M-AUDIO

# Venom™ User Guide

## Legal Notices



**Guide Part Number** 9329-65009-00 REV A 08/10

## Documentation Feedback

We are always looking for ways to improve our documentation. If you have comments, corrections, or suggestions regarding our documentation, email us at ***techpubs@avid.com***.

# Contents

# Chapter 1: Introduction

Congratulations on your purchase of M-Audio® Venom™. Venom is a 49-key "virtual analog" synthesizer, USB-compatible MIDI controller, and audio interface in one convenient package. You can play Venom as a standalone synthesizer and use it as an audio mixer; or you can use it as a USB MIDI controller and audio interface with your computer. You can also use Venom as an effects processor (the audio inputs on Venom are routed through the multimode filter and on-board effects). Whether performing live or working in the studio, Venom is a powerful and compact music production tool for any musician.

## Venom Features

### Keyboard Controller

- 49-key synth action, velocity sensitive keyboard
- Octave Up / Down buttons
- Pitch Bend and Modulation Wheels
- Sustain and Expression pedal inputs
- 4 multi-function encoders (knobs)
- 1 multi-function button

### Synthesizer

- 4-part multi-timbral
- 12-voice polyphony
- Poly or Mono mode
- Unison mode for voice stacking (up to 12 voices)
- 512 Patch Locations: Banks A–D, each containing 128 Single Programs
- 256 Multi Setups: Banks A and B, each containing 128 Multi Programs
- Up to 4 on-board phrase arpeggiators with tap tempo
- 3 Oscillators
  - Pulse Width Modulation (Oscillator 1 Waveshaper)
  - Sync (Oscillators 2 and 3 to Oscillator 1)
  - Frequency Modulation (FM) (Oscillator 3 modulates Oscillator 1)
  - Ring Modulation (Oscillator 2 modulates Oscillator 1)

- Multimode Filter with Resonance:
  - 2-Pole Low Pass (LP 12)
  - 4-Pole Low Pass (LP 24)
  - 2-Pole Band Pass (BP 12)
  - 4-Pole Band Pass (BP 24)
  - 2-Pole High Pass (HP 12)
  - 4-Pole High Pass (HP 24)
- 3 Low Frequency Oscillators (LFOs) with selectable Sample and Hold
- 3 5-part Envelopes (AHDSR): Amplitude, Filter, and assignable envelopes
- 16-slot Modulation Matrix
- Up to 4 insert effects (1 per multi-timbral part)
- 2 Global Effects Busses

### Audio Mixer and USB Audio Interface

- Left and Right 1/4-inch line level outputs
- Stereo 1/4-inch headphone jack
- 24-bit/44.1 kHz sample rate AD and DA converters
- Left and Right RCA line level aux inputs
- Mono 1/4-inch instrument level input
- 1/4-inch Mic input
- Master Volume control
- Synth Volume control
- Direct Monitor level control with Mono Monitor button
- Instrument and Mic Input level controls

### USB MIDI Interface

- 1x1 USB MIDI interface

# Minimum Requirements

## Standalone Operation

Standalone operation refers to using Venom without a computer. The included power supply is required to power Venom. To hear the synth when playing the keyboard, connect the Venom output jacks to an amplifier, mixer, or powered monitors. You can also connect headphones to the front-panel headphone jack. You can connect a microphone or instrument to the audio input jacks. Along with the line inputs, these can all be mixed on the keyboard and heard with the synth sounds using an amplifier or headphones.

## USB Operation

When using Venom with your computer, use the included USB cable to connect Venom to your computer. While the USB connection is necessary to pass audio and MIDI to and from your computer, this connection does not provide power to your keyboard. Use the included power supply to power Venom.

### Minimum System Requirements

Minimum system requirements for USB operation can be found on our website: www.m-audio.com.

### Before Updating Your Mac or Windows System

Please check the M-Audio driver download page for the availability of an updated driver before you decide to install operating system updates: http://www.m-audio.com/drivers

Before new M-Audio device drivers are released, they are tested for use with the operating system versions that are available at that time. When updates for an operating system are released by Microsoft or Apple, all M-Audio device drivers have to be tested and possibly updated to ensure proper operation.

M-Audio recommends refraining from installing operating system updates until a driver has been posted to the M-Audio website.

# M-Audio Venom Drivers

## Windows XP, Vista, and 7

Avid recommends that Windows users download and install the most recent Venom drivers found on our website (www.m-audio.com). If you do not have access to the internet, you can install the drivers using the included Venom installation disk.

These drivers add functionality and let you:

- Use Venom with Pro Tools® M-Powered™ recording software.
- Achieve low latency monitoring with ASIO-compatible applications, such as Ableton Live or Cubase.
- Use the M-Audio Venom control panel to import MIDI files for the phrase arpeggiator.
- Use Venom with more than one application at the same time.
- Use long system exclusive (SysEx) commands—required to use the Vyzex Venom Editor application.
- Simultaneously use other class-compliant USB devices with audio capabilities.

Venom is also a class-compliant device that offers basic functionality on Windows XP, Windows Vista, and Windows 7 systems without having to install additional drivers.

⚠ *IMPORTANT: When using Venom class-compliant (i.e., without installing drivers) in Windows, the computer will search for the M-Audio DFU (device firmware upgrade tool) and display a Found New Hardware Wizard. The M-Audio DFU is a component of Venom that is enabled when the M-Audio Venom drivers are installed, but is not necessary for class-compliant operation. You have the following options:*

- *Cancel the Found New Hardware Wizard and start using Venom immediately. The Found New Hardware Wizard will appear every time your computer detects that Venom is connected (when restarting your computer or Venom, or disconnecting and reconnecting Venom).*
- *Follow the Found New Hardware Wizard until it gives the option not to be prompted to install this hardware again.*
- *Download and install the latest drivers from our website (www.m-audio.com), and follow the onscreen instructions. If you do not have access to the internet, you can install the drivers using the included Venom installation disk. After these drivers have been installed, the Found New Hardware Wizard for the M-Audio DFU will no longer be displayed.*
- *The installation procedure is described in the printed Quick Setup Guide.*

## Mac OS X

Driver installation is not required in order to use Venom with your Mac OS X computer. However, you download and install the Venom drivers from our website (www.m-audio.com), and follow the onscreen instructions if you wish to do either of the following:

- Use Venom with Pro Tools M-Powered recording software.
- Use the M-Audio Venom control panel to import MIDI files for the phrase arpeggiator.

If you do not have access to the internet, you can install the drivers using the included Venom disk. Otherwise, the class-compliant drivers built into Mac OS X provide full support for all features of Venom with Core Audio and Core MIDI.

# Chapter 2: Controls and Connections

## Top Panel Overview

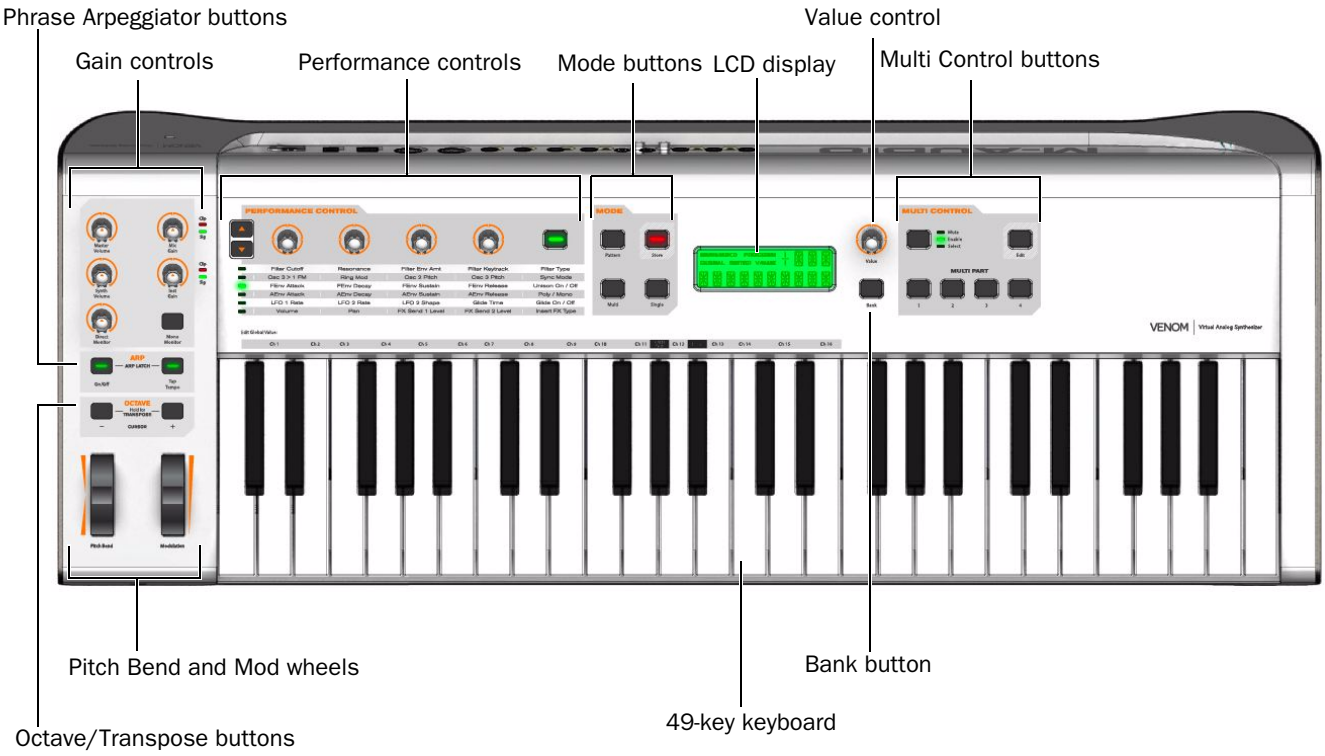



*Figure 1. Venom top panel*

### Gain Controls

**Master Volume** Controls the master volume output from Venom.

**Synth Volume** Controls the volume of the Venom synthesizer sent to the Master Volume (Main Outputs).

**Direct Monitor** Controls the volume of the audio signal from the Instrument Input and Mic Input sources sent directly to the Master Volume (Main Outputs).

