounts of MIDI data. If you're using an ASSIGN with 5 layers, which is routed to BOTH units, this will generate 10 MIDI sysex messages with each movement of the ASSIGN source. This amount of midi data can take many tens of milliseconds to transmit to the synthesizer. If using many large ASSIGNs at one time, it may even be possible to overflow the synth's MIDI buffer (Which holds incoming MIDI messages while the synth processes each one in the buffer).

ASSIGN Enable & Disable - Pressing the ASSIGN button will alternate between the ASSIGN menu and the ASSIGN Enable menu. Each of the 7 assigns has its own global enable, allowing you to turn the assigns on only when you wish to use them.

Clearing ASSIGNs - To clear all ASSIGN data, navigate to the ASSIGN menu, then press [SHIFT]+[ASSIGN]. To clear a single ASSIGN use [SHIFT] + [MAIN].

INTUITIVE ENTRY OF ASSIGN LAYERS

While users can manually enter all of the necessary information into each ASSIGN layer, this can become tedious when creating many different routing destinations. To speed up the ASSIGN creation process, a shortcut can be used to quickly enter a destination's parameters.

Begin by navigating to the source and destination to be edited.

Hold down the [ENCODER] button and move the destination slider through the desired range and direction (Up = normal, down = inverted) and release the SHIFT button when finished. The PARAM, MIN, MAX, and INVERT information will all be automatically entered.

TROUBLESHOOTING

Problem: Notes hanging when playing them through PG-2K

• This indicates that there is a midi feedback loop in your setup. A feedback loop happens when the PG-2K receives its own output at one of the inputs, causing a doubling of every MIDI message. PG-2K can deal with this problem easily, by simple having the Unit IN Channel set to a different channel than the Unit OUT Channel. For example, if PG-2K is receiving notes on channel 1, set the out channel on the PG-2K to channel 2, and set the MKS-30/JX-3P to receive on channel 2. When the PG-2K receives channel 2 data at the input, it will be rejected, because channel 2 does not match the input channel, thus breaking the feedback loop.

Problem: Every other note is not playing

• Check to see if Multi-Unit Poly Mode is ON. Turning this OFF should solve this issue.

Problem: Saved sounds don't sound the way they did when I stored them.

• When editing sounds using PG-2K, it is important to begin with the sound you want to edit loaded into the contents of the PG-2K. If the sound to be edited and saved was loaded by using the preset button on the synth, then the sound must be uploaded to the PG-2K using **Receive Kiwi Tone** function in the MIDI:Sysex menu of the PG-2K. Remember that when saving a PG-2K tone, the PG-2K is only storing the tone data that is currently loaded into its UNIT 1 or UNIT 2 edit buffer. What you are hearing is not necessarily what you are storing if the synth and PG-2K are not in sync.

BOOTLOADER AND SYSTEM UPDATES

The PG-2K has a MIDI bootloader that allows users to update their OS in the field using a MIDI sysex utility such as MIDI OX. New OS files are available from Retroaktiv when updates are issued. To obtain an OS file, contact Retroaktiv and request a copy of the latest SYSEX OS file. To identify your PG-2K's firmware version, power the unit up and the firmware version will be shown at the bottom of the PG-2K splash screen. Check on the Retroaktiv site for the latest firmware updates.

ENTERING BOOTLOADER

To load update, power up PG-2K with MODE (The Metal,Sync button) button held. SYNC LED will blink one time, to indicate that unit is now in bootloader mode. A sysex librarian such as MIDI-OX or Sysex Librarian is used to load the new firmware file into the PG-2K. Set the delay after F7 to 160ms or greater. (This is the delay between sysex strings from the computer) Setting this too short will overflow the PG-2K MIDI buffer, and you will get a blinking error code. The pause in between sysex packets allows the PG-2K time to process each packet and write it to FLASH. When ready, send the file to the MIDI IN of the PG-2K. The Sync LED will blink once for each sysex packet. Sync LED will light solid when the OS has been loaded. When lit solidly, you can restart the unit and use the new OS.

In some cases, you will receive an error code instead of the 1 blink per MIDI data packet. When you observe a series of multiple blinks in sequence, this means that there was an error. The PG-2K cannot be "bricked", meaning that if a firmware update fails, the memory in the unit can always be restored to an operating state with the successful load of a firmware update. If you receive one of the following errors, cycle power, enter the bootloader and try again.

BOOTLOADER ERROR CODES

- **2 blinks**: Didn't receive 0xF0 at beginning of message. This indicates a fundamental problem with the .syx file or MIDI communication. This means that a non-sysex message was received, and the bootloader must be restarted. The bootloader expects to see an F0 command bookended by an F7. If your DAW sends out active sensing messages, this will cause the bootloader to reject the incoming file. Any stray MIDI data will cause the bootloader to abort and give an error message. This is the most common error code. It most likely means that the delay between sysex packets needs to be longer (This is often called Delay after F7 in sysex librarians). When the delay is set to less than 160 ms, the PG-2K MIDI buffer will overflow, causing the 2 blink error. If you get the 2 blink error code before you even begin sending data to the PG-2K, this means that you have either ACTIVE SENSING messages turned on, or your system is sending MIDI realtime messages, which will both corrupt the firmware data. Turn these off. If using a USB to MIDI cable, be aware that these often have active sensing permanently turned on. Use a dedicated hardware interface to update if this is the case.

- **3 blinks**: There was a problem parsing the dummy packets used as a placeholder while the system is writing data to the EEPROM space. This error should never be an issue on PG-2K, as it writes its own EEPROM data file.

- **4 blinks**: Wrong product ID. Expected if a sysex file intended for a product other than the connected programmer is used. You will recevie this error if you do something like try to load an MPG-70 Firmware update onto an PG-2K.

- **5 blinks**: Error parsing sysex header. This is the most likely error to occur if the MIDI connection is not reliable and the system is receiving corrupted data. Also check to make sure that you are loading the correct operating system into the controller. If this persists, contact Retroaktiv to make sure we didn't post the wrong firmware update.

- **6 blinks**: Checksum failure. There was an error in one or more of the bytes received during the sysex transfer. Data was corrupted, either through an unstable connection, or a corrupted file. This could mean that your MIDI cable is intermittent, or that your firmware file is corrupt.

- **7 blinks**: Flash write failure. There was an error writing data to the flash memory in the microcontroller. This should never happen unless there is a hardware problem.

WEIGHT AND DIMENSIONS

The PG-2K is 7 pounds and the enclosure measures 10" x 8" x 2.5". The enclosure has 4 heavy-duty screw-on rubber feet for no-slip tabletop use. The PG-2K can also be rackmounted using optional 6U rack mounting bracket, which can be purchased at www.retroaktivsynthesizers.com.

ACCESSORIES

Memory Expansion Card - These cards expand the PG-2K's 32k of patch memory to 160k. Cards are plug and play, and require no soldering. Cards can be installed by user or by Retroaktiv.

6U Rack Bracket - Bracket for mounting PG-2K into a rack system. This bracket leaves plenty of space for the PG-200 cable, MIDI cables, a while PG-2K is racked.

THANK YOU!

Thanks for using these Retroaktiv synthesizer products. We are a small company and we appreciate the musicians and artists using this gear. If you have any questions or comments about this or other products, please contact us by visiting www.RetroaktivSynthesizers.com and using the CONTACT US link at the top of the page. We want to hear from you about your user experience and feature requests. Sincerely,

-Rob Currier
Founder of Retroaktiv LLC.