RETROAKTIV

MPG-8X

USER GUIDE AND REFERENCE
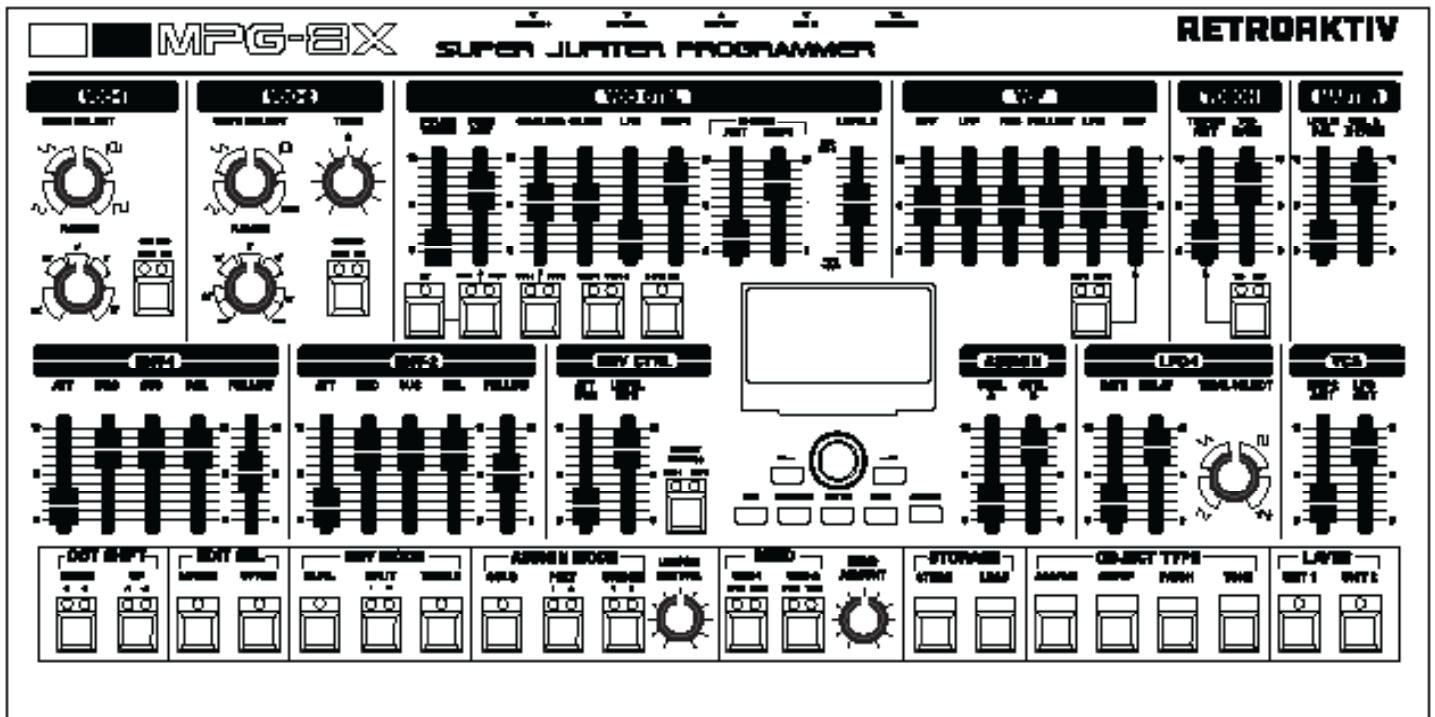
FEATURES

Independent control of all parameters on all layers of MKS-80 synthesizers.

Control 2 MKS-80s independently, or as a single 16-voice polyphonic synthesizer. (8-Voice in DUAL key mode)

On-board memory for storing tones, patches, and setups on the controller.

Flexible MIDI matrix allows multiple parameters to be controlled independently in real-time, using aftertouch, mod wheel or any CC, an expression pedal, or the two ASSIGN sliders on the MPG-8X front panel.

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

Store any PATCH with the push of a button. MPG-8X eliminates the "shared-tones" system of saving sounds on the MKS-80. Each MPG-8X PATCH is stored with its own TONES.

Intelligent patch generator creates new tones and patches at the push of a button. Choose from Basses, pads, bells, strings and more.

CC to sysex translation allows for DAWs and sequencers to record and playback parameter changes on MPG-8X in realtime. Each of the 4 layers on the controller can be controlled independently by CCs.

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

MPG-8X allows users to store and name custom CC maps, allowing users to create their own custom control maps for other gear using the MPG-8X 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 MPG-8X allowing for more new features to be added in the future.

FRONT PANEL
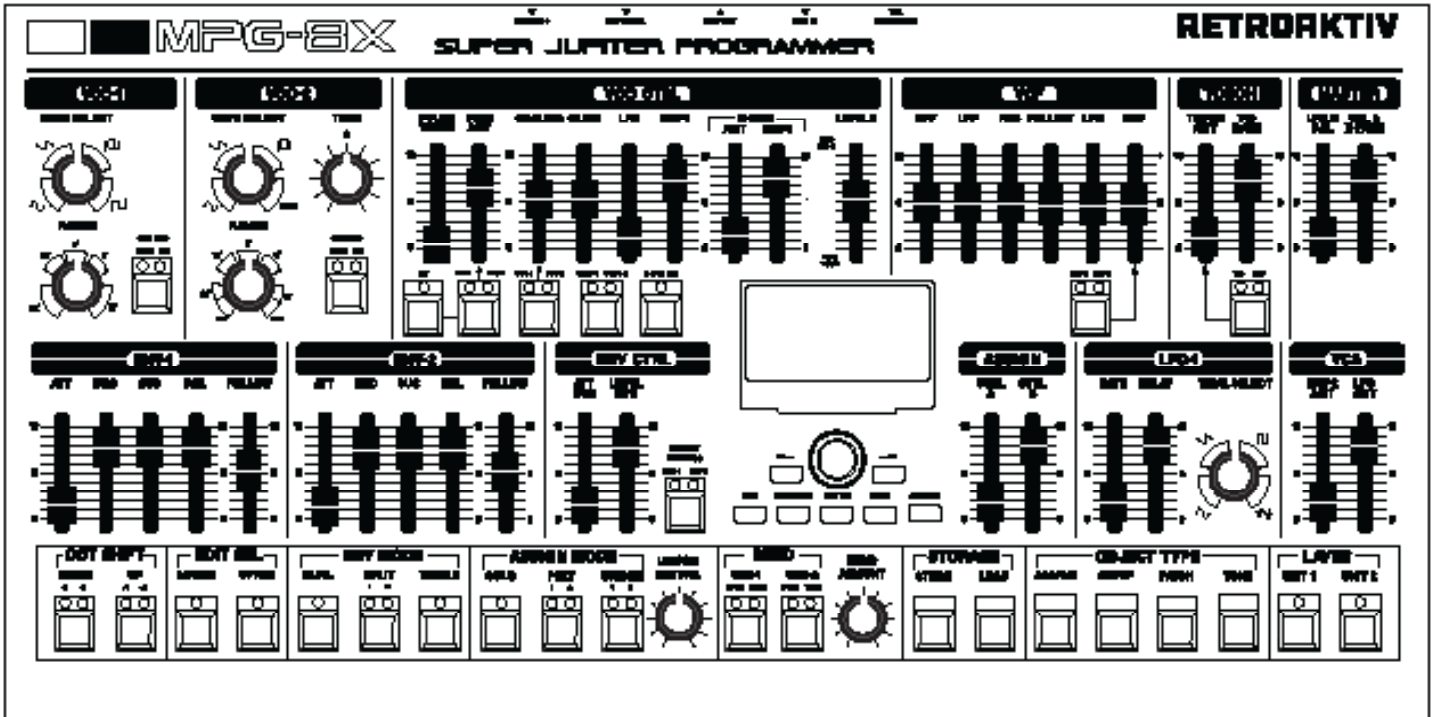
OLED DISPLAY

Large white OLED display presents information about the operation being performed.

STORAGE & OBJECT TYPE

Use these buttons to select, store and load user PATCH, TONE, ASSIGN, and SETUP objects.