**Mic Gain** Controls the input gain of the audio signal from the Mic Input. When the incoming signal is greater than –20 dB, the LED lights green to indicate the presence of an incoming audio signal on the Microphone Input. The LED lights red to indicate clipping. Adjust the Mic Gain level to the highest setting possible without clipping to get a good signal level for recording when using Venom with any audio recording software.

**Inst Gain** Controls the input gain of the audio signal from the Instrument Input. When the incoming signal is greater than –20 dB, the LED lights green to indicate the presence of an incoming audio signal on the Instrument Input. The LED lights red to indicate clipping. Adjust the Inst Gain level to the highest setting possible without clipping to get a good signal level for recording when using Venom with any audio recording software.

## Mono Monitor Button

**Mono Monitor Button** This button switches the headphone and main outputs to Mono Monitor mode. Mono Monitor mode pans these audio output signals to the center of the stereo field, allowing you to hear a mono mix of your recorded tracks.

## Phrase Arpeggiator

**On/Off Button** Enables (or disables) the Phrase Arpeggiator.

**Tap Tempo Button** Lets you tap in the tempo (tap at least twice) for the Phrase Arpeggiator, LFOs and tempo-based delay effects. The LED blinks on and off in time with the quarter note pulse. Press and hold the Tap Tempo button to set the tempo using the Value knob.

**Arpeggiator Latch** Simultaneously pressing the On/Off and Tap Tempo buttons switches the Arpeggiator Latch function on and off. The LCD screen display the status as either "ARP LATCH ON" or "ARP LATCH OFF".

## Octave/Transpose Buttons

**Octave/Transpose Buttons** Let you transpose the keyboard up or down in octaves (+/–3) and semitones (+/–12). Press the left button to transpose down by an octave and press the right button to transpose up by an octave. Press both buttons simultaneously to enable transposition by semitones. Alternately, while holding both buttons down, adjust the Value knob to set an offset of +/–12 semitones. You can also press a key on the keyboard while holding both buttons down to set the transposition. Pressing any key above or below middle C sets the level of transposition to that key (up or down). Pressing middle C resets the transposition back to 0.

## Pitch Bend and Modulation Wheels

**Pitch Bend Wheel** Sends MIDI pitch bend messages to the synthesizer as well as the USB and MIDI Out ports. This lets you create expressive changes in your performances by raising and lowering pitch. Moving the Pitch Bend wheel upward raises the pitch of the synthesizer, and moving it downward lowers the pitch. When using Venom to control another hardware synthesizer or a software synthesizer, the upper and lower pitch bend limit is determined by settings on your hardware or software synthesizer, not by the Pitch Bend wheel on Venom. This wheel is spring mounted and returns to the center position when released.

**Modulation Wheel** Sends MIDI CC 1 messages to the synthesizer as well as the USB and MIDI Out ports. This can add expression to your performance by changing the intensity of certain effects. Typically, the Modulation Wheel is used to control vibrato (change in intonation) or tremolo (change in volume). The MIDI data range of the Modulation wheel is 0 to 127, with 0 being the note-unchanged position.

## Performance Control Matrix

The Performance Control Matrix lets you edit certain parameters of the synthesizer in real-time. This provides you with expressive control of the synthesizer during performance beyond simply playing preset synth sounds.

#### Matrix Row Select Buttons and LEDs

Use the Matrix Row Select buttons to select the next or previous Matrix row (1–6) as printed to the left of the Matrix Controller Knobs and Button. The selected Matrix row determines what synth parameters are controlled by the Matrix Controller knobs (1–4) and the Matrix Control button. The selected row is indicated by which of the 6 LEDs below the Matrix Row is lit.

#### Matrix Controller Knobs 1–4

Each Matrix Controller knob affects specific synthesizer parameters based on the currently selected Matrix Row. The Matrix Controller knobs also send out continuous controller values (0–127) on different MIDI CC numbers depending on the selected Matrix row. Table 3 below shows which parameters (and MIDI CC numbers) are controlled by each of the four knobs according to the selected Matrix Row (1–6).

#### Matrix Control Button and LED

The Matrix Control button selects different options for specific synthesizer parameters based on the currently selected Matrix Row. The Matrix Control button also sends out continuous controller values (0 or 127) on different MIDI CC numbers depending on the selected Matrix row. The right column in Table 3 below shows which parameters (and MIDI CC numbers) are affected by the Matrix Control button according to the selected Matrix Row (1–6). For the 5 parameters that can be set to either on or off (such as Sync On/Off), the LED illuminates to indicate that the parameter is set to On.

*Table 3. Matrix Controls*

| Matrix Row | Knob 1 | Knob 2 | Knob 3 | Knob 4 | Button |
|---|---|---|---|---|---|
| 1 | Filter Cutoff (CC 03 Coarse, CC 35 Fine) | Filter Resonance (CC 71: 0–127) | Filter Envelope Amount (CC 103: 0–127) | Filter Keytrack (CC 104: 0–127) | Filter Type (CC 70: 0–7) |
| 2 | FM level of Oscillator 3 to Oscillator 1 (CC 50: 0–127) | Ring Modulation Level (CC 51: 0–127) | Oscillator 2 Pitch (CC 30 Coarse, CC 62 Fine) | Oscillator 3 Pitch (CC 31 Coarse, CC 63 Fine) | Sync On/Off (NRPN 017DH, NRPN 017EH) |
| 3 | Filter Envelope, Attack (CC 20: 0–127) | Filter Envelope, Decay (CC 22: 0–127) | Filter Envelope, Sustain (CC 23: 0–127) | Filter Envelope, Release (CC 24: 0–127) | Unison On/Off (NRPN 016AH) |
| 4 | Amplitude Envelope, Attack (CC 73: 0–127) | Amplitude Envelope, Decay (CC 75: 0–127) | Amplitude Envelope, Sustain (CC 79: 0–127) | Amplitude Envelope, Release (CC 72: 0–127) | Poly/Mono mode (CC 126 Mono, CC 127 Poly) |
| 5 | LFO 1 Rate (CC 86: 0–127) | LFO 2 Rate (CC 14: 0–127) | LFO 2 Shape (CC 15: 0–7) | Glide Time (CC 5: 0–127) | Glide On/Off (CC 65: 0/127) |
| 6 | Volume (CC 7: 0–127) | Pan (CC 10: 0–127) | FX Send 1 Level (CC 91: 0–127) | FX Send 2 Level (CC 93: 0–127) | FX Insert On/Off (NRPN 0120H) |

## Mode Buttons

#### Multi Button

Press the Multi button to enable Multi mode. The button lights when Multi mode is enabled. In multimode, Venom is multi-timbral and can play up to four Multi Parts (referencing Single Programs) at the same time. However, the 12 available voices are dynamically allocated from one Multi Part to another. Because the last note requested or played has the highest priority, new voices needed for other Multi Parts will be "stolen" from the oldest notes played in the original Multi Part.

#### Single Button

Press the Single button to enable Single mode. The button lights when Single mode is enabled. In Single mode, Venom is monotimbral and only plays one Single Program at a time.

#### Pattern Button

When in Single mode (the Single button is lit), pressing the Pattern button enables (or disables) Single Pattern Mode and the Pattern button lights. The pattern bank and number is displayed on the LCD screen.

When in Multi mode (the Multi button is lit), pressing the Pattern button enables (or disables) Multi Pattern Mode and the Pattern button lights. The pattern bank and number for the selected Multi part is displayed on the LCD screen.

#### Store Button

When in Single mode (the Single button is lit), pressing the Store button enables Single Store mode to save the current synthesizer settings (the Store button flashes). Use the Bank button and Value knob to select the Bank and Program location where you want to store the current settings for the Single Program. Press the Store button a second time to save the Single Program settings to the selected Bank and Preset location.

When in Multi mode (the Multi button is lit), pressing the Store button enables Multi Store mode to save the current Multi mode settings (the Store button flashes). Use the Bank button and Value knob to select the Bank and Multi Program location where you want to store the current settings for the Multi Program. Press the Store button a second time to save the Multi Program settings to the selected Bank and Preset location.

⚠ *Editing and saving any Single Program affects all Multi Programs that have Multi Parts that reference the same Single Program Bank and Program Number.*

*Editing and saving any Multi Program does not save changes to any referenced Single Program (Multi Part). Enter Single Mode to save changes to any Single Programs referenced by Multi Parts.*

*For more information, refer to "Saving Multi Programs, Parts, and Patterns" on page 19.*

## LCD Display

The LCD Display shows the selected Bank (A, B, C, or D) and Patch number for Venom presets. If the patch has been edited, the word "Edited" is lit in the LCD. When editing parameters for any patch, the word "Value" lights and the value for the edited parameter is displayed. When pressing the Tap Tempo button and using the Value knob to enter a tempo, only the word "Value" and the number for the current tempo are lit.

