OWNER'S MANUAL



MSR-2 MAINFRAME
ANALOG SYNTHESIZER MODULE

MARION®

MARION SYSTEMS CORPORATION

MARION SYSTEMS MODULAR SYNTHESIZER

- MSR-2 MAINFRAME
- ANALOG SYNTHESIZER MODULE

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MARION®
MARION SYSTEMS CORPORATION

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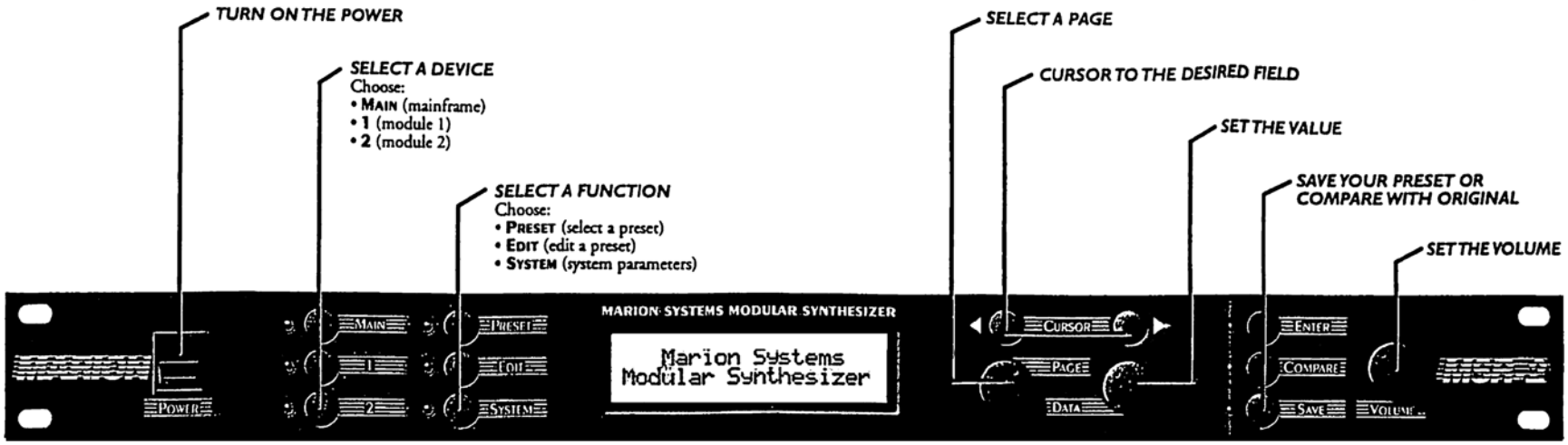
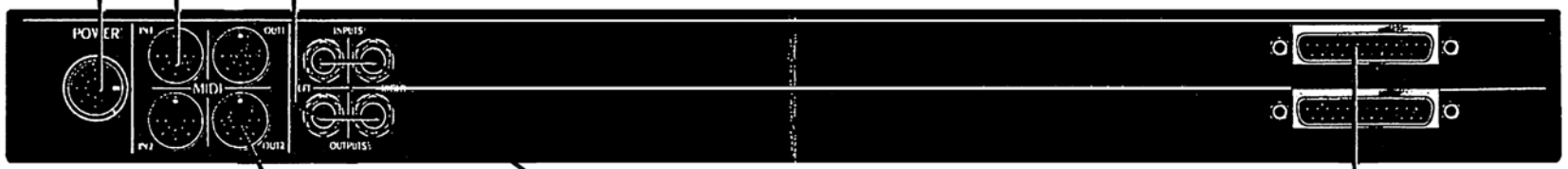
FRONT PANEL – QUICKSTART

QUICKSTART: *FOLLOW THESE INSTRUCTIONS TO GET STARTED*



REAR PANEL – CONNECTIONS

PRIMARY CONNECTIONS: EVERYTHING YOU NEED TO *GET STARTED*



POWER
Connect the Marion Systems power pack here.
Note: The power pack cable has the same connector as a MIDI cable.
Be sure to connect it to the POWER *connector.*
However, no damage will occur if the power cable is connected to a MIDI connector.

MIDI IN 1
Plug in your keyboard or other MIDI controller here.

LEFT / RIGHT OUTPUTS
Connect these outputs to your mixer or amplifier.

ADDITIONAL CONNECTIONS:

MIDI IN/OUT 2
Second MIDI Port

LEFT / RIGHT AUDIO INPUTS
Audio inputs into the Mainframe mixer.

EXTERNAL MODULE INPUTS / OUTPUTS

MSR2

ABOUT THE MSR2 MAINFRAME

The MSR2 Mainframe is a component of the Marion Systems Modular Synthesizer system. It is a 1U rack mount device which holds two MSR sound modules, a 6 input programmable mixer, a 7 band graphic equalizer and a very flexible user interface.

The MSR2 Mainframe features:

- 1U rack accepts 2 Marion Systems Modules
- Easy to use front panel:
  - Single level menu
  - 2 encoders ("PAGE" & "DATA")
  - Very easy to read fluorescent backlit LCD
- Common user interface for different technologies
- 6 input programmable mixer
- Two external inputs to mixer
- Programmable 7 band stereo graphic equalizer
- "Superpatch" storage of all parameters, including module patches.
- Two complete MIDI ports
- MIDI processing
- Universal power supply – works anywhere in the world

USING THE MSR2 MAINFRAME

To use the MSR2 Mainframe, do the following:

- Press MAIN on the MSR Mainframe front panel;
- Press PRESET if you wish to select patches or Superpatches;
- Press EDIT if you wish to edit Superpatches;
- Press SYSTEM if you wish to work with the system parameters, such as the mixer, graphic equalizer or various MIDI control parameters.

HOW TO USE THIS MANUAL

This MSR2 Mainframe manual is organized in the same way that the MSR2 LCD screens in the Mainframe are organized. There are three sections to the MSR2 Mainframe manual, just as there are three sections of LCD screens displayed on the Mainframe display:

- PRESET
- EDIT
- SYSTEM

In addition, a complete page in the manual is devoted to each LCD display page.

MSR2 MAINFRAME EDITING FEATURES

The MSR2 Mainframe software provides several user aids which allow faster and easier editing of MSR2 parameters. These features are:

- Setting Markers
- Parallel Edits
- MIDI Edits

SETTING MARKERS

While in any screen, you can set a marker which can be used to move quickly among the different screens. There are two markers per section.

Markers are set by pressing either the left or right cursor buttons while holding the ENTER button while in the desired screen . A confirmation of your marker setting appears on the screen: "Left Marker set." or "Right Marker set.".

In order to go to a screen which has a marker defined for it, move the PAGE knob to the left or right while holding the ENTER button.

PARALLEL EDITS

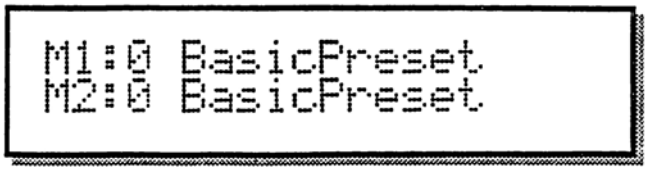
The user can set more than one parameter value from a single move of the DATA knob. While holding the ENTER button, rotate the DATA knob to increase or decrease all the parameters to the right of the current parameter by the same amount as the current parameter.

MIDI EDITS

The user can set any parameter value by pressing the ENTER button and entering a MIDI note from a keyboard. In addition MIDI controller #1 can also be used for this purpose. MIDI controller #1 is typically the MOD wheel controller.

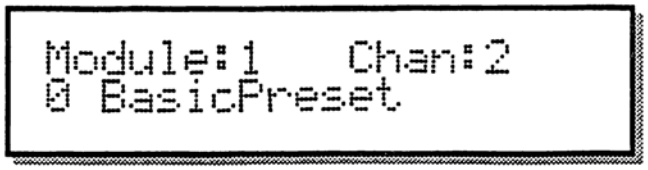
MAINFRAME-PRESET

SELECT PRESETS



This screen offers a quick way to select presets in each of the modules. It selects the preset being played in the current channel of each module. The current selection channel for each module is displayed and selected in the following page.

MODULE / MIDI CHANNEL



This screen allows the user to select which presets in each of the 16 MIDI channels is in use for each of the modules. The configuration of presets for each of the modules is stored and recalled as part of the Superpatch.

SELECT SUPERPATCH



This screen allows the user to select which Superpatch is currently in use.