LAYER

Use these buttons to select which MKS-80 unit (UNIT 1 or UNIT 2) is being edited. Pressing both buttons at once will select both units.

EDIT SEL

Use these buttons to select which layers of an MKS-80 patch are being edited. Pressing both buttons at once selects both layers. When Key Mode is set to WHOLE, only the UPPER layer will be available. LOWER layers can be selected when Key Mode is set to DUAL or SPLIT 1 & 2.

MENU NAVIGATION BUTTONS

The menu navigation buttons are used to select editor pages in the MPG-8X. 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.

JACKS & POWER

The labels for the power switch, power entry port, expression pedal jack, and MIDI jacks are located along the top of the MPG-8X front panel. The associated jacks and power switch are located in the recessed compartment on the rear of the MPG-8X.

ENCODER/SHIFT

The black encoder knob located directly under the OLED is used to modify values of the currently selected parameter. If you hold down the encoder [SHIFT], parameter values will change by larger increments.

QUICK START

To begin using your MPG-8X, it's important to understand the basic connections and setup requirements. The most basic setup is to send the MIDI OUT from your DAW or MIDI controller, to the MIDI IN of the MPG-8X. The MIDI OUT of the MPG-8X is connected to the MIDI IN of the MKS-80. The default state of the MPG-8X is for MIDI ECHO to be enabled. This means that MIDI data received by the 8X on its MIDI IN will be immediately processed and passed OUT to the MKS-80. The figure below shows the most common setup configuration of the MPG-8X in a rig.
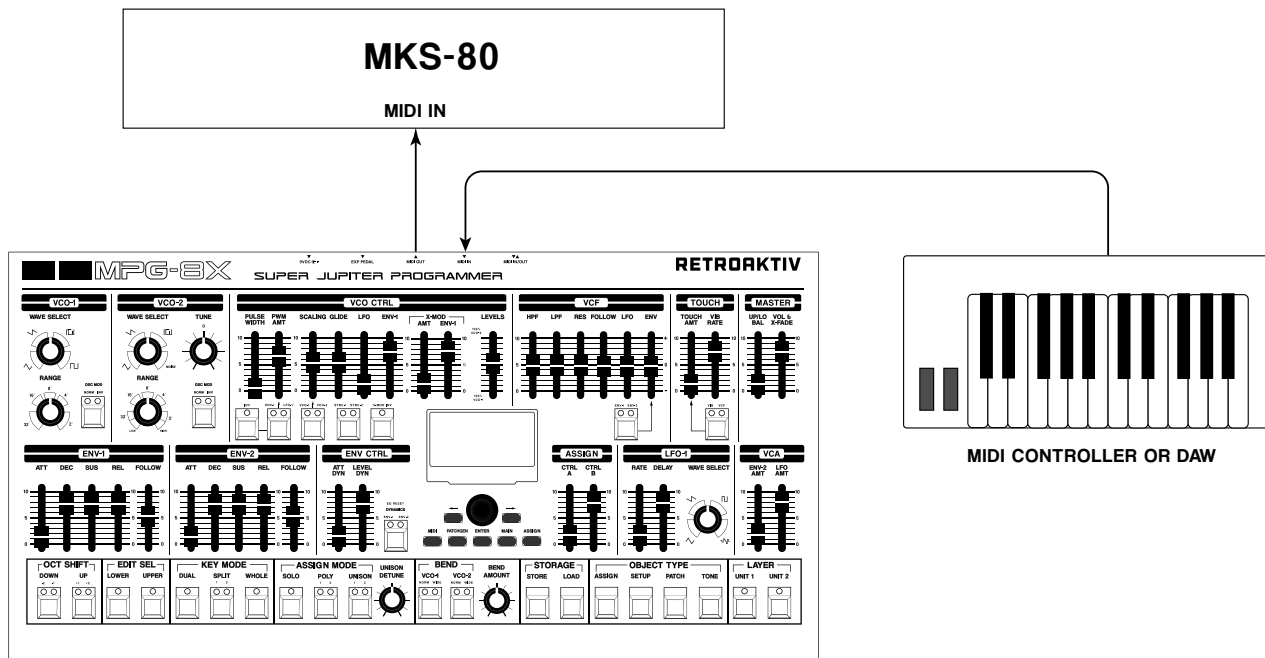
Basic MIDI configuration

To begin making sound, let's start by creating a basic setup.   Press the [MIDI] button on MPG-8X and set the MPG-8X MIDI settings as shown below, and set the MKS-80 to receive on channel 3 (By pressing [MIDI CHANNEL] + [BANK 1] on the MKS-80 panel) . Set your MIDI controller to send on channel 1. The MKS-80 should be receiving data from the controller when a slider is moved, as well as when a key is pressed on your

Basic MIDI menu settings on the MPG-8X

MENUS AND NAVIGATION

The MPG-8X will boot up and display the MAIN menu screen. The diagram below shows the contents displayed on the MAIN screen.


CC

MPG-8X MAIN Screen

The MAIN screen displays the following information:

1 - Current active parameter name and value

2 - Unit 1 Active Layers (U, L, or U+L if UPPER and LOWER layers are both selected)

3 - Unit 2 Active Layers (U, L, or U+L if UPPER and LOWER layers are both selected)

4 - MIDI Input Monitor - Displays channel of incoming MIDI activity received at MPG-8X MIDI IN port.

To return to the MAIN screen at any time, press the [MAIN] button in the navigation console.

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.
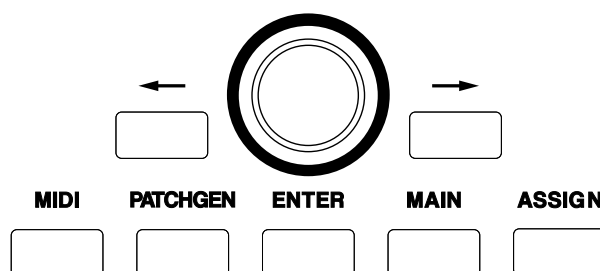
MPG-8X Navigation Console

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 FREEZE FUNCTION

Pressing ENTER from the MAIN screen will enable the "FREEZE" function on MPG-50. When FREEZE is enabled, a message will be displayed "Freeze : ENTER to send.". When FREEZE is on, moving a slider will not send a message. When ENTER is pressed, the new location of any slider moved during the FREEZE operation will be sent to the synth. This is an excellent way to send a large number of slider changes all at once, at the exact moment ENTER is pressed.

Freeze mode

THE MIDI MENUS AND FUNCTIONS

MIDI:SETTINGS

The MIDI Settings menu contains all of the parameters that determine which MIDI channels the MPG-8X 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 MKS-80 receives on a single MIDI channel when in WHOLE, DUAL, or SPLIT 1 mode. When in SPLIT 2 mode, the LOWER voice will respond on the MKS-80 MIDI input channel, and the UPPER voice will respond on the MKS-80 MIDI input channel + 1. For example, if the MKS-80 is set to receive data on channel 1, then when in SPLIT 2 mode, the LOWER voices will play on channel 1, and the UPPER voices will play on channel 2. For this reason, the MPG-8X MIDI channels are displayed in the format 1(2), 2(3), 3(4), etc. The number in parentheses indicates which channel the UPPER voice will respond to when SPLIT 2 mode is used.

There is a second reason that we use the 1(2) format for MIDI channel settings. The MPG-8X is capable of translating incoming CC messages into sysex messages. Because we have 2 layers on each MKS-80, each layer (UPPER & LOWER) has its own CC channel. For example, if the Unit 1 In channel setting is 1(2) and CC translation is turned on, then incoming CCs on channel 1 will change parameters on the LOWER voices, while incoming CC data on channel 2 will affect the UPPER voices.

Now that we've become familiar with the way the MPG-8X midi channels are referred to, let's discuss the menu settings in detail:

The MIDI:Settings Menu

Input and Output Port: MPG-8X mk1 had only a MIDI IN and a MIDI OUT port. MkII units have an additional port labeled IN/OUT, which can be configured as a 2nd IN or a 2nd OUT. We refer to the ports as follows:

- **MIDI IN** - This is MIDI IN Port 1
- **MIDI OUT** - This is MIDI OUT Port 1
- **MIDI IN/OUT**- This can be configured as an IN or an OUT and is referred to as Port 2

When a MIDI port is selected, the port number will appear in parentheses if the port is not available. For example, setting Port 2 as an output will result in (2) appearing if Port 2 is selected as an input. This parentheses indicates that port 2 is currently an output, not an input, and is thus unavailable.