## Value Knob and Bank Button

#### Value Knob

By default, the Value knob lets you select any Venom Single Program, Mutli Program, or Pattern preset. While pressing and holding the Tap Tempo button, use the Value knob to set the tempo (in BPM, where the quarter note gets the beat). While pressing and holding both Octave buttons, the Value knob lets you change the transposition (+/–12 semitones).

#### Bank Button

The Bank button lets you cycle through the four Single Program preset banks (A, B, C, and D), through the 2 Multi Program preset banks (A and B), or through the Pattern preset banks (A and B). Press the Bank button to select the next preset bank (when Bank D is selected in Single Program mode or when Bank B is selected in Multi Program or Pattern mode, Bank A will be the next bank).

## Multi Controls

#### Mute/Enable/Select Button and LEDs

The Mute/Enable/Select button lets you set the current mode of the Multi Part buttons. Press the Mute/Enable/Select button to cycle through Mute, Enable, and Select modes. The corresponding LED (Mute, Enable, or Select) lights to indicate which mode is selected.

**Mute** When Mute mode is selected for a Multi Part, the corresponding Multi Part is muted, but it still uses Venom synthesizer voice resources and maintains reduced polyphony. This lets you quickly mute or unmute a part to determine whether or not the Multi Part is audible. This has practical performance uses. For example, if you are playing a long sustained chord and then mute a Multi Part, the sound produced by the referenced Single Program is muted. Then, if you unmute it, it is heard again.

**Enable** When Enable mode is selected for a Multi Part, the corresponding Multi Part is enabled and will sound when you play Venom. If a Multi Part is disabled it neither sounds nor uses any synthesizer voice resources. However, in contrast to muting a Multi Part during performance, if you hold down a chord and disable the Multi Part, you will no longer hear the referenced Single Program. If you re-enable the Multi Part while still holding the same notes, the referenced Single Program will not be heard until you re-play the chord.

**Select** When Select mode is selected for a Multi Part, it is selected for editing. When more than one Multi Part is selected, any edits apply to all selected Mutli Parts.

#### Multi Part Buttons (1–4)

The Multi Part buttons let you mute, enable, or select any of the four parts of a Multi Program depending on the setting of the Mute/Enable/Select button.

In Select mode, the LED lights to indicate that the associated part is selected for editing. You can select multiple parts for editing by pressing the corresponding buttons simultaneously. When multiple parts are selected, editing any parameter affects all selected parts. Use the Bank button and Value knob to select the bank and patch for the corresponding selected part.

In Mute mode, the LED lights to indicate that the associated part is muted. Pressing any Multi Part button mutes (or unmutes) the corresponding part.

In Enable mode, the LED lights to indicate that the associated part is enabled. Pressing any Multi Part button enables (or disables) the corresponding part.

You can press more than one Multi Part button simultaneously to Select, Enable, or Mute (or deselect, disable, or unmute) those parts.

When MIDI data is received on a part, the associated LED flashes briefly, regardless of the Multi Control mode.

#### Edit

The Edit button sends an "all notes off" message and a "reset all controllers" message to all 16 MIDI channels. Press the Edit button to enable Global mode, and then press the corresponding key on the keyboard to execute the desired command (such as toggling Local Control On or Off). The LED of the Edit button flashes slowly while in Global mode. For more information about Global mode, see "Using Global Mode" on page 23. Also see "Global Editor" on page 77.

## Front Panel Connector

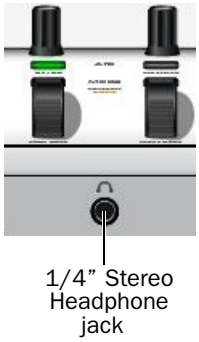



*Figure 2. Venom front panel*

### Headphone Output

Connect your headphones to the 1/4" stereo jack on the front of Venom. Use the Master Volume control to adjust the volume for your headphones.

## Back Panel Controls and Connectors

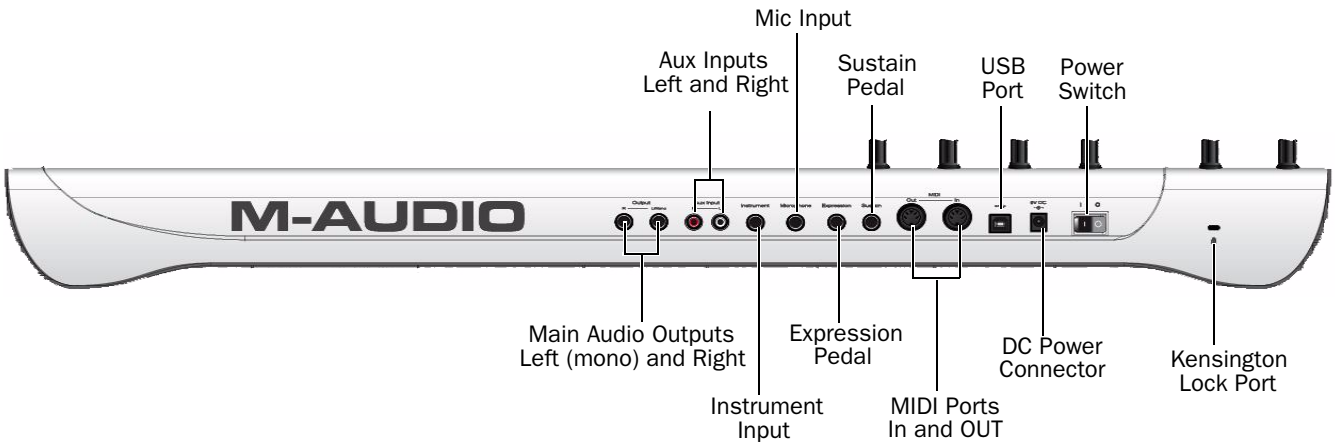



*Figure 3. Venom back panel*

**Main Audio Outputs** Connect the two 1/4" main audio outputs on the back panel to powered monitors, an amplifier, or a mixer. The main audio outputs include a mix of the synthesizer output and audio signals from the Aux Inputs, the Instrument Input, and the Mic Input. When using Venom with your computer, the main outputs also include the stereo mix from your computer via USB.

**Auxiliary Audio Inputs** Connect the two RCA auxiliary inputs to any stereo line level source (such as from another synthesizer or a mixer). The left (white) aux input is mixed with the Microphone input, and the right (red) is mixed with the Instrument input. Incoming audio can be routed through the Venom voice path at the Pre Filter Mix section and modified by the filter, amplifier and effects and then mixed to the main outputs. When using Venom in USB mode, these inputs are also mixed with the Mic and Instrument inputs, which together show up in your DAW as audio inputs 1 and 2.

**Instrument Input** Connect the 1/4" Instrument input to any mono instrument source (such as an electric guitar or bass). Use the Instrument Gain control on the top panel of Venom to adjust the incoming signal level.

**Mic Input** Connect the 1/4" TRS Mic input to any dynamic microphone. Use the Mic Gain control on the top panel of Venom to adjust the incoming signal level.

**Expression Pedal** Connect an optional expression pedal to this jack. This pedal can be used as a volume pedal as well as for other MIDI continuous controller mappings. The Expression pedal always sends MIDI data on MIDI CC 11.

**Sustain Pedal** Connect an optional sustain pedal to this jack. This pedal is normally used for sustaining the sound you are playing without having to keep your hands on the keyboard. The Sustain pedal always sends MIDI data on MIDI CC 64.

**MIDI In Port** This standard 5-pin MIDI connector accepts signals from any MIDI compatible device such as a synthesizer, drum machine, or even another MIDI controller.

**MIDI Out Port** This standard 5-pin MIDI connector transmits signals to any MIDI compatible device such as a synthesizer, sound module, or drum machine.

**USB Port** Connect this jack to any available USB port on your computer. The USB port handles all communication between Venom and your computer.

**DC Power** Connect the included power supply to power Venom.

**Power Switch** This switch powers Venom on and off.

**Kensington Lock Port** Connect a standard laptop-style locking security cable here to protect Venom from theft.

# Chapter 3: Using Venom Standalone

## Making Connections

This chapter covers the various hardware connections when setting up Venom.

**1** Connect Venom to an AC outlet using the 9V power supply (included).

**2** Connect the Main Outputs to either powered monitors, a mixer, or amplifier. You can also connect headphones to the front panel headphone jack.

**3** Turn the Master Volume all the way down.

**4** Set the back panel power switch to the "on" position.

**5** Set the Master Volume knob to a reasonable level and turn up the Synth Volume knob.

For additional performance control, you can also connect a sustain pedal and an expression pedal.