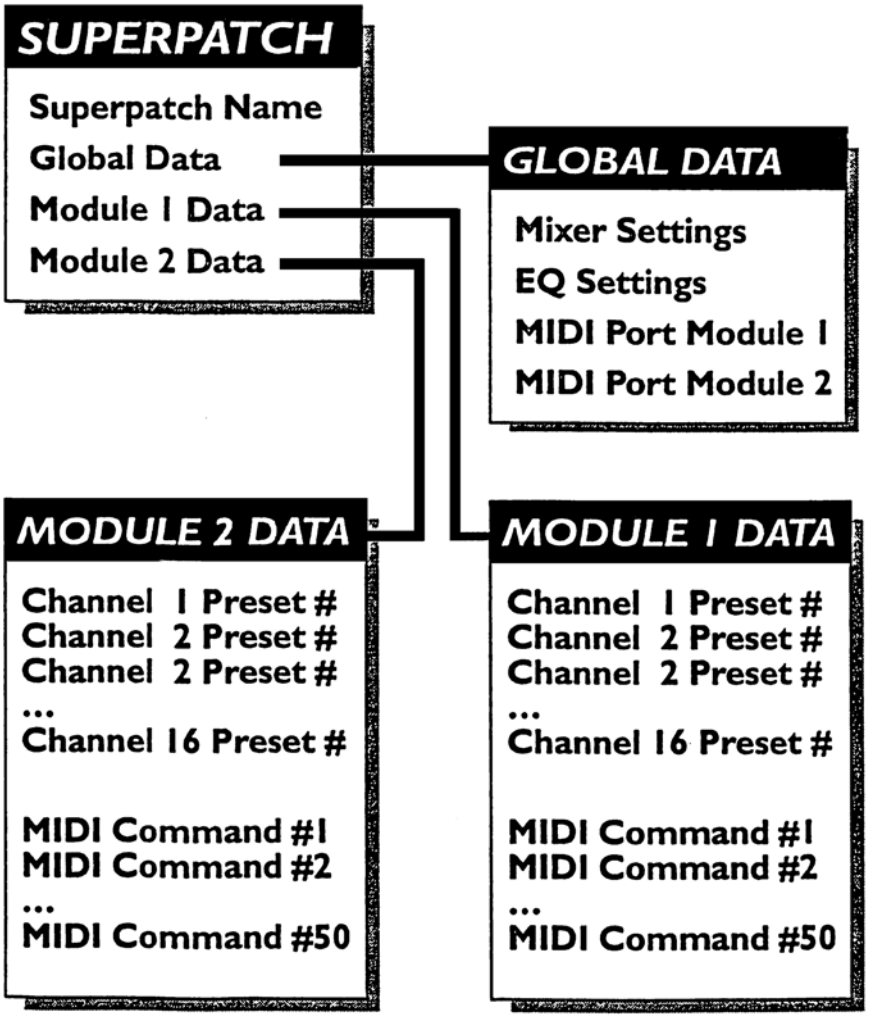
The current Superpatch appears in normal text with the ENTER LED turned off. Superpatches which are not current appear with an asterisk ('*') next to their names and with the ENTER LED blinking. Pressing the ENTER button while a Superpatch other than the current one is displayed will cause a Superpatch change. Superpatch changes do the following:

- Select 16 different presets (one per MIDI channel) for each module
- Send up to 50 user defined MIDI control messages to each module or external MIDI device
- Select new Mixer, Equalizer and MIDI port routing settings

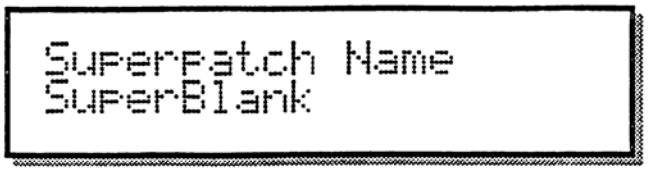
MAINFRAME-EDIT

SUPERPATCH DATA FLOW CHART

A Superpatch stores the configuration of the entire MSR-2 into a single memory location. The diagram below shows how the data is stored.



SUPERPATCH NAME

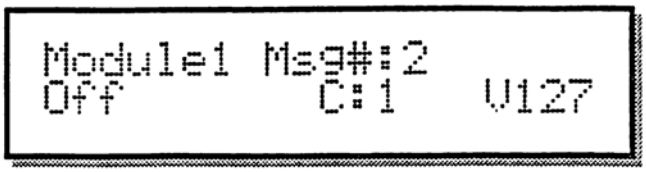


This screen allows users to name the current Superpatch. Position the cursor and turn the DATA knob to select the desired character. The order of the characters is as follows:

(space) ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

@ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ ] ^
_ ' a b c d e f g h i j k l m n o p q r s t u v w x y z { | } -> <-

MODULE 1 MESSAGES



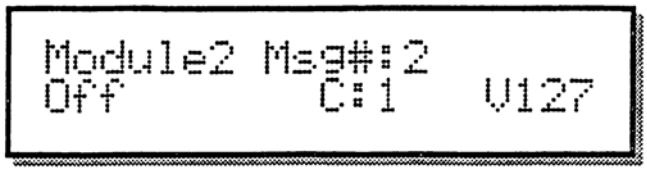
This screen allows the user to program the MIDI messages which are to be sent to Module #1 when a Superpatch is selected.

The messages which can be sent include:

- MIDI controller messages
- Start
- Stop
- Continue
- Program Change
- Song Select.

Messages can also be sent to external MIDI devices. This is accomplished by selecting an external MIDI channel, designated by the values 'E1-E16'. Channels for messages intended for each module are labeled '1-16'. The value following the channel value represents the value to be sent. Values are ignored for Start, Stop and Continue messages. External MIDI messages are sent according to the MIDI routing set for each module.

MODULE 2 MESSAGES



This screen allows the user to program the MIDI messages which are to be sent to Module #2 when a Superpatch is selected.

The messages which can be sent include:

- MIDI controller messages
- Start
- Stop
- Continue
- Program Change
- Song Select.

Messages can also be sent to external MIDI devices. This is accomplished by selecting an external MIDI channel, designated by the values 'E1-E16'. Channels for messages intended for each module are labeled '1-16'. The value following the channel value represents the value to be sent. Values are ignored for Start, Stop and Continue messages. External MIDI messages are sent according to the MIDI routing set for each module.

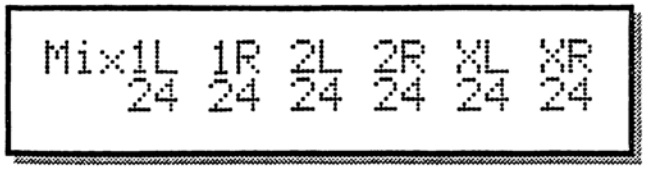
SAVING SUPERPATCHES:

While in the Mainframe Edit menu, pressing the SAVE button brings up a save dialog in which the user can save the current preset, mixer, equalizer, MIDI message and MIDI port routing selections to one of 50 Superpatches, designated as Superpatch 0 -49.



MAINFRAME-SYSTEM

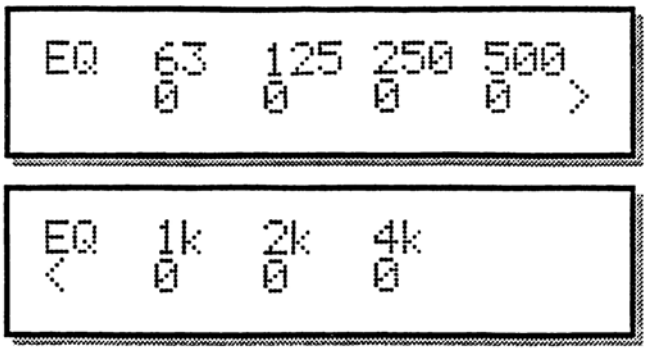
MIXER



The MSR2 Mainframe features a 6-input mixer. Audio from the sound modules, as well as from the two external inputs, is fed into separate channels of the mixer. The mixer level settings can be set manually by using the DATA knob, by the use of a MIDI controller or set by the use of Superpatches. Mixer settings are stored and recalled as part of the Superpatch.

The mixer can be controlled by MIDI controllers 102-107.

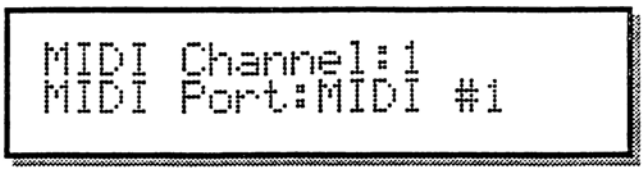
GRAPHIC EQUALIZER



The MSR2 Mainframe features a fixed 7-band, 2-channel graphic equalizer. The equalization levels can be set manually by scrolling to the Equalizer page in the Mainframe System menu, scrolling to the desired frequency band and using the DATA knob. Equalization levels can also be controlled with the use of MIDI control and by Superpatches. Equalization settings are stored and recalled as part of the Superpatch.

The equalizer can be controlled by MIDI controllers 108-114.

MAINFRAME MIDI CONTROL



This screen allows the user to select which MIDI port and MIDI channel the MSR2 Mainframe listens to in order to accept commands to set parameters in any of its screens, to select Superpatches and to control the mixer and equalizer.

SUPERPATCH MIDI CONTROL



This screen allows the user to select which MIDI message is used to externally select Superpatches in the MSR2 Mainframe. Note that Superpatches can also be selected with the MIDI Song Select command which can be selected by scrolling below controller #0.

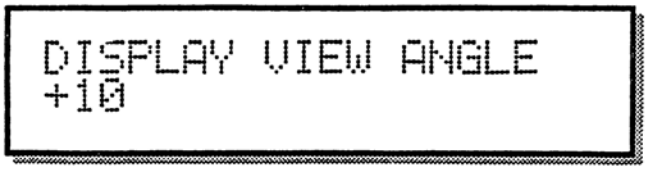
MODULE MIDI CONTROLS



This screen allows the user to select which MIDI port is used to control each of the modules in an MSR2 Mainframe.

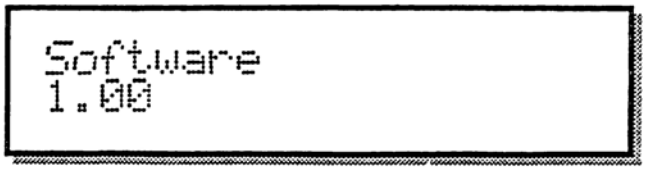
There are two MIDI ports on the MSR. Either MIDI input can control either or both modules.

DISPLAY VIEW ANGLE



This screen allows the user to select the desired LCD viewing angle.

MAINFRAME SOFTWARE VERSION



This screen displays the current software version in use in the MSR2 Mainframe.

ASM

ABOUT THE ANALOG SYNTHESIZER MODULE

The Analog Synthesizer Module is a component of the Marion Systems Modular Synthesizer system. It is a self-contained eight-voice analog synthesizer which plugs into an MSR Mainframe and provides the sound of the classic analog synthesizers but with state of the art circuitry.