Each Unit's port settings can be configured differently, so users can do integrate the MPG-8X into their setups in any number of ways.

Unit 1 In Ch & Unit 2 In Ch: (MPG-8X MIDI IN CH) Used to select which channels the MPG-8X will be receiving note, CC, aftertouch, and pitch bend data on. **When MIDI Echo is enabled, data received by MPG-8X on UNIT 1 & 2 MIDI IN channels, that data will be sent back out of the 8X on the selected Unit1 and Unit2 MIDI OUT channels.**

For example, if Unit 1 MIDI IN channels are set to 1(2), and Unit 1 MIDI OUT channels were set to 3(4), then any note data received by MPG-8X on channel 1, would be passed back out of the 8X on channel 3. If this data gets passed back to the controller on channel 3, which does not correspond to the channel that the 8X is listening on (channel 1), and the data will be ignored. This mapping function allows you to break any MIDI feedback loops in your setup.

- **Unit 1 In Ch (MPG-8X UNIT 1 MIDI IN CH):** Sets channel that MPG-8X will receive note/controller data on for Unit 1. 1(2) to 15(16), where the number in parentheses indicates the 2nd MIDI channel when in SPLIT 2 mode.
- **Unit 2 In Ch (MPG-8X UNIT 2 MIDI IN CH):** Sets channel that MPG-8X will receive note/controller data on for Unit 1. 1(2) to 15(16), where the number in parentheses indicates the 2nd MIDI channel when in SPLIT 2 mode.

Unit 1 Ch & Unit 2 Output Ch: (MPG-8X MIDI OUT CH) This sets the MIDI channels that the MPG-8X will transmit on. The MKS-80 should be set to the same MIDI channels as the Unit 1 & 2 setting. All incoming note and controller data received at the MPG-8X MIDI IN channels will be sent out of the MPG-8X on the Unit1 and Unit2 MIDI channels. **Note that the Unit 1 & 2 Output channels correspond to the channels each MKS-80 is set to receive on.   Unit 1 & 2 Out Channels do not need to match the Unit 1 & 2 Input channels. Data received at MPG-8X input channel will be mapped to the 8X MIDI OUT on the Unit 1 & 2 channels. By doing this mapping, we can effectively break a MIDI feedback loop when using a DAW to record and translate data in real-time. MPG-8X will display a notification if a MIDI feedback loop occurs.**

- **Unit 1 Ch (MPG-8X Unit 1 MIDI OUT channel):** The channel that the unit 1 MKS-80 receives data and the channel that MPG-8X will transmit unit 1 data on. （1(2) to 15(16) ） **Set MKS-80 #1 to this channel.**
- **Unit2Ch (MKS-80 #2 MIDI OUT channel):** The channel that the unit 2 MKS-80 receives data and the channel that MPG-8X will transmit unit 2 data on. （1(2) to 15(16) ） **Set MKS-80 #2 to this channel.**

Sysex: Used to select whether the MPG-8X controls send sysex or CCs to be translated into sysex.
- **Send Sysex** - Sliders and buttons will send sysex messages to the synth
- **Send/Translate CC** - Sliders and buttons will transmit CC messages when changed. When the MPG-8X receives one of these sysex messages at the MIDI IN, it will translate the incoming CC into sysex data and send the sysex to the synth.

MIDI Echo: On/Off. When MIDI Echo is enabled, valid data received on Unit1InCh & Unit2InCh will be passed THRU the MPG-8X back to the synth.

MIDI Filters:
- **Note** - Filters incoming note data
- **CC** - Filters incoming CC data
- **Pitch** - Filters incoming pitch bend data
- **Aftertouch** - Filters incoming aftertouch data

MIDI SETTINGS WHEN USING 2 MKS-80 UNITS

When using 2 MKS-80 units, it is very important to understand how to set the MIDI setting in the MPG-8X. Notice how the MIDI IN and MIDI OUT channels of the MPG-8X include two numbers, such as 1(2), 2(3), etc. This is done for three reasons, the first being that when a unit is in SPLIT 2 mode, the the UPPER voice will respond on the MIDI channel that the MKS is set to receive on, and the LOWER voice will receive on that channel + 1. This means that if using SPLIT 2 mode, and the MKS is set to receive on channel 1, then the UPPER tone will respond on channel 1, and the lower tone will respond to channel 2. (Channel 1 + 1)

The second reason we display both numbers is that the MPG-8X is capable of tranlating CC messages into sysex messages. This is so we can record fader and button movements with a DAW or sequencer. Since each MKS connected to the 8X has two tone layers (UPPER and LOWER), that means that to address each tone independently with CCs, each layer must respond to CCs on different channels. So if UNIT 1 CH IN is set to 1(2), this would mean that incoming CCs on channel 1 would change the UPPER tone on unit 1, and incoming CCs on channel 2 would affect the LOWER tone.

The third reason we display the channel numbers this way is that the MPG-8X has a MIDI MAPPING function. This means that the MPG-8X can listen for note and controller data on a MIDI channel, and then relay that data to the MKS on a different channel.

For example, if Unit 1 Ch (The channel that MPG-8X will transmit MIDI data on, and the channel that MKS-80 #1 will receive on) is set to channel 3(4), and the Unit 1 In channel (The channel that MPG-8X is listening for note and controller data on) is set to 1(2), then incoming notes on channel 1 will be sent to MKS-80 #1 on channel 3.

This may not make immediate sense at first, but there is a reason we allow this. MPG-8X will block incoming MIDI data that is not on the UNIT 1 IN or UNIT 2 IN channels. If you are loop recording with a DAW, and the 8X is set to receive on channel 1 and send on channel 1, then it is possible for the 8X MIDI OUT to receive its own messages at the 8X MIDI IN. This will cause a midi feedback loop. However, by setting UNIT 1 IN to 1(2) and Unit 1 OUT to channel 3(4), when incoming data on channel 1 enters the 8X, it is then transmitted to the synth on channel 3. When the data comes back through the loop to the 8X on channel 3, it will be rejected, because channel 3 is not the Unit 1 IN channel. This mapping breaks any feedback loop.

When using two MKS-80 synths with the MPG-8X, it is recommended that you set the UNIT 1 IN and UNIT 2 IN channels to different channels. The same goes for the UNIT 1 and 2 OUT channels. This is because setting up this way prevents feedback loops from occurring.

Example:

Unit 1 Ch (MIDI OUT) = 3(4)
Unit 1 In Ch (MIDI IN) = 1(2)
Unit 2 Ch (MIDI OUT) =5(6)
Unit 2 In Ch = 7(8)

In this case, MIDI data received on channel 1 will be sent on channel 3 to MKS-80 UNIT 1. Channel 3 is not an input channel for UNIT 1 or 2, so this data will be ignored if it gets passed back to MPG-8X. MIDI data received on channel 5 will be passed to MKS-80 UNIT 2 on channel 7. Channel 7 is not an input channel for UNIT 1 or 2, and will be ignored if passed back to MPG-8X.

It is also necessary to understand that when using 2 units, each MKS should be set to receive on a different MIDI channel. This is because if you load a patch on the 8X, and both units are set to receive on the same

channel, the data intended for UNIT 2 (Which gets sent after the UNIT 1 data when a patch is loaded), will be sent to UNIT 1 and UNIT 2, because they are both set to receive on the same channel. If you set both units to the same MIDI channel, there will be unexpected behavior when using Multi-Unit Poly Mode (See MIDI Process & Filter Menu for more about enabling this mode) and when loading SETUPS.

It is good practice to always have each MKS set to a different MIDI channel.