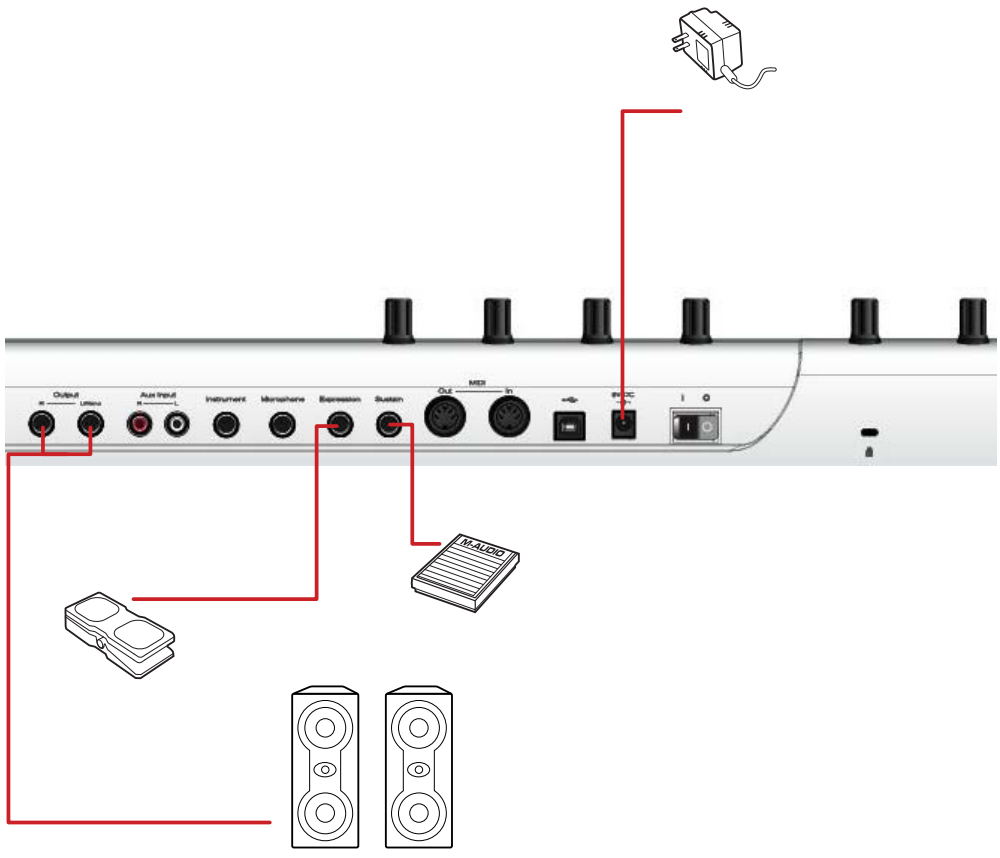



*Figure 4. Essential connections for using Venom as a standalone synthesizer*

## Venom Audio Input Connections

Venom provides audio input for external instruments and other audio sources. Use the Gain and Volume controls on the top panel of Venom to mix any incoming audio signals along with the synthesizer output.

Figure 5 below shows one possible configuration for connecting the audio inputs and outputs for Venom:

- Connect a dynamic Mic to the Microphone Input jack (TRS). Use the Mic Gain knob on the top panel to adjust the level.
- Connect a guitar (or any other instrument-level signal) to the Instrument Input jack (TR). Use the Inst Gain knob on the top panel to adjust the level.
- Connect the stereo output of an CD player, iPod, or mixer (or any other stereo line level signal) to the left and right Aux Input jacks (RCA).

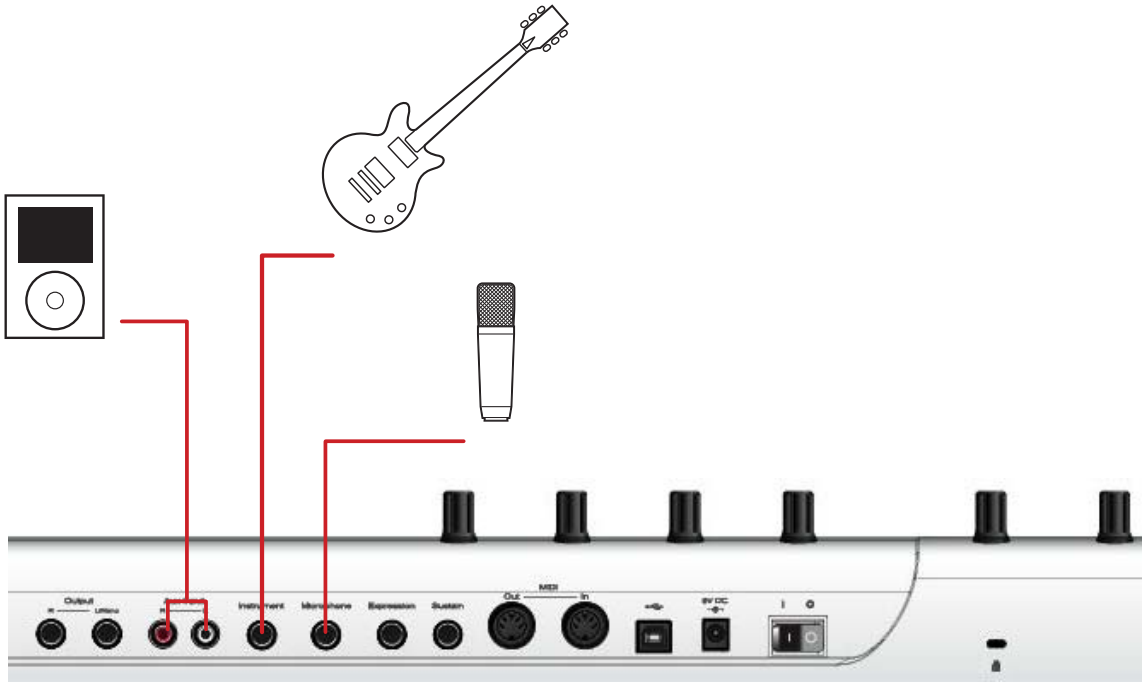


*Figure 5. Connecting sources to Venom audio inputs*

## Venom MIDI Connections

Venom provides MIDI Input and Output ports to which you can connect a MIDI sound module or another MIDI controller.

If you want to use another MIDI controller to play Venom, connect the MIDI Out port of your other MIDI controller to the MIDI In port on Venom. When you play your other MIDI controller, it will send MIDI to Venom and play the synthesizer. You can also use a programmable MIDI controller (such as the Evolution UC-33e) for real-time control various parameters of the synthesizer using the corresponding MIDI CC numbers (for a complete list of synthesizer parameters with MIDI CC numbers and NRPNS, see Appendix A, "MIDI Specifications").

If you want to use Venom to play another MIDI sound module, connect the MIDI Out port of Venom to the MIDI In port on your sound module (see Figure 6 below). Then you can connect the audio outputs of your sound module to the Aux Inputs on Venom, or to another mixer or keyboard amp. When you play Venom, the MIDI from Venom will also control the connected MIDI sound module.

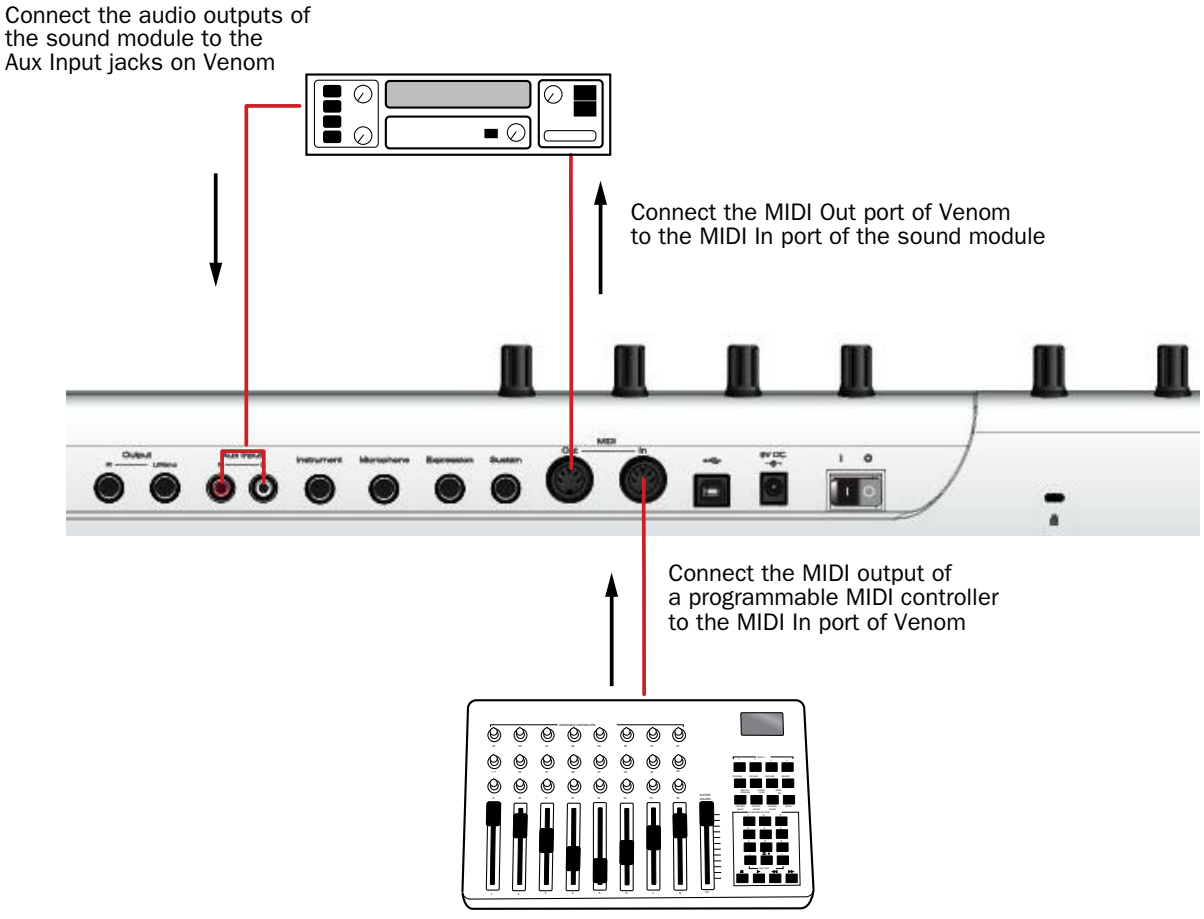



*Figure 6. Connecting Venom, a MIDI sound module, and an external programmable MIDI controller*

## Programs

Venom provides 4 Banks of 128 Single Programs each and 2 Banks of 128 Multi Programs each. Banks A and B of the Single Programs are "Preset Programs," and Banks C and D can be used for storing your own "User Programs."