The Analog Synthesizer Module features:

- 8 analog synthesizer voices
- Fully multi-timbral
- Classic "VCF, VCA" sound
- 2 high resolution oscillators (HRO's) per voice ("VCO" sound with digital stability)
- Oscillator sync
- Sawtooth, triangle, clipped triangle, variable pulse, & square waveforms (and combinations)
- Noise generator
- Voltage controlled filter (VCF) with 2 pole/4 pole low pass response, with resonance
- External inputs into the filters
- Voltage controlled amplifier (VCA)
- Voltage controlled PAN
- 3 envelope generators
- 2 LFO's plus global vibrato generator
- Extensive modulation routing matrix
- Left and right outputs

USING THE ANALOG SYNTHESIZER MODULE

To use the Analog Synthesizer Module, do the following:

- On the MSR Mainframe, press "1" or "2" to select the particular module;
- Press PRESET if you wish to select patches or work with Layers;
- Press EDIT if you wish to edit presets;
- Press SYSTEM if you wish to work with the system parameters.

HOW TO USE THIS MANUAL

This Analog Synthesizer Manual is organized in the same way that the ASM LCD screens in the Mainframe are organized. There are three sections to the ASM manual, just as there are three sections of LCD screens displayed on the display:

- PRESET
- EDIT
- SYSTEM

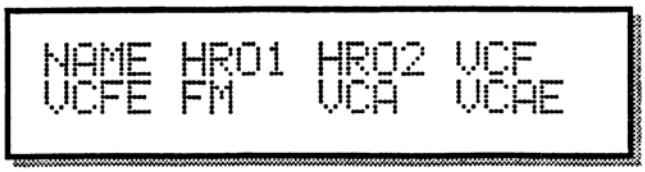
In addition, a complete page in the manual is devoted to each LCD display page.

ASM EDITING FEATURES

The Analog Synthesizer Module software provides several user aids which allow faster and easier editing of ASM presets. These features are:

- Quick Edit Catalog
- Setting Markers
- Parallel Edits
- MIDI Edits
- Compare

QUICK EDIT CATALOG





While in ASM-EDIT, pressing and holding the EDIT button will temporarily bring up a catalog screen which allows the user to select an ASM-EDIT section.

While holding the EDIT button down, scroll with the DATA knob or the CURSOR buttons to the desired section and release the button to jump to that section. Use the PAGE knob to quickly go to the beginning or end of the catalog pages.

For one-handed operation, press and hold the EDIT button and then press the module button ("1" or "2"). Select the desired section as described above and then press the ENTER button to jump to that section.

SETTING MARKERS

While in any screen, you can set a marker which can be used to move quickly among the different screens. There are two markers per section.

Markers are set by pressing either the left or right cursor buttons while holding the ENTER button while in the desired screen . A confirmation of your marker setting appears on the screen: "Left Marker set" or "Right Marker set.".

In order to go to a screen which has a marker defined for it, move the PAGE knob to the left or right while holding the ENTER button.

PARALLEL EDITS

The user can set more than one parameter value from a single move of the DATA knob. While holding the ENTER button, rotate the DATA knob to increase or decrease all the parameters to the right of the current parameter by the same amount as the current parameter.

MIDI EDITS

The user can set any parameter value by pressing the ENTER button and entering a MIDI note from a keyboard. In addition MIDI controller #1 can also be used for this purpose. MIDI controller #1 is typically the MOD wheel controller.

COMPARE

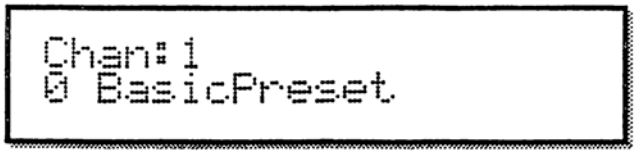
While in ASM-EDIT, pressing the COMPARE button will temporarily bring up the last stored version of the preset being edited in order to facilitate comparison between the changes made by the user and the original version of the preset.

The COMPARE light is lit when observing the original parameter value.

Normally values cannot be changed while the COMPARE light is on. In order to change values while in COMPARE mode, press the ENTER button.

ASM-PRESET

SELECT PRESET



This screen allows the user to select the presets to be used by the ASM in each of the 16 MIDI channels. The ASM keeps tabs on which presets are currently selected in each channel and uses this information in order to play selected presets for incoming MIDI notes on any MIDI channel (depending on whether the ASM is in Multi, Poly, Omni or Mono mode.)

This screen is one of three screens that allows the user to select presets. (The other screens are in the Mainframe)

Chan:

This parameter selects one of 16 MIDI channels.

RANGE: 1 to 16

0 (Preset name)

This parameter selects the desired preset.

RANGE: 0 to 499

LAYERS

ABOUT LAYERS

A layer is a special preset which allows the user to play up to four presets from the ROM or RAM presets. It functions just like a preset and has its own name and number.

A layer is made up of four *control parts*. Each control part has its own:

- MIDI note range
- basic preset
- volume
- pan
- octave transposition (+/- 5 octaves)

Volume and pan values can be set to 'MIDI' which means that the value used will be the current MIDI volume (control 7) and MIDI Pan (control 10) values, effectively allowing real-time volume and pan control for the layers from an external MIDI device.

To program a layer, the user selects the desired layer (1-4), and sets the MIDI note range and preset number for each. Volume and Pan values can be set in the Volume and Pan screen following the layer selection screen. Note that the range value is automatically set from any MIDI notes received while the cursor is sitting on the range value fields.

LAYER NAME



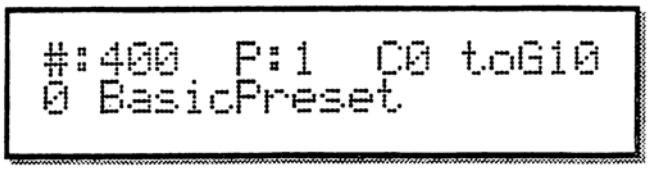
This screen allows the user to define the name for a Layer. Position the cursor and turn the DATA knob to select the desired character.

The order of the characters is as follows:

(space) ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

@ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ ] ^

_ ` a b c d e f g h i j k l m n o p q r s t u v w x y z { | } -> <-



#:

This parameter selects the Layer number.

RANGE: 400 to 499

P:

This parameter selects "layer control part".

RANGE: 1 to 4

C0 to G10

These two parameters select the MIDI note range.

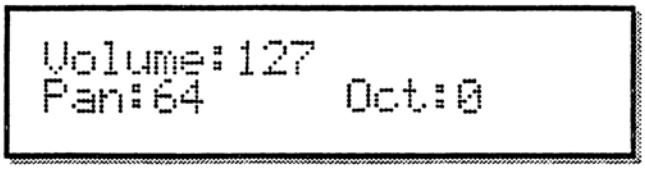
RANGE: C0 to G10

0 (preset name)

This parameter selects the basic preset assigned to the layer part.

RANGE: 0 to 399

VOLUME / PAN / OCTAVE



Volume:

This parameter selects the volume for the selected layer part.

RANGE: MIDI, 0 to 127

Pan:

This parameter selects the pan for the selected layer part.

RANGE: 0 to 127

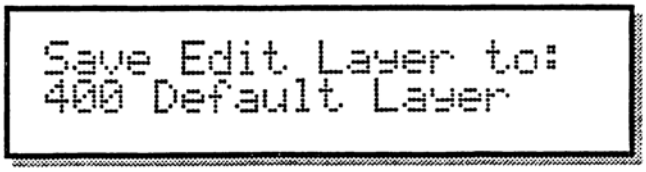
Oct.:

This parameter selects the octave transpose for the selected layer part.

RANGE: -5 to +5

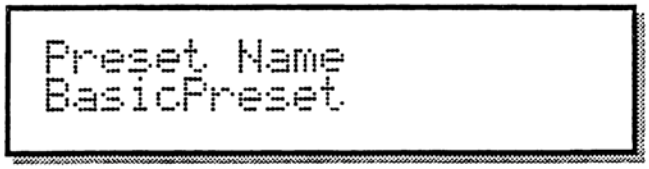
SAVING LAYERS

While in ASM-PRESET, pressing the SAVE button will bring up a Save Layer screen which can be used to select a layer in which to store the currently edited layer.



ASM-EDIT

PRESET NAME



This screen allows the user to define the name for a preset. Position the cursor and turn the DATA knob to select the desired character.

The order of the characters is as follows:

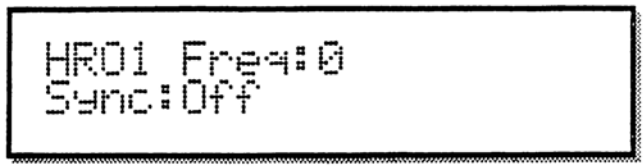
(space) ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

@ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [ ] ^

_ ' a b c d e f g h i j k l m n o p q r s t u v w x y z { | } -> <-

The user can also enter values via a MIDI keyboard or modulation device.

HRO1 FREQUENCY



HR01 Freq:

This parameter selects the pitch of the first high resolution oscillator, in semi-tones.

RANGE: -99 to +99 (semi-tones)

The lower limit of pitch range of the HRO is MIDI note 15, which has a frequency of 19.4Hz.

Sync:

Selecting this parameter causes the pitch of HRO2 to be synchronized in varying degrees to the pitch of HRO1.

RANGE: Off
Soft
Med
Hard

HRO1 WAVEFORM



HRO1 Wave:

This parameter selects the waveform output of HRO1.

RANGE: Off = HRO1 is turned off
Pulse = select pulse waveform only
Wave = select sloped waveform only
Both = select both waveforms

Shape:

This parameter selects the shape of the sloped waveform.

RANGE: -99 = clipped triangle
0 = triangle
+99 = sawtooth

With "Wave" set to either "Wave" or "Both", "Shape" controls the sloped waveshape from flattop triangle (-99), thru pure triangle (0), to sawtooth (+99).