MIDI: GLOBAL SETTINGS

The MIDI: Global Settings pages contain parameters that affect global settings on the MPG. To navigate to this menu page, press [MIDI] until the menu shown below is displayed on the OLED.
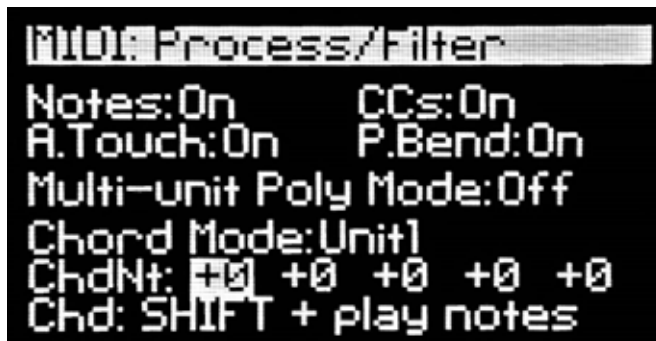
The MIDI:Filter & Process Menu

Port 2: This determines whether the MIDI IN/OUT jack acts as a MIDI IN or a MIDI OUT. MKI Units do not have Port 2, and therefore do not offer any menu options for Port 2 configuration.

Prog Change Mode: Internal/Echo/Internal + Echo. This determines how incoming program change messages are handled by MPG-8X.
*   **Internal** - When a program change is received, it will be used to select an object stored in MPG-8X internal memory.
*   **Echo** - When a program change message is received, it will be transmitted out to the MKS-80, and will not select an MPG-8X object.
*   **Internal + Echo** - When program change is received, it will select an object from MPG-8X internal memory, athen the program change message will be sent to the MKS-80 as well.

Program Change: When **INTERNAL** program change is selected, **each type of MPG-8X object can be recalled using MIDI program changes**.   Using this function, any tone, patch, assign or setup can be selected using MIDI program change and bank change messages.
*   **Patch U1** - Sets MIDI channel that Unit 1 Patch program change messages will be selected on.
*   **Patch U2** - Sets MIDI channel that Unit 2 Patch program change messages will be selected on.
*   **Tone U1 Upper** - Sets MIDI channel that Unit 1 Upper Tone program change messages will be selected on.
*   **Tone U1 Lower** - Sets MIDI channel that Unit 1 Lower Tone program change messages will be selected on.
*   **Tone U2 Upper** - Sets MIDI channel that Unit 2 Upper Tone program change messages will be selected on.
*   **Tone U2 Lower**- Sets MIDI channel that Unit 2 LowerTone program change messages will be selected on.
*   **Assign** - Sets MIDI channel that ASSIGN program change messages will be selected on.
*   **Setup** - Sets MIDI channel that SETUP program change messages will be selected on.

Multi-unit Poly Mode:

On/Off - When enabled, this function allows Unit 1 and Unit 2 MKS-80 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 MPG-8X will send note data on the Unit1Ch and Unit2Ch. For this mode to work, Unit1Ch and Unit2Ch must be different channels.**

Multi-Unit Poly Mode mode is for setups that utilize two MKS-80 synthesizer modules. When enabled, this allows for a 16-voice MKS-80 (8-voice in DUAL mode).

It is important to understand that when Multi-Unit Poly Mode is enabled, the MPG-8X will consider the 2 connected MKS-80s to be a single 16-voice polyphonic synth. For this reason, when using this mode, UNIT 1 and UNIT 2 should bothe be selected. This will allow you to load the same patch on both units, so both units have the same sound loaded. Below is an example scheme for using Multi Unit Poly Mode. In this example Multi-Unit Poly Mode must be turned ON in the Global Settings menu. Playing notes into MPG-8X on MIDI PORT 1 on channel 1 will play the two MKS-80 units as a single 16-voice synth.

MULTI-UNIT POLY MODE CONNECTION DIAGRAM
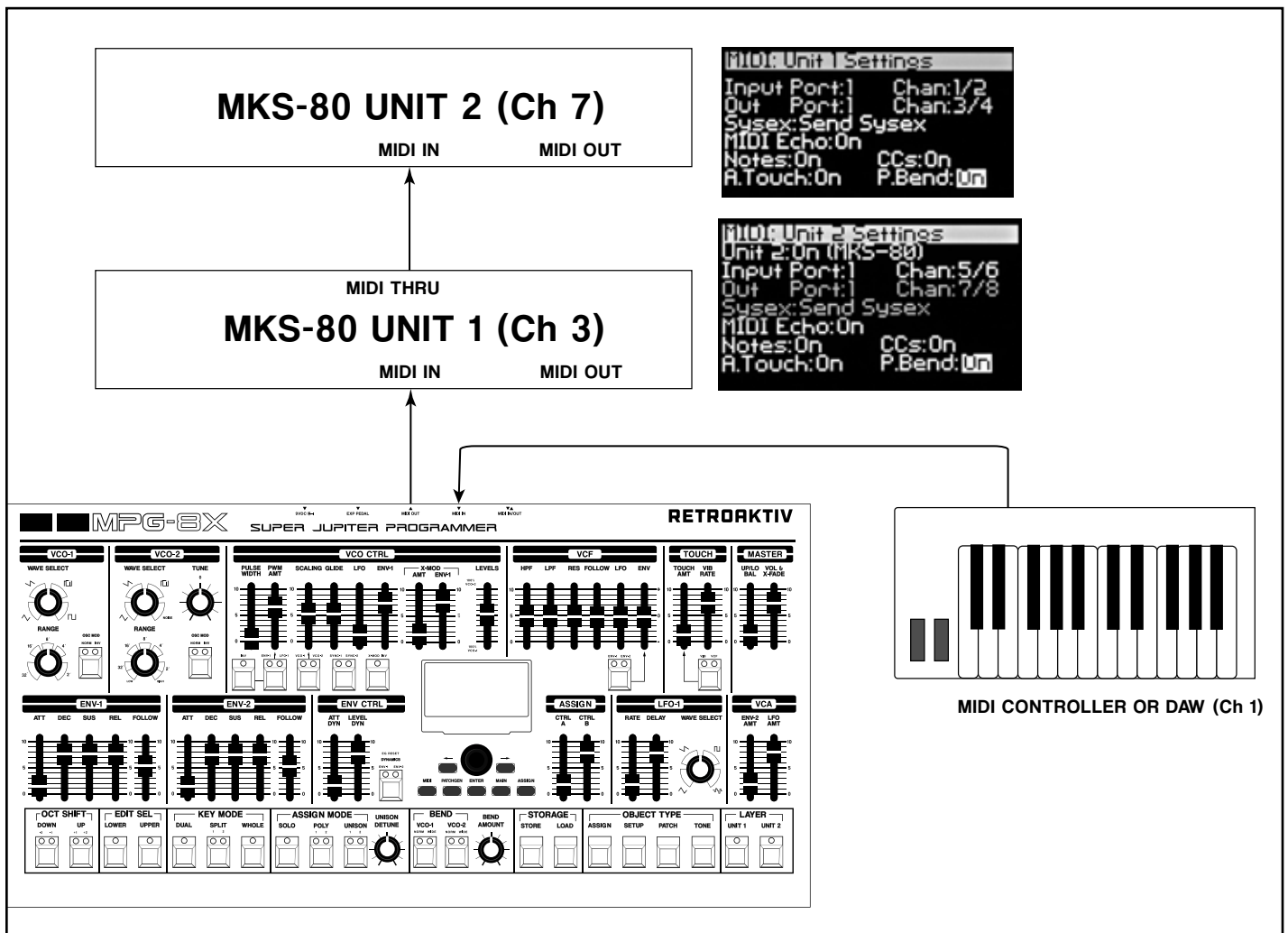
Chord Mode:
- **On/Off** – When enabled, playing a single note on the keyboard will play the selected chord.

The MPG-8X 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. To access the CHORD MODE function, navigate to the MIDI PROCESS/FILTER page in the MIDI menu. CHORD MODE functions are located at the bottom of this page.   CHORD MODE can be enabled on UNIT 1, Unit 2, or BOTH units. Once 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 MPG-8X 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 MPG will not "steal" voices. It will instead play the chords with any available voices.

Note: Chord Mode creates a large amount of MIDI data, which must all be passed in sequence to the synth. If you are trying to play a lot of notes with a large chord, and simultaneously send slider data, there may be timing issues, as all of the data cannot be passed to the synth quickly enough to prevent a delay.