### Selecting Single Program Presets

A Single Program stores and recalls all of the synthesizer parameter settings for a single sound, including the settings for its Insert Effect, 2 Global Bus Effects, the Main EQ, and one Arpeggiator Pattern.

#### To select a Venom Single Program preset:

1 Press the Single button to switch Venom to Single Mode.

2 Press the Bank button to toggle through and select Bank A, B, C, or D.

3 Turn the Value knob to locate and select the Single Program preset you want.

### Selecting Multi Program Presets

A Multi Program stores and recalls references to up to 4 Single Programs, including the respective Insert Effect for each referenced Single Program and 2 Effects Busses for all referenced Single Programs, as well as the Main EQ, 4 Arpeggiator Patterns, and MIDI controller and keyboard assignments.

#### To select a Venom Multi Program preset:

1 Press the Multi button to switch Venom to Multi Mode.

2 Press the Bank button to select either Bank A or Bank B.

3 Turn the Value knob to locate and select the Multi Program preset you want.

### Editing Single Programs

Once you have selected a Single Program, you can edit it to your liking. Using the Performance Control Matrix, you can change the settings of several synthesizer parameters (see "Performance Control Matrix" on page 7). Using MIDI software with Venom connected to your computer via USB, or using a remote programmable MIDI controller (such as the Axiom Pro) you can edit most of the other synthesizer and effects parameters using the corresponding MIDI CC number or NRPN (see"Advanced Synthesizer and Effects Editing" on page 36).

## Editing Multi Programs

Each Multi Program references up to four different Single Programs. Each referenced Single Program in a Multi Program is referred to as a Multi Part. You can edit each Multi Part individually as well as in tandem.

#### To select a new Single Program preset for a Multi Part:

1 Switch Venom to Select Mode by repeatedly pressing the Mute/Enable/Select button until the Select LED is lit

2 Press the desired Multi Part button so that its LED is lit.

3 Press the Bank button to select the desired Single Program Bank (A, B, C, or D).

4 Adjust the Value knob to select the Single Program preset that you want the Multi Part to reference.

#### To edit parameters of the Single Program Preset referenced by a Multi Part:

1 Press the Mute/Enable/Select button repeatedly until the Select LED is lit.

2 Press the desired Multi Part button so that its LED is lit.

3 Edit the parameters of the referenced Single Program using the performance controls.

#### To edit parameters of two or more Multi Part referenced Single Programs in tandem:

1 Press the Mute/Enable/Select button repeatedly until the Select LED is lit.

2 Press the desired Multi Part buttons simultaneously so that their LEDs are lit.

3 Edit the parameters of the referenced Single Programs using the performance controls. Any edited parameter settings will be set to the same value for each referenced Single Program.

## Saving Custom Programs and Patterns

Once you have edited a Single or Multi Program, Multi Part, or Single or Multi Part Pattern, you may want to save your changes. Certain Single, Multi Part, and Multi parameters can only be edited via MIDI or using software (rather than using the top panel controls). Single, Multi, and Multi Part Pattern parameters can only be edited via MIDI or software (and not from the top panel controls).

### Saving Single Programs and Patterns

#### To save the current settings of a Single Program:

1 Ensure that the Single button LED is lit and that you have been editing a Single Program.

2 Press the Store button. Both the Single button and the Store button LEDs start flashing.

3 If desired, select a new storage location for the Single:

- Press the Bank button to select the Bank where you want to save the current settings for the Single Program.
- Adjust the Value knob to select the preset location where you want to save the current settings for the Single Program.

4 If desired, rename the Single Program:

- Press the OCTAVE + button. In the Venom LCD, the first character of the program name starts flashing.
- Use the Value knob to change the character.
- Press OCTAVE + button to move to the next character to the right for editing.
- Use the OCTAVE – button to move back to the next character to the left for editing.

5 Press the Store button a second time to save the Single Program settings to the selected Bank and preset location.

⚠ *Editing and saving any Single Program affects all Multi Programs that have Multi Parts that reference the same Single Program Bank and Program Number.*

**To save the current settings of a Single Pattern (can only be edited via MIDI or software):**

1 Ensure that your keyboard is in single mode.

2 Press the Store button. The Pattern button and the Store button LEDs start flashing.

3 If desired, select a new storage location for the Single Pattern.

4 If desired, rename the Single Pattern:

- Press the OCTAVE + button. In the Venom LCD, the first character of the pattern name starts flashing.
- Use the Value knob to change the character.
- Press OCTAVE + button to move to the next character to the right for editing.
- Use the OCTAVE – button to move back to the next character to the left for editing.

5 Press the Store button a second time to save the Single Pattern settings to the selected Bank and preset location.

⚠ *Editing and saving any Single Pattern may affect other Single and Multi Programs that reference the Pattern.*

**If both the Single and Pattern (can only be edited via MIDI or software) have been edited and you want to save them both:**

1 Press the Store button. Both the Single and Pattern button LEDs start flashing. The LCD screen will ask "StoreWhat?" prompting you to select either Single or Pattern.

2 Press either the Single or Pattern button. The selected button LED starts flashing.

3 If desired, select a new storage location.

4 If desired, rename the Single or Pattern.

5 Press the Store button.

6 Press the Store button again. Either the Single or Pattern button LED starts flashing (whichever button was not previously selected.

7 If desired, select a new storage location.

8 If desired, rename the Single or Pattern.

9 Press the Store button.

## Saving Multi Programs, Parts, and Patterns

**To save the current settings of a Multi Program:**

1 Ensure that the Multi button LED is lit and that you have been editing a Multi Program.

2 Press the Store button. The Multi button and the Store button LEDs start flashing.

3 If desired, select a new storage location for the Multi Program:
- Press the Bank button to select the Bank where you want to save the current settings for the Multi Program.
- Adjust the Value knob to select the preset location where you want to save the current settings for the Multi Program.

4 If desired, rename the Multi Program:
- Press the OCTAVE + button. In the Venom LCD, the first character of the program name starts flashing.
- Use the Value knob to change the character.
- Press OCTAVE + button to move to the next character to the right for editing.
- Use the OCTAVE – button to move back to the next character to the left for editing.

5 Press the Store button to save the Multi Program settings to the selected Bank and preset location.

**To save the current settings of a Multi Part:**

⚠ *This process involves a Single Program within a Multi Part. It will be stored in one of the Single Program User Banks, and it may affect references in the current Multi Part or others.*

1 Ensure that you are in Multi mode.

2 Press the Store button.

3 If desired, select a new storage location for the Multi Part Single Program:
- Press the Bank button to select the Bank where you want to save the current settings for the Multi Part Single Program.
- Adjust the Value knob to select the preset location where you want to save the current settings for the Multi Part Single Program.

4 If desired, rename the Multi Part Single Program:
- Press the OCTAVE + button. In the Venom LCD, the first character of the program name starts flashing.
- Use the Value knob to change the character.
- Press OCTAVE + button to move to the next character to the right for editing.
- Use the OCTAVE – button to move back to the next character to the left for editing.

5 Press the Store button to save the Multi Part Single Program settings to the selected Bank and preset location.

**To save the current settings for multiple selected Multi Parts:**

**1** Ensure that your keyboard is in Multi mode.

**2** Press the Store button. The selected Multi Part buttons and the Store button LEDs start flashing. The LCD screen will ask "StoreWhat?" prompting you to select the Multi Parts you are storing.

*You can exit Store mode without saving your changes by pressing one of the other unlit Mode buttons.*

**3** Press the Multi Part button you want to save.

**4** If desired, select a new storage location for the Multi Part Single Program:

- Press the Bank button to select the Bank where you want to save the current settings for the Multi Part Single Program.
- Adjust the Value knob to select the preset location where you want to save the current settings for the Multi Part Single Program.

**5** If desired, rename the Multi Part Single Program:

- Press the OCTAVE + button. In the Venom LCD, the first character of the program name starts flashing.
- Use the Value knob to change the character.
- Press OCTAVE + button to move to the next character to the right for editing.
- Use the OCTAVE – button to move back to the next character to the left for editing.

**6** Press the Store button to save the Multi Part Single Program settings to the selected Bank and preset location.

*To store additional Multi Parts, ensure your keyboard is still in Multi mode, and repeat steps 2 through 6 until the "Edited" flag goes away.*

**To save the current settings of a Multi Part Pattern (can only be edited via MIDI or software):**

**1** Ensure that your keyboard is in Multi mode.

**2** Press the Store button.

**3** If desired, select a new storage location for the Multi Part Pattern.

**4** If desired, rename the Multi Part Pattern.

**5** Press the Store button to save the Multi Part Pattern settings to the selected Bank and preset location.

**To save the current settings for multiple selected Multi Part Patterns (can only be edited via MIDI or software):**

**1** Ensure that your keyboard is in Multi mode.

**2** Press the Store button. The Store and Pattern buttons, along with the buttons for the parts you are editing will flash. If you have also edited Multi parts the Pattern button will also flash. The LCD screen will ask "Store-What?" prompting you to select what you want to store. For example a Multi, Multi Part or Pattern.