Width:

This parameter selects the duty cycle of the pulse waveform.

RANGE: 0 to 99

With "Wave" set to either "Pulse" or "Both", "Width" controls the pulse waveshape from 1% duty-cycle (0) to 99% duty-cycle (+99).

Note: Changing the Shape parameter simultaneously changes the pulse width.

HRO1 MODULATION



HRO1 Freq xLFO1:

This parameter modulates the frequency of HRO1 by the output of LFO1, as programmed in the LFO1 pages.

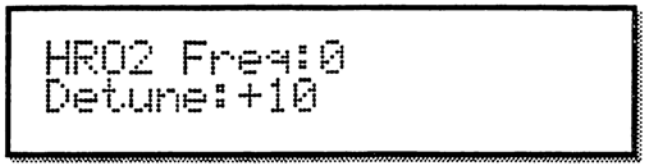
RANGE: -99 to +99

PW xLFO2:

This parameter modulates the pulse width of HRO1 by the output of LFO2, as programmed in the LFO2 pages.

RANGE: -99 to +99

HRO2 FREQUENCY



HRO2 Freq:

This parameter selects the pitch of the second high resolution oscillator, in semi-tones.

RANGE: -99 to +99 (semi-tones)

The lower limit of pitch range of the HRO is MIDI note 15, which has a frequency of 19.4Hz.

Detune:

This parameter selects the amount of frequency detune between HRO1 and HRO2.

RANGE: -99 to +99 (1/256th of a semitone increment)

HRO2 WAVEFORM



HRO2 Wave:

This parameter selects the waveform output of HRO2.

RANGE: Off = HRO2 is turned off
Pulse = select pulse waveform only
Wave = select sloped waveform only
Both = select both waveforms

Shape:

This parameter selects the shape of the sloped waveform.

RANGE: -99 = clipped triangle
0 = triangle
+99 = sawtooth

With "Wave" set to either "Wave" or "Both", "Shape" controls the sloped waveshape from flattop triangle (-99), thru pure triangle (0), to sawtooth (+99).

Width:

This parameter selects the duty cycle of the pulse waveform.

RANGE: 0 to 99

With "Wave" set to either "Pulse" or "Both", "Width" controls the pulse waveshape from 1% duty-cycle (0) to 99% duty-cycle (+99).

Note: Changing the Shape parameter simultaneously changes the pulse width.

HRO2 MODULATION



HRO2 Freq xLFO1:

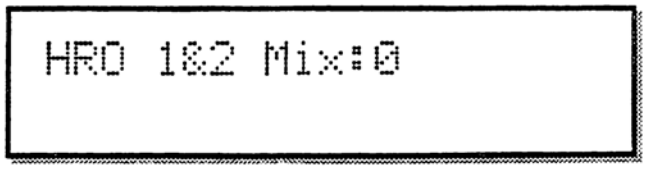
This parameter modulates the frequency of HRO2 by the output of LFO1, as programmed in the LFO1 pages.

RANGE: -99 to +99

PW xLFO2:

This parameter modulates the pulse width of HRO2 by the output of LFO2, as programmed in the LFO2 pages.

RANGE: -99 to +99

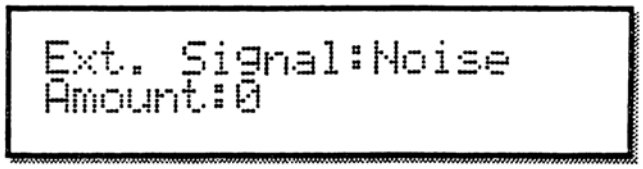


HRO 1&2 Mix:

This parameter selects the relative mix between HRO1 and HRO2 as inputs to the VCF.

RANGE: -99 = HRO1 only
0 = Equal mix of HRO1 and HRO2
+99 = HRO2 only

EXTERNAL SIGNAL



The analog synthesizer module rear panel has a DB-25 multi-pin connector containing individual audio inputs to the VCF of each voice. This allows the user to utilize the signal processing capabilities of the ASM voice on any desired audio signal. (Note: The multi-pin connector is different than the left and right input jacks, which route external signals to the mainframe's mixer.)

Ext. Signal:

This parameter selects the auxiliary signal source into the VCF.

RANGE: Noise = Signal from the internal pink noise source
External = Signal from external signal on the rear panel multi-pin connector.

Amount:

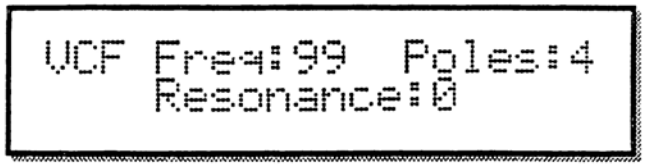
This parameter selects the amount of the internal noise source or external signal that is sent to the VCF.

RANGE: 0 to 99

EXTERNAL SIGNAL CONNECTOR PINS

	1	= No Connection
	2	= No Connection
	3	= No Connection
	4	= No Connection
	5	= Voice 1
	6	= Voice 2
	7	= Voice 3
	8	= Voice 4
	9	= Voice 5
	10	= Voice 6
	11	= Voice 7
	12	= Voice 8
	13	= No Connection
14 thru	25	= Ground

VCF FREQUENCY



VCF Freq:

This parameter selects the cutoff frequency of the voltage controlled filter.

RANGE: 0 to +99

Poles:

This parameter selects the response of the VCF.

RANGE: 2 = 2 pole response
4 = 4 pole response

Resonance:

This parameter selects the amount of resonance or "peaking" of the VCF.

RANGE: 0 to 99

NOTE: A setting at or near 99 while in 4 pole mode will cause the VCF to oscillate. The VCF will not oscillate in the 2 pole mode.

VCF MODULATION



VCF Freq x ENV:

This parameter modulates the frequency of the VCF by the output of the VCF envelope, as programmed in the VCF ENV pages.

RANGE: -99 to +99

Freq x Pres:

This parameter modulates the frequency of the VCF by MIDI channel pressure.

RANGE: -99 to +99

VCF MODULATION 2



VCF Freq x LFO2:

This parameter modulates the frequency of the VCF by the output of LFO2, as programmed in the LFO2 pages.

RANGE: -99 to +99

Freq x Note:

This parameter modulates the frequency of the VCF by the current MIDI note number, in varying degrees.

RANGE: Off = no effect
1/4 = modulation is the MIDI note divided by 4
1/2 = modulation is the MIDI note divided by 2
Full = modulation is the full MIDI note

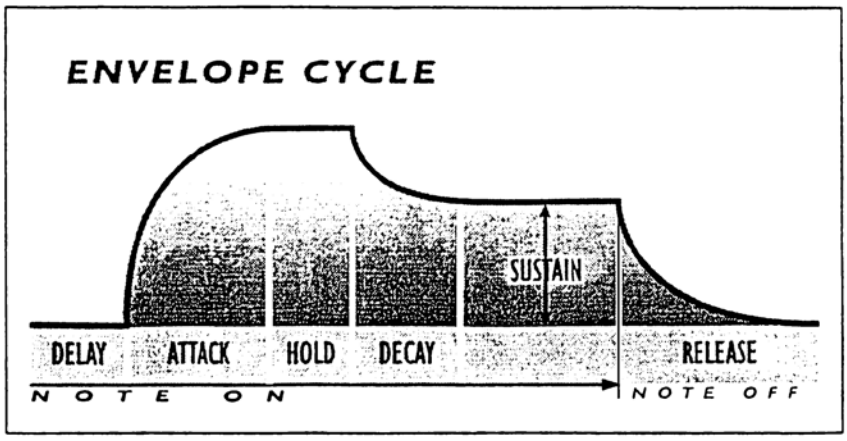
Note: Adding MIDI note modulation will offset the frequency of the VCF, therefore VCF frequency adjustment will often be required after changing this setting.

ABOUT THE ENVELOPE GENERATORS

Each voice of the Analog Synthesizer Module has three envelope generators available: "VCF ENV", "VCA ENV", and "GEN ENV". The envelope generators have been given specific names that represent their most common usage, however all three can also be used as general purpose modulators.

These envelope generator are controlled by six parameters:

DELAY
ATTACK
HOLD
DECAY
SUSTAIN
RELEASE

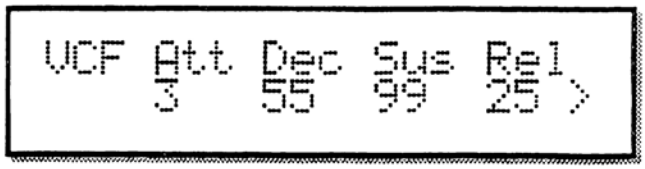


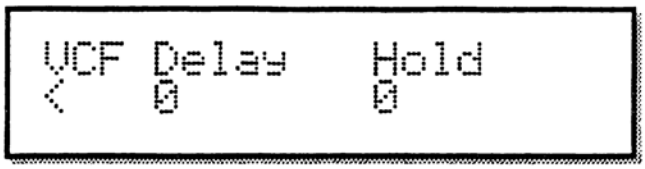
The ">"and "<" characters indicate that the two pages which control a The envelope generator operation proceeds in the order listed above, however since the DELAY and HOLD parameters are typically not used as often as the other parameters, they have been placed in the second envelope generator page.

particular envelope generator can be accessed by moving the CURSOR in the appropriate direction, as well as turning the PAGE knob.

RANGE: Attack: 0 to 99
Decay: 0 to 99
Sustain: 0 to 99
Release: 0 to 99
Delay: 0 to 99
Hold: 0 to 99

VCF ENVELOPE





These parameters control the operation of the VCF envelope generator.