MIDI: SYSEX MENU

To navigate to MIDI:Sysex menu, press the MIDI button until MIDI:Sysex is displayed in the menu bar at the top of the screen. The MIDI sysex menu is used for importing and export patches and bank data. Here is a brief explanation of each function in this menu:
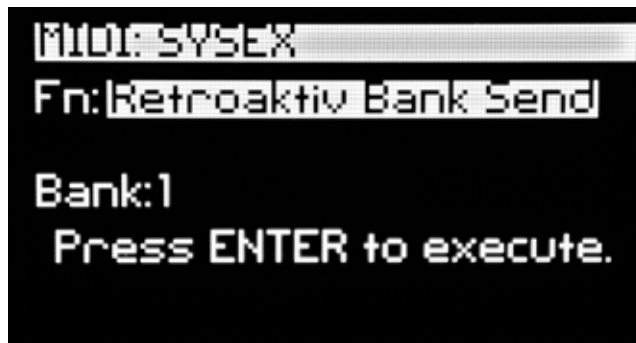
The MIDI:Sysex Menu

- **Send MKS-80 Patch Bank** – Use this function to send a bank of patches to an MKS-80 from the MPG-8X's internal memory. Select the bank on the 8X to be transmitted, then press ENTER to initiate the transfer. Note: for this to work, bidirectional communication between the MPG-8X and MKS-80 is required. This means that the MPG-8X MIDI OUT is routed to MKS-80 MIDI IN, and the MKS-80 MIDI OUT is routed to MPG-8X MIDI IN. When transferring a bank of patches from MPG-8X, it should be understood that the format of PATCH objects in the 8X is different than the format of PATCH objects in the MKS-80 memory. In the MKS-80, there are 64 tones, and 64 patches, with each patch linking to 2 of the 64 tones. In MPG-8X, there are 64 patches in a bank, but 128 individual tones, which allows us to store a patch with a single button press instead of needing to store each tone separately, then link those 2 tones in the PATCH menu. Because of this difference, when dumping a bank of 8X patches to MKS-80, only the first 32 PATCH objects will be transferred to the MKS-80, and the MPG-8X will automatically handle the linking of the patches to the tones in the MKS-80.

- **Receive MKS-80 Patch Bank** - Use this function to request a bank of patches from the MKS-80. Note: for this to work, bidirectional communication between the MPG-8X and MKS-80 is required. Select the destination bank in the MPG-8X and hit ENTER to load the MKS-80 bank to the destination bank. Note that instead of sharing tones, like the MKS-80 does, the MPG-8X will store the incoming patches as 64 patches, each with their own 2 tones, thus eliminating the linkage between each tone and any other patch. This means that if a "shared" tone is edited and stored on the 8X, it will not affect any other patches that also use that tone.

- **Send MKS-80 Patch** - This sends the current patch to the MKS-80, where it can then be stored in MKS-80 format. Understand that when doing this, you may overwrite tones that are shared by other patches.

- **Receive MKS-80 Patch** - Downloads the current patch from MKS-80 into the selected destination and converts it into MPG-8X format.

- **Send Patch Bank** - Exports a bank of MPG-8X format patches in MPG-8X to a computer sysex librarian. Note that these will be in MPG-8X format, not MKS-80 format. Bidirectional communication not required for this operation.

- **Receive patch Bank** - Imports a bank of MPG-8X patches from a computer sysex librarian to the selected MPG-8X PATCH bank. Bidirectional communication not required for this operation.

- **Full Card Backup** - Exports a backup of all ASSIGN, PATCH, SETUP and TONE objects from the MPG-8X. USed for backing up the contents of memory. Bidirectional communication not required.

- **Full Card Import** - Allows a full-card backup file to be imported to the MPG-8X. **Warning: This will overwrite the entire MPG-8X memory bank.**

CONVERTING AN MKS-80 BANK INTO RETROAKTIV PATCH FORMAT

MPG-8X cannot receive MKS-80 banks directly from the computer. To do this type of transfer, the sound bank must first be formatted to the Retroaktiv format. Once in this format, the bank can be loaded into the MPG-8X directly from the computer. The Retroaktiv PATCH format eliminates the "tone sharing" scheme used on the MKS-80. To convert an MKS-80 bank to Retroaktiv Non-Shared format, connect the programmer and synth as shown below.

To convert a bank, do the following:

1. Send the bank from the computer to the MKS-80
2. Use the Receive MKS-80 Patch Bank function in the MPG-8X Sysex Menu to load the bank into the MPG-8X.
3. Use the Send Patch Bank function in the MPG-8X Sysex Menu to send the bank to the computer. (Once in the MPG-8X, the bank has been converted into Retroaktiv Patch format)
4. Now the converted bank can be dumped directly to MPG-8X from the computer using the Receive Patch Bank function in the Sysex Menu. The conversion just needs to be done once, then the bank can be directly loaded into MPG-8X from a sysex librarian.

The conversion of MKS-80 banks is necessary because if a bank contains tones that are not pointed to by patches in the MKS-80, then those tones will be lost, resulting in the transferred bank not being a carbon copy of the original.   Using the process above, no tone data will ever be lost. Once an MKS-80 bank is converted into Retroaktiv format, it can be exported to a PC in Retroaktiv format, and dumped back into any MPG-8X directly from the computer, without going through the MKS-80 first.
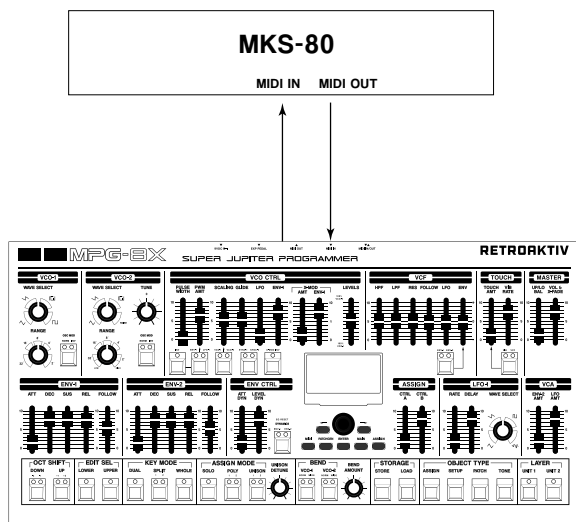
An example of bidirectional communication with the MKS-80

MIDI: USER CC MAPS

The MPG-8X allows users to create their own user CC maps, which allow the 8X's control surface to be programmed to transmit CCs from any slider, making it ideal for controlling external gear.

To use a CC map, navigate to Unit 2 MIDI: Settings page and select User CC as the unit type. The menu shown below will be displayed.

The MIDI:CC Map Menu

Creating a User CC Map:

When on the User CC Map page, 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 MPG-8X when Unit 2 is set to User CC.

Clearing a User CC Map:

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

Storing and Loading User CC Maps:

MPG-8X 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 SYSEX TRANSLATE

MPG-8X allows users to record and translate button presses and fader movements with any DAW or sequencer, by allowing CC to sysex translation.

To enableCC to SYSEX translate mode, navigate to MIDI: Settings menu, and toggle the Sysex setting to Send/Tranlate CC.

When this mode is enabled, moving sliders and toggling button parameters will send a CC message from the MPG-8X instead of a sysex message.