**3** Press the Pattern button. The buttons for Multi Parts with edited patterns start flashing. The LCD screen will ask "WhichPatt?" prompting you to select a pattern by pressing a flashing Multi Part button.

**4** Press the Multi Part button for the Multi Part Pattern you want to save. Only the selected Multi Part button LED will be flashing.

**5** If desired, select a new storage location for the Multi Part Pattern.

**6** If desired, rename the Multi Part Pattern.

**7** Press the Store button to save the Multi Part Pattern settings to the selected Bank and preset location.

*To store additional Multi Part Patterns, ensure your keyboard is still in Multi mode, and repeat steps 2 through 7 until the "Edited" flag goes away.*

**To save the only the current settings of a Multi after editing Multi Parts:**

**1** Press the Store button. The Store button LED and the Multi Part button LEDs of any edited Multi Parts start flashing. The LCD screen will ask "StoreWhat?" prompting you to select a Multi Part by pressing one of the Multi Part buttons.

**2** Press the Multi button. Only the Multi button will be flashing.

**3** If desired, select a new storage location for the Multi Program:

- Press the Bank button to select the Bank where you want to save the current settings for the Multi Program.
- Adjust the Value knob to select the preset location where you want to save the current settings for the Multi Program.

**4** If desired, rename the Multi Program:

- Press the OCTAVE + button. In the Venom LCD, the first character of the program name starts flashing.
- Use the Value knob to change the character.
- Press OCTAVE + button to move to the next character to the right for editing.
- Use the OCTAVE – button to move back to the next character to the left for editing.

**5** Press the Store button to save the Multi Program settings to the selected Bank and preset location without saving any changes to the Multi Parts.

## Using the Arpeggiator

The Venom arpeggiator provides 3 modes: Standard, Phrase, and Drum. While these modes can only be edited via MIDI or software, you can select from the available factory patterns that use all of the various arpeggiator modes. For information on importing your own patterns, see “Pattern Import” on page 31.

### Standard Mode

In Standard mode, you can play and hold a single note or a chord and the notes of the chord will be arpeggiated up, down, up and down, down and up, or played as a repeated chord. The rate at which Venom plays each note (or repeats the chord) is determined by the Tempo setting. The rhythm of the arpeggiated notes are determined by the timing of the notes in the selected pattern (the stored MIDI sequence).

### Phrase Mode

In Phrase mode, you can play and hold a single note and Venom plays back the selected phrase pattern (a stored MIDI sequence). The phrase pattern is transposed according to the note you play.

### Drum Mode

In Drum mode, you can play and hold a single note and Venom plays back the selected drum pattern (a stored MIDI sequence) from the first 51 patterns (0 through 50). The played note does not transpose the drum pattern.

### Selecting a Pattern

**To play Venom with the arpeggiator using a Single Program:**

1 Ensure that the Single button is lit.

2 Press the Arp On/Off button so that its LED is lit.

3 Tap in the tempo you want with the Tap Tempo button. (You can also press and hold the Tap Tempo button and use the Value knob to set the tempo.)

4 Press the Pattern button so that it is lit.

5 Press the Bank button to select the Pattern Bank you want.

6 Use the Value knob to select the Pattern you want.

**To play Venom with the arpeggiator using a Multi Program:**

1 Ensure that the Multi button is lit.

2 Select one or more Multi Parts to be arpeggiated.

3 Press the Arp On/Off button so that its LED is lit.

4 Tap in the tempo you want with the Tap Tempo button. (You can also press and hold the Tap Tempo button and use the Value knob to set the tempo.)

5 Press the Pattern button so that it is lit.

**6** Press the Bank button to select the Pattern Bank you want.

**7** Use the Value knob to select the Pattern you want.

**8** If a Standard pattern is selected, play a single note or chord. If a Phrase or Drum pattern is selected, play a single note.

### Enabling the Arpeggiator

Every Single Program and Multi Patch is stored with an associated Arpeggiator Pattern, simply enable the Arpeggiator and play.

#### To enable the Arpeggiator:

**1** Select a Single or Multi Program.

**2** Press the Arp On/Off button so that its LED is lit.

**3** Tap in the tempo you want with the Tap Tempo button. (You can also press and hold the Tap Tempo button and use the Value knob to set the tempo.)

**4** If the selected Program uses a Standard pattern, play a single note or chord. If the selected Program uses a Phrase or Drum pattern, play a single note.

## Using Global Mode

Global mode lets you set Local control, the MIDI output, and the MIDI output channel. Additional Global settings can be configured with the Vyzex Venom Editor (see “Global Editor” on page 77).

### Toggling Local Control On and Off

Local control determines whether or not the built-in keyboard controls the onboard synthesizer or simply passes MIDI control data through the MIDI Out port or over USB (depending on the MIDI Output setting) without playing the Venom synthesizer. If you are working with MIDI sequencing software (such as Pro Tools), you may want to disable Local control so that you can route MIDI through your MIDI software to the Venom synthesizer without double-triggering MIDI notes on the Venom synthesizer.

#### To toggle Local Control On or Off:

**1** Press the Edit Button on the top panel of Venom.

**2** Press the B-flat below middle C on the keyboard (indicated as “Local” by the Global Key Mapping above the keyboard).

The LCD flashes “LOCAL OFF” or “LOCAL ON” to indicate the setting.

### Selecting MIDI Output

In Single mode, Venom sends and receives MIDI data using the Global MIDI Channel. In Multi Mode, any Multi Part set to "Global" will also use the Global MIDI Channel for transmission.

#### To select the global MIDI Output:

**1** Press the Edit Button on the top panel of Venom.

**2** Press the A-flat below middle C on the keyboard (indicated as "MIDI Out" by the Global Key Mapping above the keyboard).

The LCD indicates either "MIDI OUT USB" or "MIDI OUT KEY" to indicate the setting.

### Selecting MIDI Channel Output

Venom sends MIDI data over one of sixteen possible MIDI channels.

#### To set the global MIDI Output channel:

**1** Press the Edit Button on the top panel of Venom.

**2** Press the corresponding key on the keyboard as indicated by the Global Key Mappings "Ch 1" through "Ch 16".

The LCD indicates the corresponding MIDI channel number in the upper-right corner of the display.

## Resetting Venom Defaults

Venom lets you do a soft reset or a hard reset.

### Soft Reset

A soft reset restores all Global parameters to their default settings. A soft reset will not delete your custom stored Single, Multi, and Pattern presets.

#### To perform a soft reset:

- Press and hold both OCTAVE buttons simultaneously while powering Venom on.

### Hard Reset

A hard reset restores all Global parameters and User Banks (presets) to the factory default settings. Note that you will lose any custom stored Single, Multi, and Pattern presets when performing a hard reset.

⚠ *A hard reset does not restore Pattern bank B. This bank is restored using the Vyzex Venom Editor/Librarian. For further information, refer to Chapter 5, "Advanced Synthesizer and Effects Editing."*

#### To perform a hard reset:

- Press and hold the Multi and Single buttons simultaneously while powering Venom on.

## Demo Mode

Venom provides a factory demo. Press both the Pattern and Multi buttons at the same time to hear what Venom can do. During the demo, the LCD screen flashes "** DEMO **". The Venom keyboard, and Pitch Bend and Modulation wheels are disabled during the demo.

Press any button to stop the demo and return to the previous mode.

# Chapter 4: Using Venom with USB

## Making Connections

In addition to using Venom as a standalone synthesizer, you can use Venom with your computer via USB:

- Connect the Audio Outputs to powered monitors, mixer, or amplifier. You can also monitor Venom using headphones connected to the jack on the front panel.
- Connect Venom to your computer using the included USB cable.
- Connect the power supply and power on Venom.

⚠ *Venom functions as a class-compliant device, and will be recognized by your computer without installing drivers. However, downloading and installing the latest drivers (from www.m-audio.com) is recommended if you are going to use Venom with Pro Tools M-Powered. The drivers are also recommended when using your keyboard with more than one application at the same time, or simultaneously using other class-compliant USB audio devices.*