RANGE:

	Attack:	0 to 99
	Decay:	0 to 99
	Sustain:	0 to 99
	Release:	0 to 99
	Delay:	0 to 99
	Hold:	0 to 99

VCF ENVELOPE MODULATION



VCF EnvAmplitude:

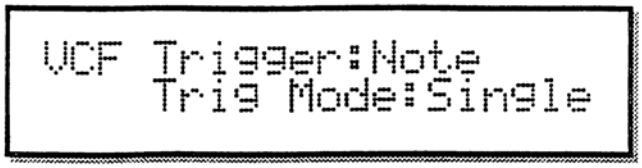
This parameter selects the output amplitude of the VCF envelope generator.

RANGE: 0 to 99

AmP x VEL:

This parameter modulates the VCF envelope generator output amplitude by MIDI note velocity.

RANGE: -99 to +99



VCF Trigger:

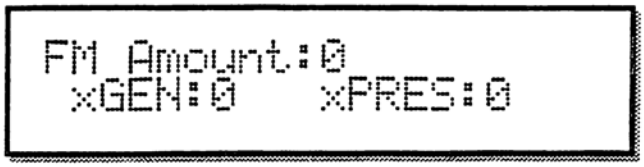
This parameter selects the VCF envelope generator trigger source.

RANGE: Note = source is the current MIDI note (as defined in the SYSTEM section)
PED1 = source is MIDI controller PED1 (as defined in the SYSTEM section)
PED2 = source is MIDI controller PED2 (as defined in the SYSTEM section)
PED3 = source is MIDI controller PED3 (as defined in the SYSTEM section)
LFO1 = source is the output of LFO1

Trig Mode:

This parameter selects the VCF envelope generator trigger mode.

RANGE: Single = envelope generator is triggered once
Multi = envelope generator is re-triggered multiple times



FM Amount:

This parameter selects the amount of frequency modulation of the VCF by the output of HRO2.

RANGE: 0 to 99

xGEN:

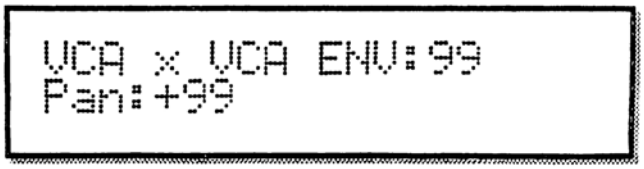
This parameter modulates the amount of frequency modulation (of the VCF by the output of HRO2) by the output of the General envelope generator, as programmed in the GEN ENV pages.

RANGE: -99 to +99

xPRES:

This parameter modulates the amount of frequency modulation (of the VCF by the output of HRO2) by MIDI channel pressure.

RANGE: -99 to +99



VCA x VCA ENV:

This parameter modulates the output of the main VCA by the output of the VCA envelope, as programmed in the VCA ENV pages.

RANGE: 0 to 99

Pan:

This parameter allows the user to pan the output of the voice between the left and right outputs.

RANGE: -99 = voice output panned left
0 = voice output panned to center
+99 = voice output panned right

VCA MIDI



VCA x MIDI Vol:

This parameter selects whether MIDI Volume control is enabled or disabled.

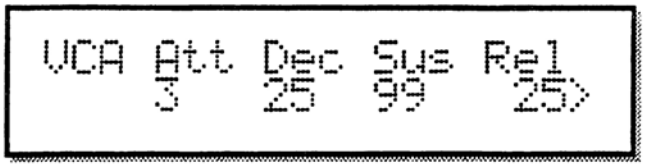
RANGE: Off = MIDI Volume turned off
On = MIDI Volume turned on

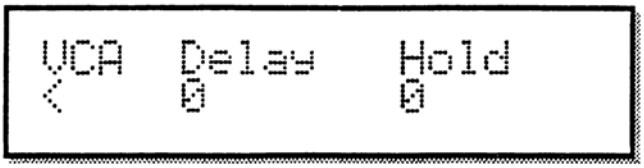
PAN x MIDI Pan:

This parameter selects whether MIDI Pan control is enabled or disabled.

RANGE: Off = MIDI Pan turned off
On = MIDI Pan turned on

VCA ENVELOPE





These parameters control the operation of the VCA envelope generator.

RANGE:

Attack:	0 to 99
Decay:	0 to 99
Sustain:	0 to 99
Release:	0 to 99
Delay:	0 to 99
Hold:	0 to 99

VCA MODULATION



VCA ENV Amplitude:

This parameter selects the output amplitude of the VCA envelope generator.

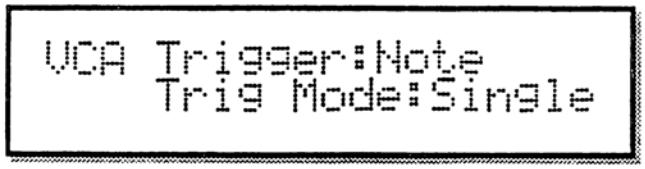
RANGE: 0 to 99

Amp x VEL:

This parameter modulates the VCA Envelope amplitude by MIDI note velocity.

RANGE: -99 to +99

VCA TRIGGER



VCA Trigger:

This parameter selects the VCA envelope generator trigger source.

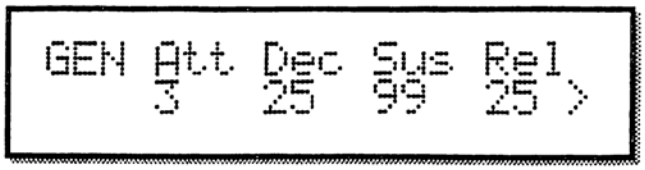
RANGE: Note = source is the current MIDI note (as defined in the SYSTEM section)
PED1 = source is MIDI controller PED1 (as defined in the SYSTEM section)
PED2 = source is MIDI controller PED2 (as defined in the SYSTEM section)
PED3 = source is MIDI controller PED3 (as defined in the SYSTEM section)
LFO1 = source is the output of LFO1

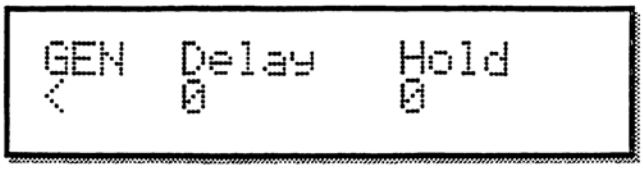
Trig Mode:

This parameter selects the VCA envelope generator trigger mode.

RANGE: Single = envelope generator is triggered once
Multi = envelope generator is retriggered multiple times

GENERAL PURPOSE ENVELOPE





These parameters control the operation of the general purpose envelope generator.

RANGE:

Attack:	0 to 99
Decay:	0 to 99
Sustain:	0 to 99
Release:	0 to 99
Delay:	0 to 99
Hold:	0 to 99



GEN EnvAmplitude:

This parameter selects the output amplitude of the general purpose envelope generator.

RANGE: 0 to 99

Amp x VEL:

This parameter modulates the GEN envelope amplitude by MIDI note velocity.

RANGE: -99 to +99

GENERAL ENVELOPE TRIGGER



GEN Trigger:

This parameter selects the general purpose envelope generator trigger source.

RANGE: Note = source is the current MIDI note (as defined in the SYSTEM section)
PED1 = source is MIDI controller PED1 (as defined in the SYSTEM section)
PED2 = source is MIDI controller PED2 (as defined in the SYSTEM section)
PED3 = source is MIDI controller PED3 (as defined in the SYSTEM section)
LFO1 = source is the output of LFO1

Trig Mode:

This parameter selects the GEN envelope generator trigger mode.

RANGE: Single = envelope generator is triggered once
Multi = envelope generator is triggered multiple times



LFO1 Wave:

This parameter selects the waveform output of LFO1.

RANGE:
- Sine = sine wave output
- Triangle = triangle wave output
- UpSaw = sawtooth output, ascending ramp
- DownSaw = sawtooth output, descending ramp
- Square = square wave output
- Random = random output
- Sample src = sample the sample source

Rate:

This parameter selects the repetition rate of LFO1.

RANGE: 0 to 99

Amp:

This parameter selects the output amplitude of LFO1.

RANGE: 0 to 99

LFO1 MODULATION



LFO1 Rate xPRES:

This parameter modulates the repetition rate of LFO1 by MIDI channel pressure.

RANGE: -99 to +99

Amp xRAMP1:

This parameter modulates the output amplitude of LFO1 by the output of RAMP1.

RANGE: -99 to +99

LFO1 TRIGGER



LFO1 Trigger:

This parameter selects the LFO1 trigger source.

RANGE:
- Note = source is the current MIDI note
- PED1 = source is MIDI controller PED1 (defined in SYSTEM)
- PED2 = source is MIDI controller PED2 (defined in SYSTEM)
- PED3 = source is MIDI controller PED3 (defined in SYSTEM)
- VCA atk = source is the beginning of the VCA attack phase
- VCA hld = source is the beginning of the VCA hold phase
- VCA dec = source is the beginning of the VCA decay phase
- VCA sus = source is the beginning of the VCA sustain phase
- VCA rel = source is the beginning of the VCA release phase
- VCF atk = source is the beginning of the VCF attack phase
- VCF hld = source is the beginning of the VCF hold phase
- VCF dec = source is the beginning of the VCF decay phase
- VCF sus = source is the beginning of the VCF sustain phase
- VCF rel = source is the beginning of the VCF release phase
- GEN atk = source is the beginning of the GEN attack phase
- GEN hld = source is the beginning of the GEN hold phase
- GEN dec = source is the beginning of the GEN decay phase
- GEN sus = source is the beginning of the GEN sustain phase
- GEN rel = source is the beginning of the GEN release phase

Retrig:

This parameter selects the point on the LFO1 waveform cycle to restart the LFO in multiple trigger mode.

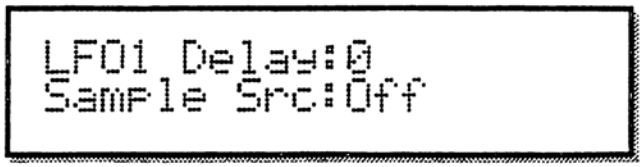
RANGE: 0 to 99 ("50" = 50% duty cycle point)

Mode:

This parameter selects the LFO1 trigger mode.