When using the MPG-8X to translate CC messages into sysex messages for the MKS-80, each of the TONE layers on each UNIT has its own MIDI channel. For example if the UNIT 1 IN channel is set to 1(2), and the UNIT 2 IN channel is set to 3(4), then incoming CCs on channel 1 would affect UNIT 1 UPPER tone parameters, CCs on ch 2 would affect UNIT 1 LOWER tone parameters. CCs on channels 3 and 4, would affect UNIT 2 UPPER and LOWER layers respectively. **This table shows the implementation of the MPG-8X MIDI CC to SYSEX translation.**

12 LFO Rate	72 Env-2 Sustain
13 LFO Delay	73 Env-2 Release
14 LFO Wave	74 Env-2 Follow
15 VCO LFO Mod	75 PWM Mode
16 VCO Env. Mod	76 PWM Polarity
17 Pulse Width	77 VCO Scale
18 Pulse Width AMT	78 XMOD Polarity
19 VCO Scaling	79 VCO-1 Mod
20 XMOD Amount	80 VCO Sync
21 XMOD Env-1	81 VCO-2 Mod
22 VCO-1 Range	82 VCF Env. Select
23 VCO-1 Wave	85 Env1 Dynamics
24 VCO-2 Range	86 Env2 Dynamics
25 VCO-2 Fine Tune	87 Octave Shift
26 VCO-2 Wave	88 Key Mode
27 VCO 1 / 2 Level	89 Assign Mode
28 Highpass Freq.	90 Aftertouch Mode
29 VCF Freq.	91 VCO-1 Bend
30 VCF Resonance	92 VCO-2 Bend
52 VCF Env. Depth	93 Aftertouch Amount
53 VCF LFO	94 Touch Vibrato Rate
54 VCF Follow	95 Upper-Lower Balance
55 VCA Env-2 Amount	102 Unison Detune Amt
56 VCA LFO Amount	103 Pitch Bend Sens
57 Attack Dynamics	104 VCO Glide Amt
58 Level Dynamics	105 VCF Env. Depth
59 Env-1 Attack	106 ENV Reset
60 Env-1 Decay	107 Split Point
61 Env-1 Sustain	
62 Env-1 Release	
63 Env-1 Follow	
70 Env-2 Attack	
71 Env-2 Decay	

When using CC to sysex translation, it is recommended that your connections are as shown in the diagram below.

Take note that if using 2 MKS-80 units, there should be no overlap of either MIDI IN or MIDI OUT channels. This means that setting UNIT 1 to receive on 1(2) and UNIT 2 to receive on 2(3) would result in CCs on channel 2 affecting UNIT 1 LOWER and UNIT 2 UPPER, which is undesirable in most situations. A good MIDI setting configuation would be as follows:

UNIT 1 IN = 1(2), UNIT 1 OUT = 3(4) (CCs are translated on CH 1 & 2, sysex sent to MKS on CH 3)
UNIT 2 IN = 5(6), Unit 2 OUT = 7(8) (CCs are translated on CH 5 & 6, sysex sent to MKS on CH 7)

With no channels overlapping, each of the 4 layers will receive CCs independently.
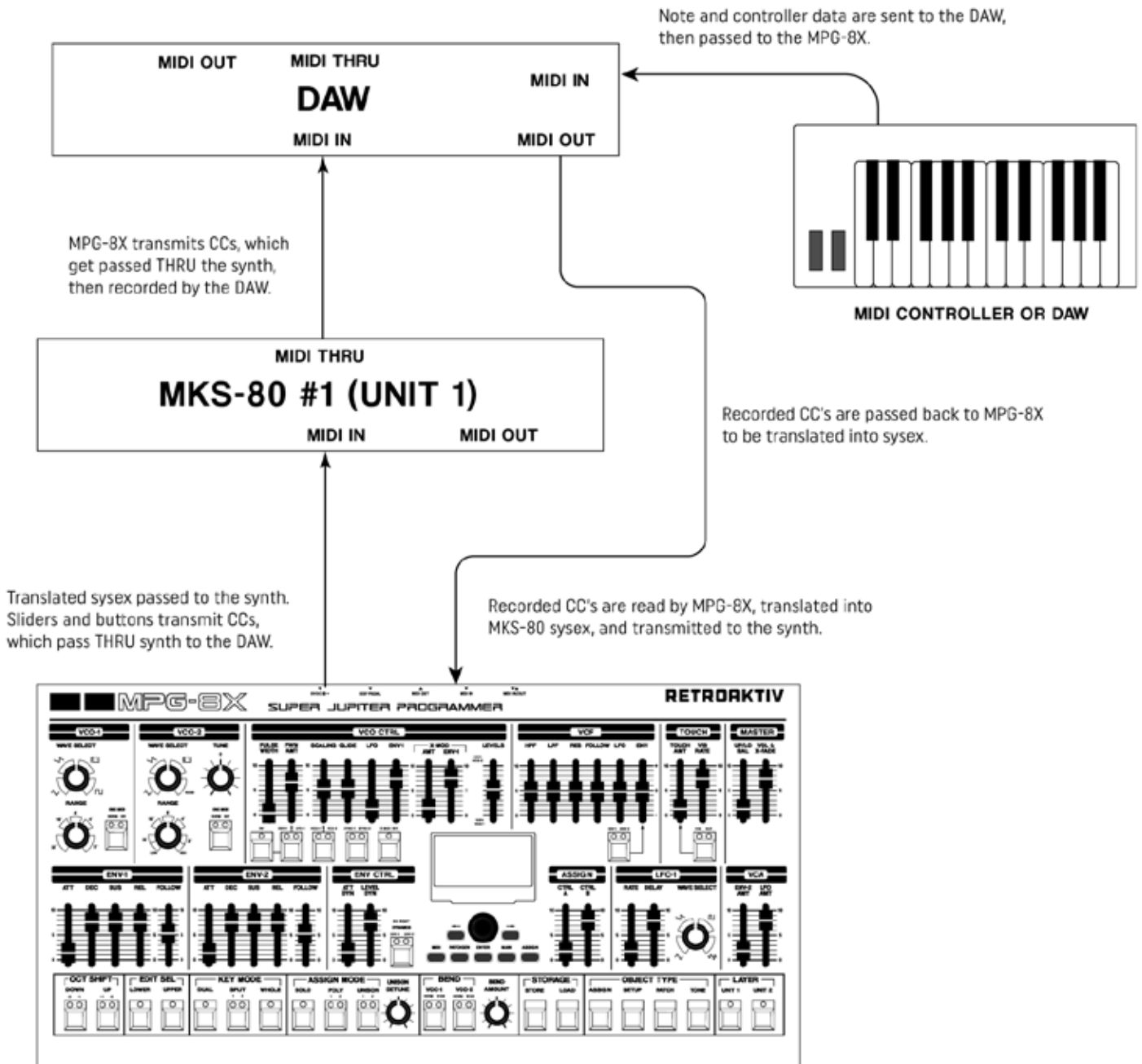
THE PATCH GENERATOR

The Patch Generator tool is a powerful feature that creates intelligently randomized tones, as well as preset "Init tones". (Scratch Tones") This tool provides an endless supply of new, musical tones, which can be created on any layer of an MPG-8X SETUP.   Here's how it all works:

The Patch Generator uses categories 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.
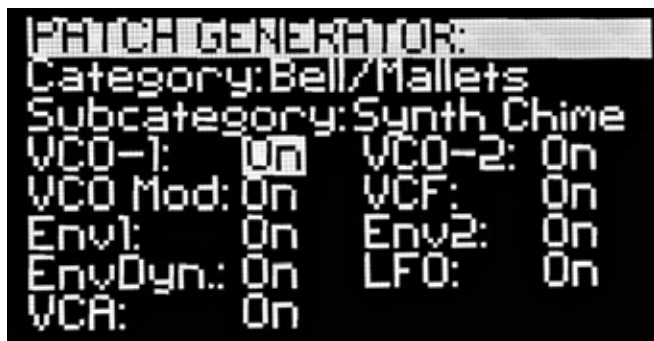
The Patch Generator Menu

GENERATING A TONE

To generate a tone, select a category/sub-category, then use the [EDIT SEL] and [LAYER] buttons to select which synth layers the tone will be generated on. **To generate the same tone on all selected layers, press [ENTER.] To generate different tones on each selected layer, hold down ENCODER (SHIFT) and press [ENTER].**

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. (VCO-1, VCO-2, VCO CTRL, VCF, ENV-1, ENV-2, ENV DYN, LFO-1 and VCA) **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 (OCT SHIFT, KEY MODE, ASSIGN MODE, BEND), volume and balance settings (UP/LO BAL, VOL & X-FADE), aftertouch settings, or the VCA ENV-2 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 CATEGORIES

Bass - Synth basses
- **All** - This sub-category generates a wide assortment of bass tones. Most do not have VCA ENV Release.
- **Release** - Basses with VCA ENV Release

Pads – An assortment of different types of synth pads.