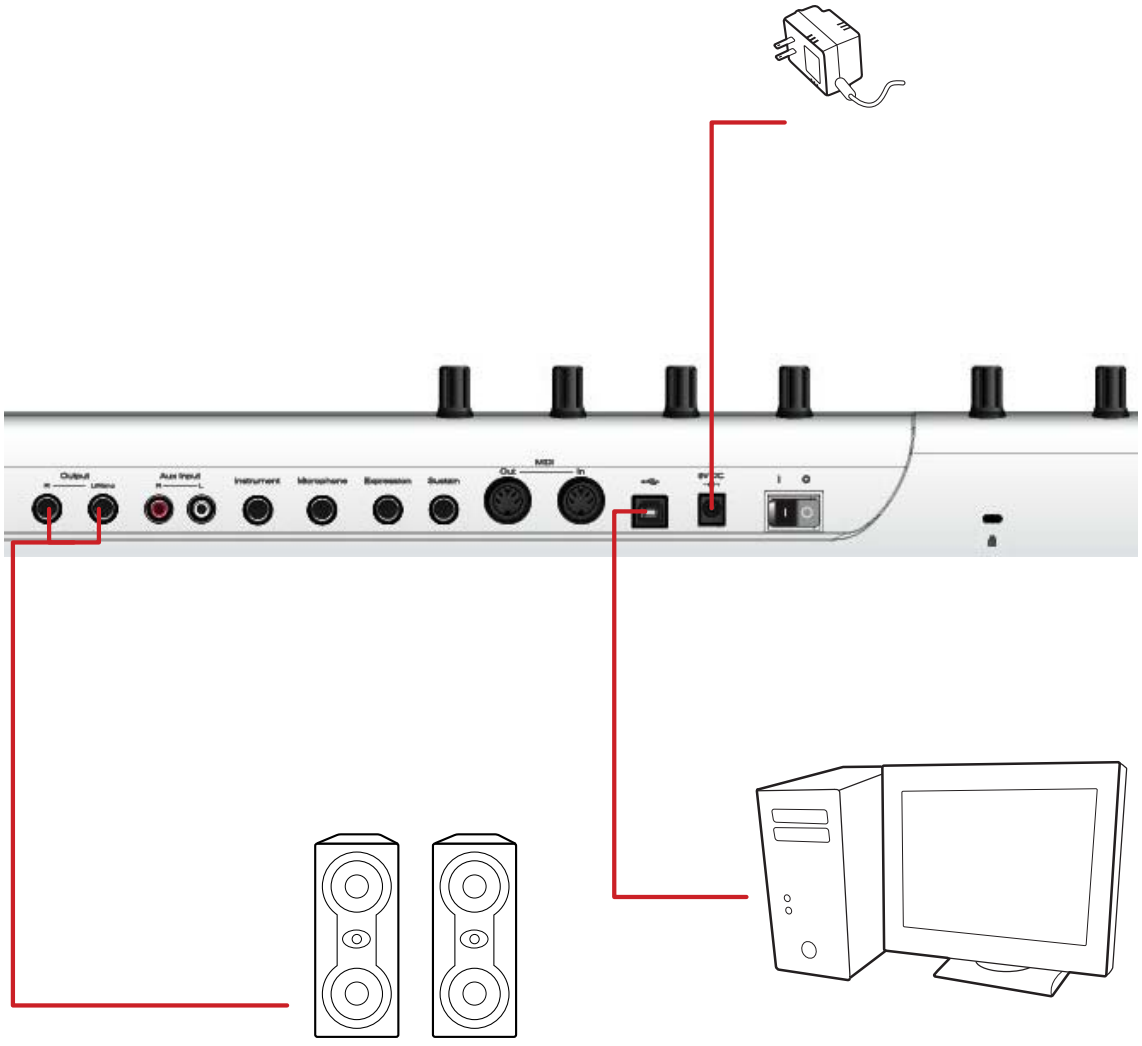


*Figure 7. Connecting Venom to your computer*

# Configuring Venom on Mac

## Configuring Audio MIDI Setup (AMS)

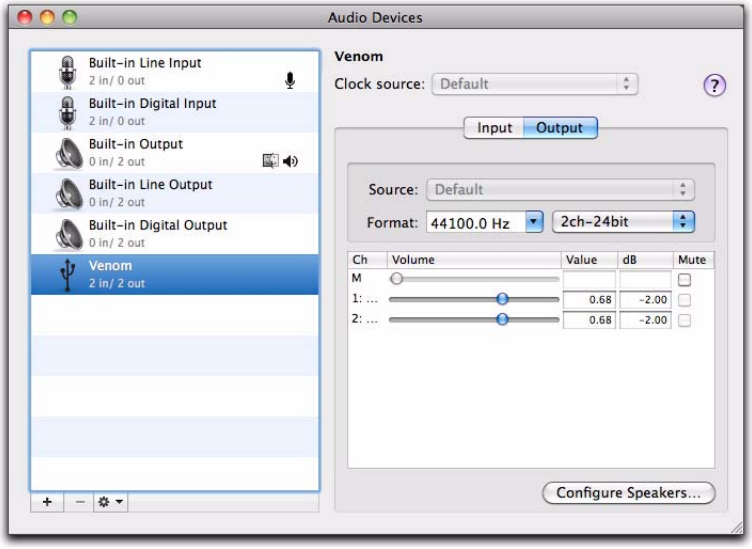
Once you have connected Venom to your Mac via USB and powered it on, you can configure the Audio MIDI Setup application to use Venom as an audio and MIDI interface.

1 Locate and launch the Audio MIDI Setup application (/Applications/Utilities/).

2 Select the Audio window (Window > Show Audio Window).

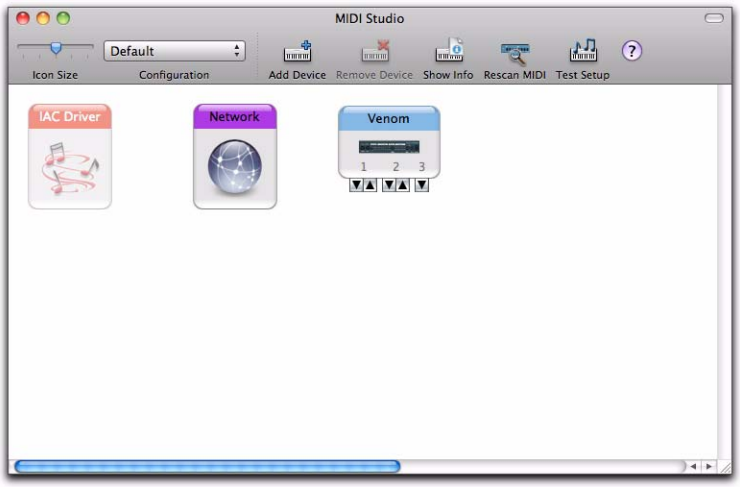
3 In the Audio Devices list, select Venom.

4 Click the Output tab and adjust the available output controls as desired.



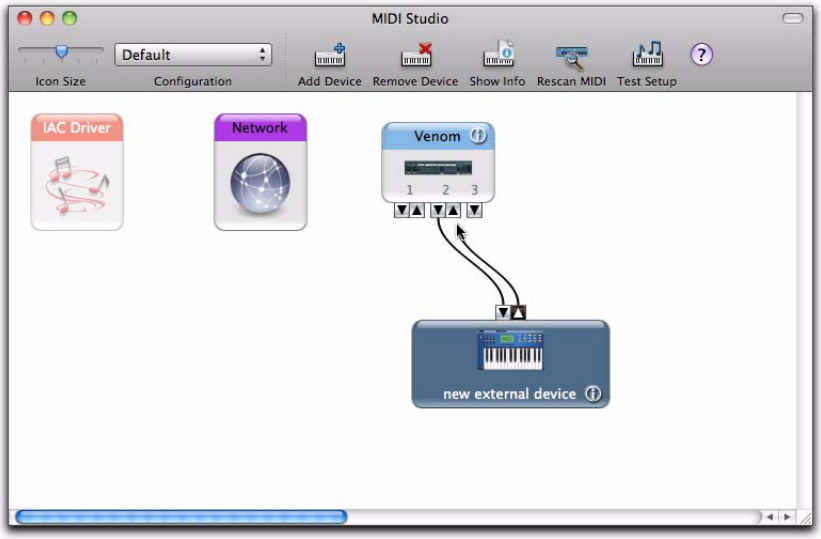

*Audio MIDI Setup, Audio Devices*

5 Select the MIDI window (Window > Show MIDI Window).




*Audio MIDI Setup, MIDI Devices*

For the device, Venom, MIDI port 2 (In and Out) corresponds to the physical MIDI In and Out ports on Venom. If you are configuring AMS to use Venom with a MIDI sound module, add a new Device in AMS, identify it as your MIDI sound module, and connect the MIDI In and Out ports of the module to the MIDI In and Out ports 2 of Venom.




*Audio MIDI Setup, new MIDI device connected to Venom*

⚠ *Refer to your DAW documentation for information about additional configuration that maybe required.*

## Configuring the M-Audio Venom Control Panel

Once you have connected Venom to your Mac via USB and powered it on, you can use the M-Audio Venom control panel to import MIDI files for the Phrase Arpeggiator, and to access information about and resources for Venom.

#### To open the M-Audio Venom control panel:

1 From the Apple menu, choose System Preferences.

2 Click the M-Audio Venom icon in the Other section of the Apple System Preferences.

*For information about the Pattern Import and About pages of the M-Audio Venom control panel and About Pages, see "Control Panel Pattern Import and About Pages" on page 31.*

## Configuring Venom on Windows

### Windows XP

**To configure Windows XP to use Venom as the audio input and output device for your computer:**

1 From the Start menu, choose Control Panel.

2 Double-click Sounds and Audio Devices.

3 Click the Audio tab.

4 From the Sound Playback Default Device pop-up menu, select Venom Out 1/2.

5 From the Sound Recording Default Device pop-up menu, select Venom In 1/2.

**To use Venom for system MIDI playback from your computer (Windows XP only):**

1 From the Start menu, choose Control Panel.

2 Double-click Sounds and Audio Devices.

3 Click the Audio tab.

4 Select one of the following from the MIDI Music Default Device pop-up menu:
- Venom Synth Out—system MIDI plays back using the Venom synthesizer.