RANGE:
- Single = envelope generator is triggered once
- Multi = envelope generator is triggered multiple times

LFO1 DELAY



LFO1 Delay:

This parameter selects the LFO1 delay time.

RANGE: 0 to 99

Sample Src:

This parameter selects the source to be used by the "sample" function.

RANGE: Off
VCA ENV
VCF ENV
GEN ENV
LFO1
LFO2
VIBRATO (global vibrato in SYSTEM menu)
RAMP1
RAMP2
C NOTE
VOICE
RANDOM
VEL
RVEL
PRES
BEND
CTRL1
CTRL2
CTRL3
CTRL4
CTRL5
PEDAL1
PEDAL2
PEDAL3
NOTE



LFO2 Wave:

This parameter selects the waveform output of LFO2.

RANGE: Sine = sine wave output
Triangle = triangle wave output
UpSaw = sawtooth output, ascending ramp
DownSaw = sawtooth output, descending ramp
Square = square wave output
Random = random output
Sample src = sample the sample source

Rate:

This parameter selects the repetition rate of LFO2.

RANGE: 0 to 99

Amp:

This parameter selects the output amplitude of LFO2.

RANGE: 0 to 99

LFO2 MODULATION



LFO2 Rate xPRES:

This parameter modulates the repetition rate of LFO2 by MIDI channel pressure.

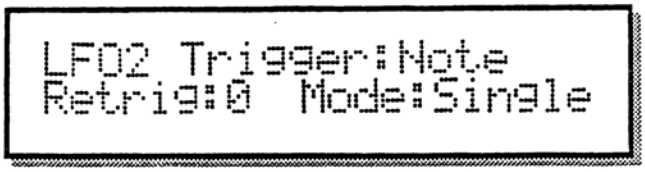
RANGE: -99 to +99

Amp xRAMP2:

This parameter modulates the output amplitude of LFO2 by the output of RAMP2.

RANGE: -99 to +99

LFO2 TRIGGER



LFO2 Trigger:

This parameter selects the LFO2 trigger source.

RANGE:
- Note = source is the current MIDI note
- PED1 = source is MIDI controller PED1 (defined in SYSTEM)
- PED2 = source is MIDI controller PED2 (defined in SYSTEM)
- PED3 = source is MIDI controller PED3 (defined in SYSTEM)
- VCA atk = source is the beginning of the VCA attack phase
- VCA hld = source is the beginning of the VCA hold phase
- VCA dec = source is the beginning of the VCA decay phase
- VCA sus = source is the beginning of the VCA sustain phase
- VCA rel = source is the beginning of the VCA release phase
- VCF atk = source is the beginning of the VCF attack phase
- VCF hld = source is the beginning of the VCF hold phase
- VCF dec = source is the beginning of the VCF decay phase
- VCF sus = source is the beginning of the VCF sustain phase
- VCF rel = source is the beginning of the VCF release phase
- GEN atk = source is the beginning of the GEN attack phase
- GEN hld = source is the beginning of the GEN hold phase
- GEN dec = source is the beginning of the GEN decay phase
- GEN sus = source is the beginning of the GEN sustain phase
- GEN rel = source is the beginning of the GEN release phase

Retrig:

This parameter selects the point on the LFO2 waveform cycle to restart the LFO in multiple trigger mode.

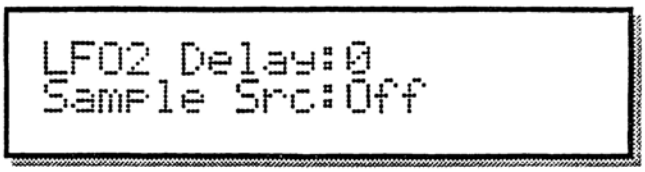
RANGE: 0 to 99

Mode:

This parameter selects the LFO2 trigger mode.

RANGE:
- Single = envelope generator is triggered once
- Multi = envelope generator is triggered multiple times

LFO2 DELAY



LFO2 Delay:

This parameter selects the LFO2 delay time.

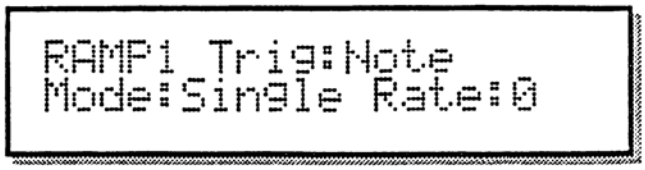
RANGE: 0 to 99

Sample Src:

This parameter selects the source to be used by the "sample" function.

RANGE: Off
VCA ENV
VCF ENV
GEN ENV
LFO1
LFO2
VIBRATO (global vibrato in SYSTEM menu)
RAMP1
RAMP2
C NOTE
VOICE
RANDOM
VEL
RVEL
PRES
BEND
CTRL1
CTRL2
CTRL3
CTRL4
CTRL5
PEDAL1
PEDAL2
PEDAL3
NOTE

RAMP GENERATOR 1



Ramp generator 1 is a simple linear voltage source that starts at zero when triggered and rises to its maximum value in a selectable time period.

RAMP1 Trig:

This parameter selects the RAMP1 trigger source.

RANGE:
- Note = source is the current MIDI note
- PED1 = source is MIDI controller PED1 (defined in the SYSTEM)
- PED2 = source is MIDI controller PED2 (defined in the SYSTEM)
- PED3 = source is MIDI controller PED3 (defined in the SYSTEM)
- VCA atk = source is the beginning of the VCA attack phase
- VCA hld = source is the beginning of the VCA hold phase
- VCA dec = source is the beginning of the VCA decay phase
- VCA sus = source is the beginning of the VCA sustain phase
- VCA rel = source is the beginning of the VCA release phase
- VCF atk = source is the beginning of the VCF attack phase
- VCF hld = source is the beginning of the VCF hold phase
- VCF dec = source is the beginning of the VCF decay phase
- VCF sus = source is the beginning of the VCF sustain phase
- VCF rel = source is the beginning of the VCF release phase
- GEN atk = source is the beginning of the GEN attack phase
- GEN hld = source is the beginning of the GEN hold phase
- GEN dec = source is the beginning of the GEN decay phase
- GEN sus = source is the beginning of the GEN sustain phase
- GEN rel = source is the beginning of the GEN release phase

Mode:

This parameter selects the RAMP1 trigger mode.

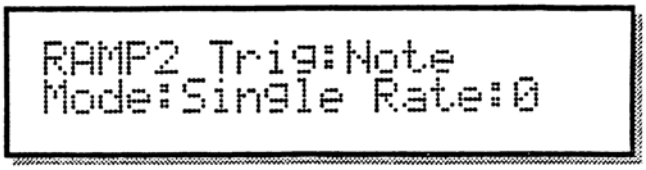
RANGE:
- Single = RAMP is triggered once
- Multi = RAMP is triggered multiple times

Rate:

This parameter selects the RAMP1 speed rate.

RANGE: 0 to 99

RAMP GENERATOR 2



Ramp generator 2 is simple linear voltage source that starts at zero when triggered and rises to its maximum value in a selectable time period.

RAMP2 Trig:

This parameter selects the RAMP2 trigger source.

RANGE:
- Note = source is the current MIDI note
- PED1 = source is MIDI controller PED1 (defined in the SYSTEM)
- PED2 = source is MIDI controller PED2 (defined in the SYSTEM)
- PED3 = source is MIDI controller PED3 (defined in the SYSTEM)
- VCA atk = source is the beginning of the VCA attack phase
- VCA hld = source is the beginning of the VCA hold phase
- VCA dec = source is the beginning of the VCA decay phase
- VCA sus = source is the beginning of the VCA sustain phase
- VCA rel = source is the beginning of the VCA release phase
- VCF atk = source is the beginning of the VCF attack phase
- VCF hld = source is the beginning of the VCF hold phase
- VCF dec = source is the beginning of the VCF decay phase
- VCF sus = source is the beginning of the VCF sustain phase
- VCF rel = source is the beginning of the VCF release phase
- GEN atk = source is the beginning of the GEN attack phase
- GEN hld = source is the beginning of the GEN hold phase
- GEN dec = source is the beginning of the GEN decay phase
- GEN sus = source is the beginning of the GEN sustain phase
- GEN rel = source is the beginning of the GEN release phase

Mode:

This parameter selects the RAMP2 trigger mode.

RANGE:
- Single = RAMP is triggered once
- Multi = RAMP is triggered multiple times

Rate:

This parameter selects the RAMP2 speed rate.

RANGE: 0 to 99

VOICE ALLOCATION



Voice:

This parameter selects a voice allocation algorithm to use when playing received MIDI notes.

RANGE: Dynamic
Reassign
Rotate
ReassignRob
RotateRob
Monophonic
Unison 2
Unison 4

DYNAMIC: Next assigned voice is computed depending upon which voices are playing or not, and how far along their envelopes they are.

REASSIGN: Next assigned voice will be the voice last assigned to the MIDI note or the next available free voice if the MIDI note has not been played recently.

ROTATE: Next assigned voice gets incremented from the last played (assigned) voice.

REASSIGN ROB: Same as REASSIGN but will rob held notes in order to play a new one.

ROTATE ROB: Same as ROTATE but will rob held notes in order to play a new one.

MONOPHONIC: Will play dynamically assigned voices only one pitch at a time using the Mono Play mode, with low- or high-note priority.

UNISON 2: Will assign two voices to the same MIDI note.