- **All** – Randomly selects pads from any of the following sub-categories.
- **Mellow** – Soft pads and pads with less high frequency content
- **Synced** – Pads where OSC SYNC is used.
- **Env Detuned** –Pads where VCO detuning by envelope is used.
- **Pad 1** – Pad algorithm 1
- **Fast Pad** – Same as ALL category, but the VCE ENV Attack and Release values are faster.
- **Pulsate** – Pads that use LFO-1 to modulate VCA and VCF.

Pluck/Struck – Harp, guitars, harpsichords, clavinets, plucked string, struck string

- **All** – Randomly selects pads from any of the following sub-categories.
- **Harpsichord** – Tones with a harpsichord-like envelope.
- **Dbl Harpsi** – Similar algorithm to Harpsichord, but creates thicker sounding tones.
- **Harp/Gtr** – Harps, plucked strings, struck strings, celeste, koto
- **Clavi** – Synth Clavichord, Synth Clavinet

Brass – Synth Brass, Ensemble Brass, Solo Horn, Reeds

- **All** – Randomly selects pads from any of the following sub-categories.
- **Synth Brass** – Ensemble and Synth Brass.
- **Solo** – Trombone, Trumpet, Sax, Tuba, French Horn

Bell/Mallets – Chimes, Marimba, Vibes, Bells, Percussion

- **All** – Randomly selects pads from any of the following sub-categories.
- **Tuned Wood** – Marimba and struck woodblock instruments
- **Atonal Wood** – Struck woodblocks
- **Glass Chime** – Delicate-sounding,FM-like, Ice Bells
- **Synth Chime** – Synth bells
- **General Bell** – Bells & Metal Algorithm 1
- **Atonal/Metal** – Metallic and clangorous, Digital Bells, Shimmer

Piano–Instruments with Piano-like response.

- **All** – Randomly selects pads from any of the following sub-categories.
- **Ac. Piano** – Bright pianos, synth pianos
- **Soft Tine EP** – Mellower Tine EPs
- **Tine EP 2** – Tine EP Algorithm 2
- **Reed EP 1** – Reed EP Algorithm 1
- **Reed EP 2** – Reed EP Algorithm 2

Organ–Tones with organ-style harmonics and sustain.

- **Tonewheel** – Uses harmonics and waveforms found on tonewheel organs.
- **Combo** – Uses harmonics and waveforms found on transistor-based combo organs.

String – Various string & string machines

- **All** – Randomly selects pads from any of the following sub-categories.
- **PWM Strings** – Uses PWM method of generating string textures.
- **Slow Strings** – Various string tones with slow attack/release times.
- **Fast Strings** – Various string tones with fast attack/release times.
- **Vib Strings** – String textures with vibrato.

Sync-Tones that use VCO-Hard-Sync.
- **All** - Randomly selects pads from any of the following sub-categories.
- **Rez Sync** - Algorithm that maximizes resonant, nasal, and aggressive qualities of osc sync.
- **Crazy Sync** - Algorithm that encourages more adventurous sync modulation routings.

Scratch-Non-randomized starter tone templates.
- **Dual-Saw** - Saw waves selected on VCOs, no modulation on VCOs, VCF, or VCA. Gated-VCA-type envelopes.
- **PWM LFO** - LFO modulation applied to PW on both VCOs.
- **Sync** - Basic oscillator sync template.
- **Dual LFO Mod** - LFO detuning OSC1 and OSC2.

Krazee!-Completely randomized parameters. This may or may not make sound.

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

PATCH GENERATOR SHORTCUTS

There are several "shortcuts" that can be used to generate a tone when on a menu page other than the PATCHGEN page. Below is a list of shortcuts.

DUAL SAW INIT = [SHIFT] + [PWM INV]

PWM LFO INIT = [SHIFT] + [PWM SOURCE SEL]

SYNC INIT = [SHIFT] + [SYNC SEL]

DUAL LFO MOD INIT = [SHIFT] + [SCALING SEL]

GENERATE A RANDOM TONE = [SHIFT] + [PATCHGEN]

When in the PATCHGEN menu, pressing [PATCHGEN] will mask all and unmask all sections in the patch generator. This can be useful if you want to mask all of the section except 1 or 2.

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] + [ENTER]. A dialog box will pop up, reading "Sending all control positions".

COPY & PASTE

A tone can be copied from any layer to any other layer in the MPG-8X. To copy, press [SHIFT] + [LOWER] or [SHIFT] + [UPPER] to copy the desired tone. A dialog will pop up, asking which destination the copied tone should be pasted to. This operation can be useful for moving tones to various layers on the controller.

ASSIGN

The ASSIGN functions on the MPG-8X are a powerful MIDI modulation matrix, which allows users to create complex modulation of multiple MKS-80 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 MPG-8X. 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.
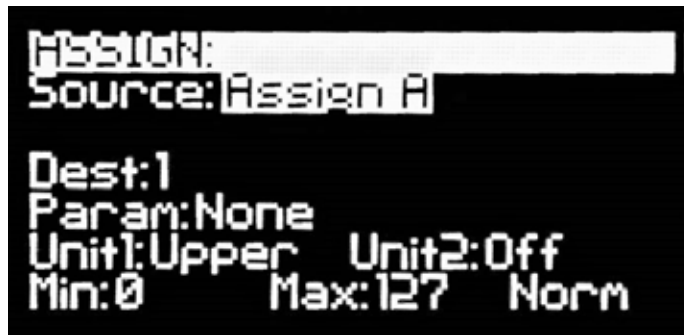
The Assign Menu

ASSIGN SOURCE

There are 7 different ASSIGNs (Control sources):

CTRL A Slider
CTRL B 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 and B sliders are located in the ASSIGN section of the MPG-8X front panel.

The Expression Pedal source is connected to the EXP PEDAL jack on the rear panel of the MPG-8X.   Only use passive expression pedals with the MPG-8X. **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 get the MPG-8X to route a CC ASSIGN to a CC, simply navigate to the desired CC ASSIGN, hold [SHIFT] and move the CC (Such as a mod wheel) and the 8X will automatically route that CC to the ASSIGN.**

DESTINATIONS AND ROUTING

Each of the 7 ASSIGN sources has 5 available destinations (parameters on the MKS-80) 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 1**: Selects which layers of Unit 1 the current destination will be routed to.
* **UNIT 2**: Selects which layers of Unit 2 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 MPG-8X 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 layers of the synthesizer, 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 all ASSIGNs - To clear all ASSIGN data, navigate to the ASSIGN menu, then press [SHIFT]+[ASSIGN].

**Clearing an ASSIGN SOURCE** - Navigate to the source to be cleared, then press [SHIFT]+[MAIN].

Clearing an ASSIGN DESTINATION - Navigate to the destination to be cleared, then press [SHIFT]+[RIGHT].

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](SHIFT) 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.

ASSIGN

CTRL A   **CTRL B**
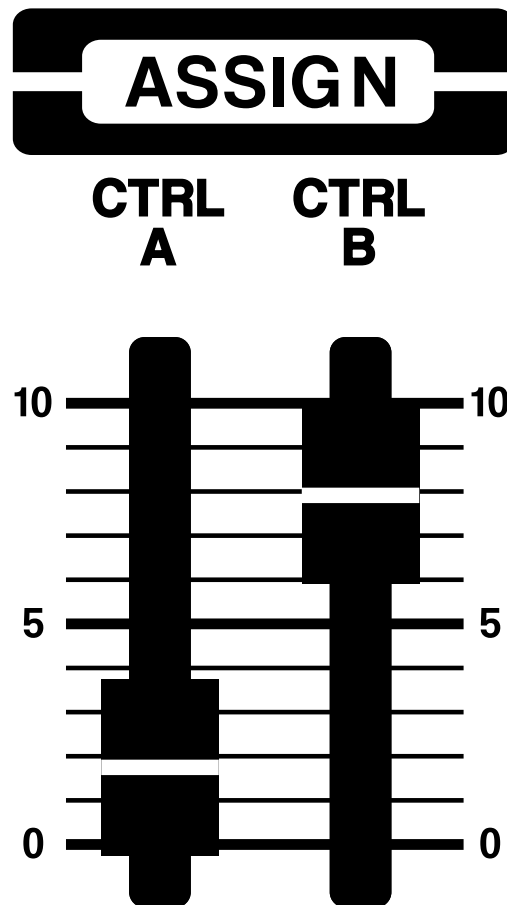
The ASSIGN A and ASSIGN B Source Sliders

VOL & X-FADE SLIDER

The VOL & X-FADE slider on the front panel allows users to either set the master volume of the MKS-80 (When in volume mode) or it can crossfade between UNIT 1 and UNIT 2.   When used as a VOLUME slider, this will send CC#7 (Volume) messages to each MKS-80. If used as an X-FADE slider, the fader will crossfade between UNIT 1 and 2, with the volume level of each MKS-80 being equal when the fader is at 50%.

To toggle the VOLUME/X-FADE mode: Press [SHIFT] + [TOUCH SELECT]

IMPORTANT SHORTCUTS

It will be useful to memorize the following editing shortcuts.

TONE & PATCH SHORTCUTS
[SHIFT] + [DYNAMICS] = toggle ENV RESET tone parameter
[SHIFT] + [BEND VCO 1] = Hold Off/Hold On/Sustain Pedal
[SHIFT]+ [AT SOURCE SEL] = Toggles volume fader as either volume or crossfade between units 1 and 2
[SHIFT]+ [OSC MOD] = tune osc to middle C (works independently on each oscillator)
[SHIFT]+ [SPLIT] = set split point

PATCH GENERATOR SHORTCUTS
[SHIFT] + [PATCHGEN] = Generate a random tone
[SHIFT]+ [PWM INV] = Saw Scratch Patch
[SHIFT] + [PWM SOURCE] = PWM Scratch Patch
[SHIFT] + [SCALING] = Dual LFO Detune Scratch
[SHIFT] + [SYNC] = Sync Scratch Patch
[SHIFT] + [ENTER] (in main menu) = MANUAL mode

AUTOTUNE
[SHIFT] + [UNIT 1] = Autotune unit 1
[SHIFT] + [UNIT 2] = Autotune unit 2

MIDI
[SHIFT] + [MIDI] = MIDI panic
[SHIFT] + [VCF ENV SEL] = Jump to Chord Mode

ASSIGN
[SHIFT] + [ASSIGN] = Clear all assigns
[SHIFT] + [MAIN] = Clear current assign
[SHIFT] + [RIGHT] = Clear current assign layer

UTILITY
[SHIFT] + [UPPER/LOWER] buttons = Copy the selected tone to another layer

"PEEK" MODE

If you want to see that a slider value is currently set to, navigate to the desired layer, then hold SHIFT while moving the slider. The current value of the slider will be displayed on the screen, and it will not change when moved. This allows you to safely check the state of any control in a PATCH or TONE without changing the original value.

MPG-8X MEMORY STORAGE

MPG-8X allows users to store a variety of different "objects" such as PATCH, TONE, ASSIGNS, or a SETUP.   MPG-8X has the following banks of objects available:

• 1 bank of 24 User CC Maps
• 1 bank of 24 ASSIGN objects
• 1 bank of 64 SETUP objects
• 3 banks of PATCH objects
• 3 banks of TONE objects

It is important to understand what each object type is composed of. Below is a diagram showing what each object type in the MPG-8X consists of.

TONE

UPPER OR LOWER

PATCH

LOWER TONE	UPPER TONE
PATCH SETTINGS	

SETUP

UNIT 1 LOWER TONE	UNIT 1 UPPER TONE	UNIT 2 LOWER TONE	UNIT 2 UPPER TONE
UNIT 1 PATCH SETTINGS		UNIT 2 PATCH SETTINGS	
ASSIGN 1 - 7 SETTINGS			
UNIT 2 USER CC MAP (IF USED)			

ASSIGN

ASSIGN A SLIDER	ASSIGN B SLIDER	EXPRESSION PEDAL	AFTERTOUCH	CC ASSIGN 1	CC ASSIGN 2	CC ASSIGN 3

SETUP STRUCTURE

A SETUP is a "snapshot" of all of the current settings on all layers in the controller.   A bank of 64 setups on the MPG-8X contains 128 patches (each with two tones) plus an assign. 64 setups contain 256 tones.   SETUP consists of the following:

- Unit 1 UPPER and LOWER TONE layers + PATCH settings
- Unit 2 UPPER and LOWER TONE layers + PATCH settings
- Any User CC MAP being used
- Current ASSIGN settings (Assign A, Assign B, Exp Pedal, Aftertouch, and CC Assigns 1-3)
- Vol & X-Fade Slider state

PATCH STRUCTURE

A PATCH is a "snapshot" of either the UNIT 1 or UNIT 2 LAYER in the controller. In the MKS-80, a patch points to the two tones it links to. In a typical MKS-80 bank, many tones are shared by multiple patches, which means if a tone is edited and saved, it affects all patches that share that tone. In the MPG-8X, no tones are shared in a patch bank. A bank of 64 MPG-8X patches contains 128 individual tones, thus allowing us to store a patch on the MPG-8X with a single button press. For this reason, when a bank of MPG-8X patches is exported to MKS-80, only the first 32 patches will be transferred to the synth, as the synth can only hold 64 individual tones.   A PATCH consists of the following:

- UPPER and LOWER TONE layers + UPPER and LOWER PATCH settings (Unit 1 or Unit 2 must be selected)

The following parameters are considered "global" parameters (They affect all layers of the patch): UPPER/ LOWER BALANCE, CROSSFADE, KEY MODE, SPLIT POINT.

These PATCH parameters have independent UPPER and LOWER values when in DUAL or SPLIT mode: ASSIGN MODE, BEND, A.T. SEL, GLIDE, HOLD, A.T. SENS, UNISON DETUNE, VIBRATO RATE.

TONE STRUCTURE

A TONE is :

- UPPER or LOWER layer (of either Unit 1 or Unit 2)

ASSIGN STRUCTURE

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

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

STORING AND RECALLING OBJECTS

To store and name an object:

- Press orange **OBJECT TYPE** button, and navigate to the location new object will be stored.
- Press the yellow [STORE] button, 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. .

To load an Object

- Press the orange **OBJECT TYPE** button, and a list of the current objects will appear.
- Use the arrow keys or the encoder to navigate through the BANK. To advance BANK, press the OBJECT TYPE button again.
- Press [LOAD] or [ENTER] to load the selected object. A "Success" message will appear when the object has been loaded.

To delete an object:

- Use the object buttons and the encoder to navigate to the object to be deleted. When the name of the object is highlighted, press SHIFT+LEFT to delete the object.

REFORMATTING (CLEARING) MPG-8X MEMORY

Power up holding both [OSC MOD] buttons to reformat Object Memory.   **CAUTION: THIS WILL ERASE ALL OF YOUR OBJECTS.**

MPG-8X will always remember the settings from your last session when you power up.   Power up holding [STORE] to wipe out general user settings, such as MIDI settings.

BOOTLOADER AND SYSTEM UPDATES

The MPG-8X 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 MPG-8X's firmware version, power the unit up and the firmware version will be shown at the bottom of the MPG-8X splash screen. Check on the Retroaktiv site for the latest firmware updates.

ENTERING BOOTLOADER

To load update, power up MPG-8X with ENCODER button held.   Crossmod INV 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 MPG-8X. 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 8X MIDI buffer, and you will get a blinking error code.   The pause in between sysex packets allows the MPG-8X time to process each packet and write it to FLASH. When ready, send the file to the MIDI IN of the MPG-8X. The XMOD INV LED will blink once for each sysex packet. XMOD INV 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 MPG-8X 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 MPG-8X 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 MPG-8X, 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 MPG-8X, 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 MPG-8X.

- **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 MPG-8X is 9 pounds and the enclosure measures 17" x 8.75" x 3.5".   The enclosure has 4 heavy-duty screw-on rubber feet for no-slip tabletop use.   The MPG-8X can also be rackmounted using optional rack ears, or the Retroaktiv 5U Swiveling Rack System, both of which can be purchased at www.RetroaktivSynthesizers.com. A memory expansion card update is planned for mid 2021, which will add 256k of FLASH memory to MPG-8X's 64k internal memory. The card will quadruple the available memory space in the MPG-8X.

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
Owner and Chief Designer/Engineer at Retroaktiv LLC.