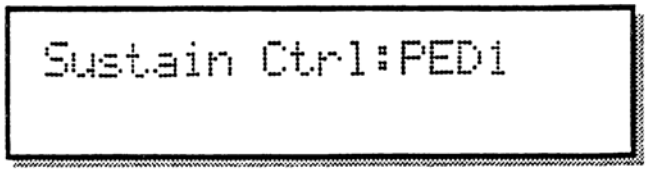
UNISON 4: Will assign four voices to the same MIDI note.

Mono Play:

This parameter selects low note or high note priority when in the monophonic voice mode.

RANGE: Low Note
High Note

SUSTAIN CONTROL

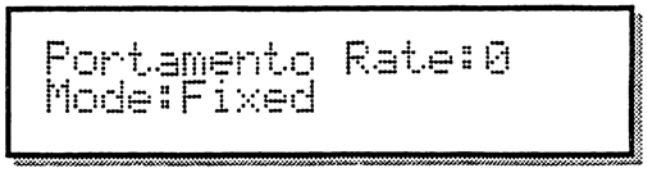


Sustain Ctrl:

This parameter selects a pedal controller to use for control of sound sustain.

RANGE: Off
PED1
PED2
PED3

PORTAMENTO



Portamento Rate:

This parameter selects the portamento rate.

RANGE: 0 to 99

NOTE: A portamento rate of 0 turns off portamento.

Mode:

This parameter selects the portamento mode.

RANGE: Fixed = fixed portamento rate
Variable = rate depends on portamento note jump
Exponential = slowly decreasing rate

PORTAMENTO 2



Portamento xVEL:

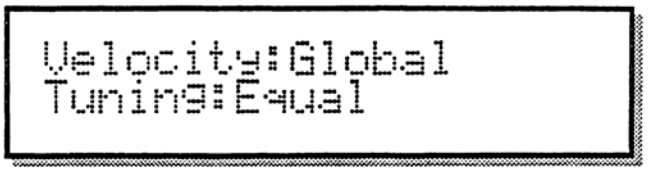
This parameter selects portamento rate modulation by MIDI note velocity.

RANGE: 0 to 99

Legato:

This parameter causes portamento to be active only when playing in a legato style.

RANGE: Off = no effect
On = portamento active while playing legato



Velocity:

This parameter selects a velocity curve to be used in interpreting received MIDI note velocity.

RANGE:
- Off = no mapping
- Global = use global selection in SYSTEM menu
- User = use user programmable curve in SYSTEM menu
- 1 = use curve #1 selection in SYSTEM menu
- 2 = use curve #2 selection in SYSTEM menu
- 3 = use curve #3 selection in SYSTEM menu
- 4 = use curve #4 selection in SYSTEM menu

Tuning:

This parameter selects the tuning table to be in effect for this preset.

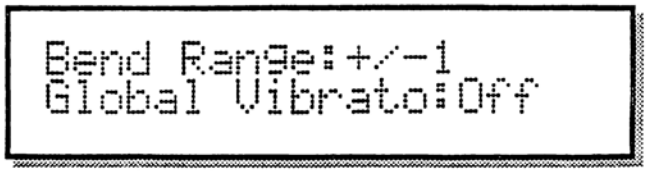
RANGE:
- Equal = equal temperament
- Global = use global selection in SYSTEM menu
- 1 = use table #1 in SYSTEM menu
- 2 = use table #2 in SYSTEM menu
- 3 = use table #3 in SYSTEM menu
- 4 = use table #4 in SYSTEM menu



MIDI Range:

This parameter selects the MIDI note range over which the selected preset will respond to incoming MIDI notes.

RANGE: C0 to G10 (0 to 127)



Bend Range:

This parameter selects a semitone bend range over which incoming MIDI pitch bend messages will span.

RANGE: 0 = Off
+/-1 = plus or minus 1 semitone
thru
+/- 12 = plus or minus 1 octave

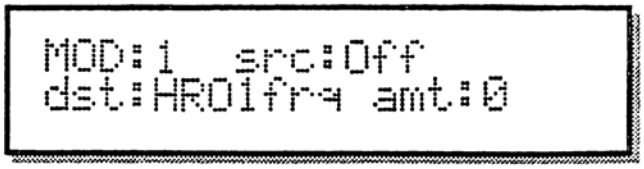
Global Vibrato:

This parameter selects whether global vibrato is off or on.

RANGE: Off
On

NOTE: Vibrato adds HRO frequency modulation from the global vibrato LFO. This global vibrato produces synchronized *HRO modulation.*

MODULATION ROUTING



The Modulation Routing function allows the user to select from a variety of signal sources, from the internal function generators (envelopes, LFO's, etc.) to the external MIDI control generators (Velocity, Pressure, Note, Bender, etc.), and apply the selected source to control a parameter of any generator/processor within the Analog Synthesizer Module. There are up to 10 virtual modulation paths that can be assigned. Modulation Routing makes possible a large variety of very complex sound patches.

MOD:

This parameter selects the modulation path number.

RANGE: 1 to 10

src:

This parameter select the modulation source.

RANGE:

Off	
VCA ENV	
VCF ENV	
GEN ENV	
LFO1	
LFO2	
VIBRATO	(global vibrato in SYSTEM menu)
RAMP1	
RAMP2	
C NOTE	(received MIDI note; Middle C = 0)
VOICE	(ASM hardware assigned voice number)
RANDOM	
VEL	(MIDI note velocity)
RVEL	(MIDI note velocity)
PRES	(MIDI pressure)
BEND	(MIDI pitch bend)
CTRL1	(as defined in SYSTEM menu)
CTRL2	
CTRL3	
CTRL4	
CTRL5	
PEDAL1	
PEDAL2	
PEDAL3	
NOTE	(received MIDI note)

dst:

This parameter selects the modulation destination.

RANGE: HRO1frq
HRO1 pw
HRO1shp
HRO2frq
HRO2 pw
HRO2shp
HRO mix
VCF FM
VCF frq
VCF res
VCA vol
Pan
VCA dly
VCA atk
VCA dec
VCA rel
VCA amp
VCF dly
VCF atk
VCF dec
VCF rel
VCF amp
GEN dly
GEN atk
GEN dec
GEN rel
GEN amp
LFO1spd
LFO1amp
LFO2spd
LFO2amp
PORT rt
EXT amt

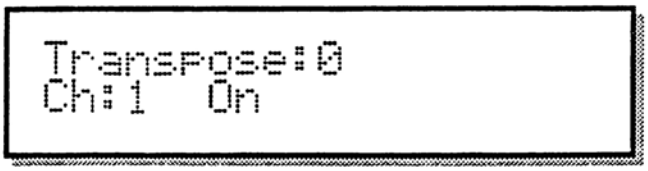
amt:

This parameter selects the amount of modulation of the destination by the source.

RANGE: -99 to +99

ASM-SYSTEM

TRANSPOSE



This screen allows users to select a global transposition value in effect for all MIDI notes received by the ASM. This transposition can be turned off in any MIDI channel by selecting 'On' or 'Off' for the desired channel selection. Note that the transposition value is automatically set from any MIDI notes received while the cursor is sitting on the transpose value field.

Transpose:

This parameter selects the amount of transpose.

RANGE: -12 to +12

Ch: (channel number)

This parameter selects the MIDI channel number for transposition.

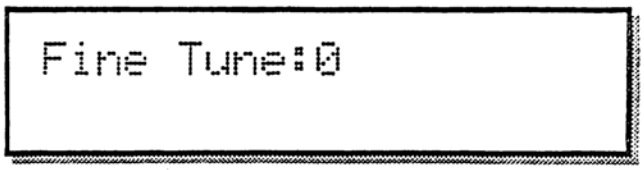
RANGE: 1 to 16

Off/On:

This parameter selects whether or not the transposition is on or off.

RANGE: Off or On

FINE TUNE



This screen allows the user to select a global fine tune value in effect for all MIDI notes received by the ASM. Each increment represents approximately 1/2 cent. The range of +/- 99 gives therefore a range of +/- 50 cents.

Fine Tune:

This parameter selects the amount of global fine tune.

RANGE: -99 to +99

VIBRATO



This screen and the screen following allow the user to select a global vibrato which can be put into effect for all ASM presets whose global vibrato setting is turned on. The user can select vibrato shape, rate, amplitude and rate modulation by MIDI channel pressure and amplitude modulation by the user-defined MIDI controller 1.

Vibrato:

This parameter selects the vibrato waveform.

RANGE: Sine = sine wave output
Triangle = triangle wave output
UpSaw = sawtooth output, ascending ramp
DownSaw = sawtooth output, descending ramp
Square = square wave output
Random = random output

Rate:

This parameter selects the vibrato repetition rate.

RANGE: 0 to 99

Amp:

This parameter selects the vibrato output amplitude.

RANGE: 0 to 99

VIBRATO MODULATION



Vib Rate x Pres

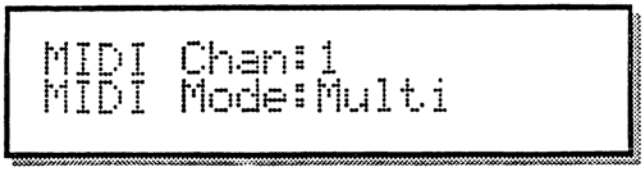
This parameter modulates the vibrato repetition rate by MIDI channel pressure on the currently selected MIDI channel.

RANGE: -99 to +99

Amp x CTRL1

This parameter modulates the vibrato output amplitude by MIDI controller 1.

RANGE: -99 to +99



This screen allows the user to select the current MIDI channel for data reception in the ASM. It also allows users to select the current mode of data reception. Modes available include: Multi (receive on all channels in polyphonic mode), Poly (receive on the selected channel in polyphonic mode), Omni (receive on all channels, treat as if it were one channel) and Mono (receive on all channels, monophonic mode in each channel.)

MIDI Chan:

This parameter selects the current MIDI channel for data reception by the ASM.

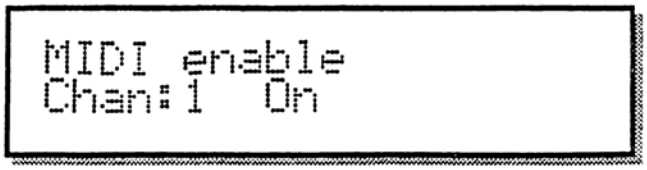
RANGE: 1 to 16

MIDI Mode:

This parameter selects the current mode of MIDI data reception.

RANGE: Multi
Omni
Poly
Mono

MIDI ENABLE



This screen allows the user to disable MIDI data reception on a channel by channel basis.

Chan:

This parameter selects the MIDI channel to enable or disable.

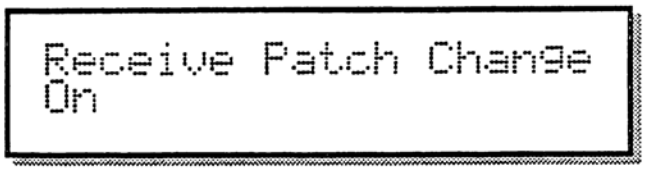
RANGE: 1 to 16

Off/On:

This parameter enables or disables the selected MIDI channel.

RANGE: Off or On

RECEIVE PATCH CHANGE



This screen allows the user to disable program change messages received via MIDI.

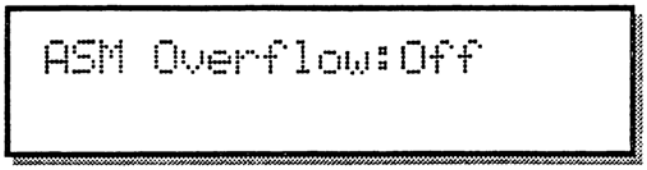
Note: Program changes will still occur as part of a Superpatch change in the Mainframe.

Off/On:

This parameter enables or disables program changes.

RANGE: Off or On

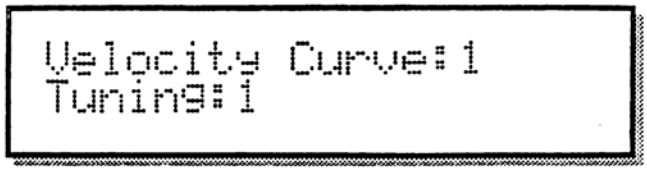
ASM OVERFLOW



ASM overflow:

This parameter allows the user to enable the ASM to overflow MIDI notes to the next MSR sound module.

RANGE: Off = No overflow
Send = Overflow to other module
Receive = Overflow from other module

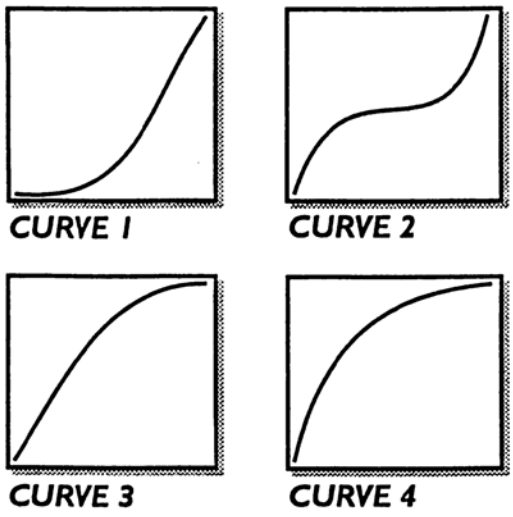


Velocity Curve:

This parameter selects a global velocity curve in effect for all presets whose velocity setting is set to Global.

RANGE: Off
User
1 thru 4

VELOCITY CURVES



Tuning:

The parameter selects a global tuning table in effect for all presets whose tuning table setting is set to Global.

RANGE: Equal
1 thru 4

MIDI CONTROLLER ASSIGNMENTS



These parameters select the MIDI controller values used for modulation and sustain control of preset parameters in the ASM presets.

CTRL1:
CTRL2:
CTRL3:
CTRL4:

RANGE: 1 to 31



CTRL5:

This parameter selects the MIDI controller values used for modulation and sustain control of preset parameters in the ASM presets.

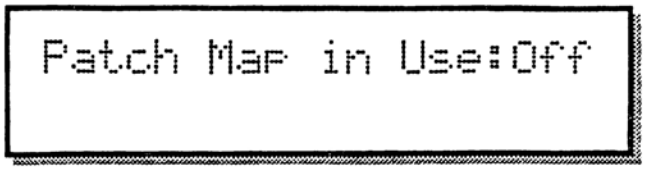
RANGE: 1 to 31

PED1:
PED2:
PED3:

These parameters select the MIDI controller values used for modulation and sustain control of preset parameters in the ASM presets.

RANGE: 64 to 79

PATCH MAP ENABLE



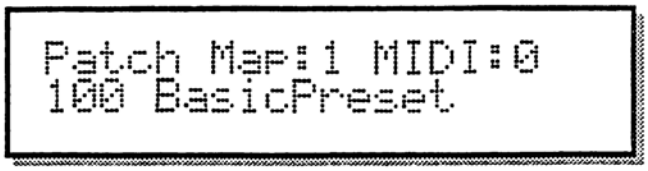
A Patch Map is an association between a MIDI program change and an ASM preset. Maps are programmed by selecting the desired map, then selecting the desired MIDI program change number (0-127) and the desired ASM preset to be used with the program change number. This feature allows users to select any of the 500 ASM presets by using MIDI program changes, which can only select 128 presets.

When a map is selected, an ASM preset number is substituted for an incoming MIDI program change.

Patch Map in Use: Off/On

This parameter enables or disables preset mapping.

RANGE: Off
1 thru 4



Patch Map:

This parameter selects the preset map number.

RANGE: 1 to 4

MIDI:

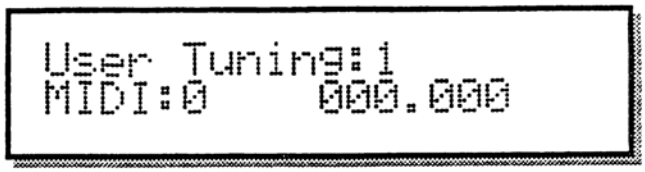
This parameter selects the incoming MIDI program change.

RANGE: 0 to 127

0 (preset name)

This parameter selects the desired ASM preset.

RANGE: 0 to 499



The user can define up to four tuning tables that set the exact pitch of each MIDI note. They are programmed by selecting the desired table, then selecting the desired MIDI note number (C0-G10, 0-127) and the desired ASM pitch to be used with the note number. The ASM pitch is defined in two parts: an integer semitone portion (to the left of the dot) and a cent fraction portion (to the right of the dot.) Each fraction number represents 1/512th of a semitone or about .2 cent. Note that the MIDI pitch value is automatically set from any MIDI notes received while the cursor is sitting on the transpose value field.

User Tuning:

This parameter selects a user tuning table.

RANGE: 1 TO 4

MIDI:

This parameter selects the MIDI note number.

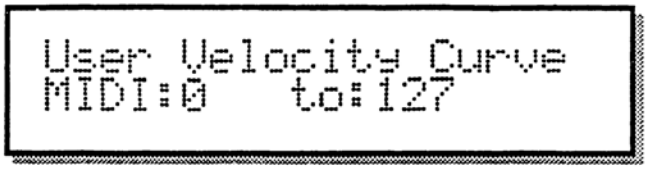
RANGE: 0 TO 127

000.000

This parameter selects the pitch for the particular note.

RANGE:	000.xxx to 127.xxx	=	semitone portion
	xxx.000 to xxx.511	=	fractional portion

USER VELOCITY CURVE



This screen allows users to define a MIDI velocity curve. This curve can then be used by a preset's velocity parameter in order to remap the ASM response to incoming MIDI velocities.

MIDI:

This parameter selects the desired incoming MIDI value.

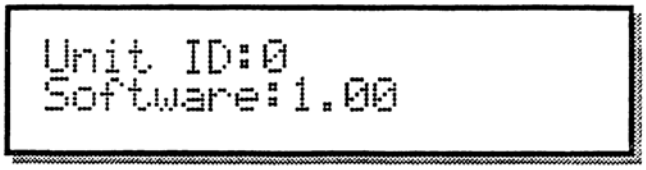
RANGE: 0 to 127

to:

This parameter selects the remapped velocity value.

RANGE: 0 to 127

UNIT ID / SOFTWARE REVISION



Unit ID:

This parameter defines the ASM's Unit ID, which is used in identifying incoming or outgoing MIDI System Exclusive messages. Each ASM (even within a single MSR Mainframe) should be set to a different Unit ID in order for multi-port and sound editing software to work properly.

RANGE: 0 to 15

Software:

This message displays the current revision of software operating in the ASM.

SEND MIDI



The user can selectively store portions of the ASM data to an external device capable of storing MIDI System Exclusive messages.

The following data can be sent: the currently edited ASM preset, all 200 ROM presets, all 200 RAM presets, all 100 layer presets, the user Global data, the Tuning tables, the Preset Maps and the User Velocity Curve. Users can use this feature to store data in a computer or MIDI data recording device and then send it back to the ASM at a later time.

```
Send MIDI:
0 BasicPreset
```

This parameter selects the data to be output thru MIDI.

RANGE:
- Send Patch Maps
- Send User Tunings
- Send Velocity Curve
- Send Global Data
- Send ROM Presets
- Send RAM Presets
- Send Layer Presets
- Send Edit Preset
- Send individual presets (0 to 399)

AUTOTUNE



This parameter selects the ASM circuitry section upon which to perform an autotune function.

Select the desired circuitry section and press the ENTER button. If another button is pressed and held prior to pressing the ENTER button, audio monitoring of the autotune function will be enabled.

RANGE: Waveform
Filter
All

NOTES:



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