5 Venom MIDI Out—system MIDI plays back through the Venom MIDI Out port.

⚠ *Refer to your DAW documentation for information about additional configuration that maybe required.*

### Windows Vista and Windows 7

**To configure Windows Vista or Windows 7 to use Venom as the audio input and output device for your computer:**

1 From the Start menu, choose Control Panel.

2 When viewing the control panel as icons, click Sound.

3 On the Playback tab, click to select Venom and then click Set Default.

4 Click the Recording tab; click to select the Venom, and then click Set Default.

⚠ *Refer to your DAW documentation for information about additional configuration that maybe required.*

## Configuring M-Audio Venom Properties

The Windows control panel for M-Audio Venom properties provides controls for importing MIDI files for the Phrase Arpeggiator, and also provides access to information about and resources for Venom. The Windows control panel for M-Audio Venom also provides the Latency tab for controlling hardware buffering for audio with Windows class compliant audio drivers.

#### To open the M-Audio Venom control panel:

1 From the Start menu, choose Control Panel.

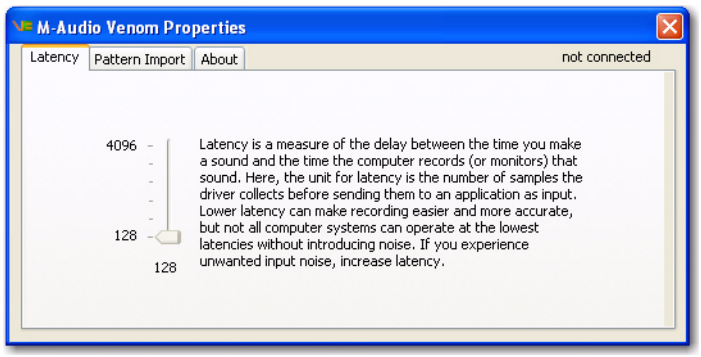
2 Double-click the M-Audio Venom icon.

*For information about the Pattern Import and About pages of the M-Audio Venom control panel and About Pages, see "Control Panel Pattern Import and About Pages" on page 31.*

#### Latency

Latency is the time it takes for an input signal to pass through your recording software and appear at the outputs. This latency can result in a delay when overdubbing to existing tracks. This slider lets you control the amount of latency by adjusting the buffer size in units of samples. The default buffer size is 256 samples.

Smaller buffer sizes result in lower latency, but may cause clicks, pops and dropouts on slower systems. If you are experiencing clicks and pops in your recording, try increasing the buffer size.




***Venom Properties, Latency tab***

*To adjust the buffer size in Pro Tools M-Powered (Windows and Mac OSX), choose Setup > Playback Engine, then choose the audio buffer size from the H/W Buffer Size pop-up menu.*

*Refer to the Pro Tools M-Powered User Guide for more information about setting the buffer size and other important settings when configuring Pro Tools M-Powered.*

*If you are using a third party DAW, you should also refer to your documentation for information about setting the buffer size and other important settings.*

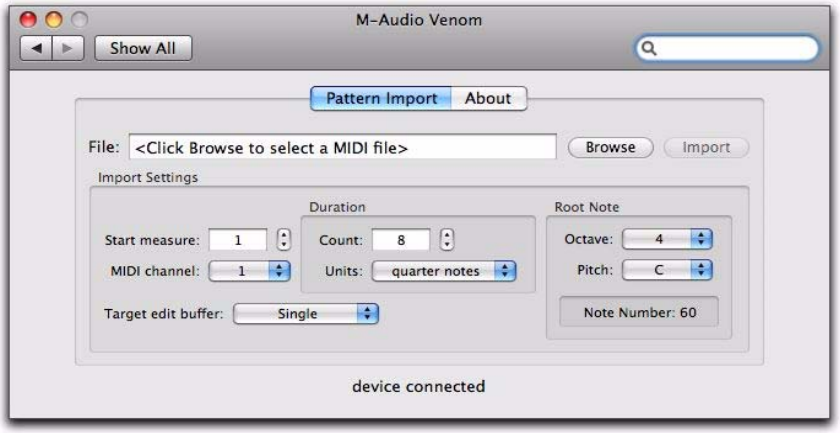
# Control Panel Pattern Import and About Pages

## Pattern Import

**To import a MIDI file for use with the Venom Phrase Arpeggiator:**

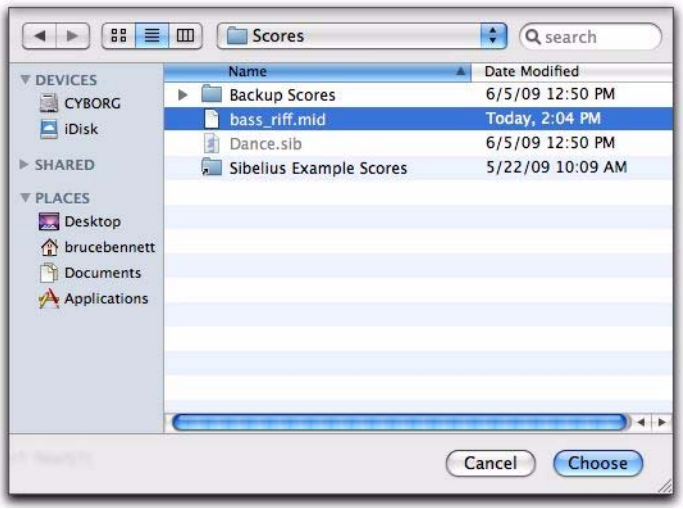
1 Open the M-Audio Venom control panel.

2 Select the Pattern Import tab to show the Pattern Import page.




*M-Audio Venom Control Panel, Pattern Import page (Mac shown)*

3 Click the Browse button to navigate to and select a MIDI file. Note that the resulting pattern will be 8 quarter notes or 16 eighth notes. The pattern should also use 96 pulses-per-quarter-note (96 ppq) to ensure accurate import and performance.




*Selecting a MIDI file for import (Mac shown)*

4 Click Choose.

5 In the Pattern Import page specify the Import Settings if necessary.

6 Click the Import button.

The MIDI file is imported to the first available Pattern preset in Bank B.

### Import Settings

Adjust the Import Settings to match the MIDI file you want to import.

**Start Measure** Lets you specify in which measure to start the pattern import.

**MIDI Channel** Lets you specify the MIDI channel that the imported data is on. For example, if you are importing from a General MIDI sequence with drums on MIDI channel 10, you would need to select that channel number to import the drum part.

The MIDI Channel setting also lets you use multiple patterns to play individual parts of a Multi patch simultaneously.

**Target Edit Buffer** Lets you specify the target edit buffer for the pattern: Single, Multi-part 1, Multi-part 2, Multi-part 3, Multi-part 4, or Multi-part 5.

#### Duration

**Count** Lets you specify the number of beats in the pattern, up to 8 for quarter notes and up to 16 for eighth notes.

**Units** Lets you specify the beat value used for the Count, either quarter notes or eighth notes.

#### Root Note

For Phrase Mode Patterns, the Root Note defines how far the Pattern transposition is offset from the notes you play on the keyboard. This can be adjusted using the Vyzex Editor.

**Octave** Lets you select the octave for the pattern's root note.

**Pitch** Lets you select the pitch (note name) for the pattern root note.

**Note Number** Displays the MIDI note number for the pattern's root note. For example if Octave is set to 4 and Pitch is set to C, the MIDI note number displayed is 60.

## About

In the M-Audio Venom control panel, click the About tab to view version information for Venom and to access online resources from M-Audio.

#### Versions

**Panel** Displays the version number for the M-Audio Venom control panel.

**Driver** Displays the version number for the M-Audio Venom driver.

**Helper** Displays the version number for the M-Audio Venom helper.

**DFU** Displays the version number for the current DFU (Device Firmware Update).

**SAM** Displays the version number for the current SAM. The SAM is the processor responsible for generating the sound of the synthesizer.

**ARM** Displays the version number for the current ARM. The ARM is the processor that handles all the memory management and user interface.

**Sound** Displays the version number for the current factory sound set.

#### Web Links

**Knowledge Base** Links to the M-Audio online knowledge base.

**Manuals** Links to M-Audio documentation online.

**Registration** Links to online product registration.

**Support** Links to online support.

**Updates** Links to the latest updates for M-Audio drivers and software.

## Using Venom with your DAW

#### (Example Using Pro Tools M-Powered)

Venom integrates seamlessly with your favorite digital audio workstation (DAW), such as Pro Tools, Logic, Cubase, or Ableton Live. Venom is a USB audio and MIDI interface that can pass audio and MIDI to and from your DAW. In this section, we'll use Pro Tools M-Powered and demonstrate how to get audio and MIDI to and from Pro Tools and Venom.

⚠ *Refer to your DAW documentation for information about additional configuration that maybe required.*

To use Venom with Pro Tools, you will need to install the included M-Audio Venom drivers (see "M-Audio Venom Drivers" on page 4).

### Playing Audio from Pro Tools through Venom

Once you have installed the M-Audio Venom drivers, you can play back audio from Pro Tools through Venom. Simply, open an existing session (such as the included demo session) and start playback; or create a new session, import some audio, and start playback.

### Recording Audio from Venom

Once you have installed the M-Audio Venom drivers, you can record audio from Venom in Pro Tools. Audio from the synthesizer and any additional audio connected to any of the inputs on the rear panel of Venom are mixed together into stereo signal for recording into Pro Tools.

#### To record audio from Venom in Pro Tools:

1. Create a new Audio track. Venom will automatically be the audio input source for the track.
2. Record enable the audio track.
3. Start recording.
4. Start playing Venom.
5. When you are finished playing, stop recording.
6. Return to the beginning of the recorded audio region and start playback to hear your recording.

💡 *Enabling Mono Record within the Vyzex Editor allows you to record the microphone and instrument input signals in mono. See "Mono Record" on page 78.*

## Recording MIDI from Venom

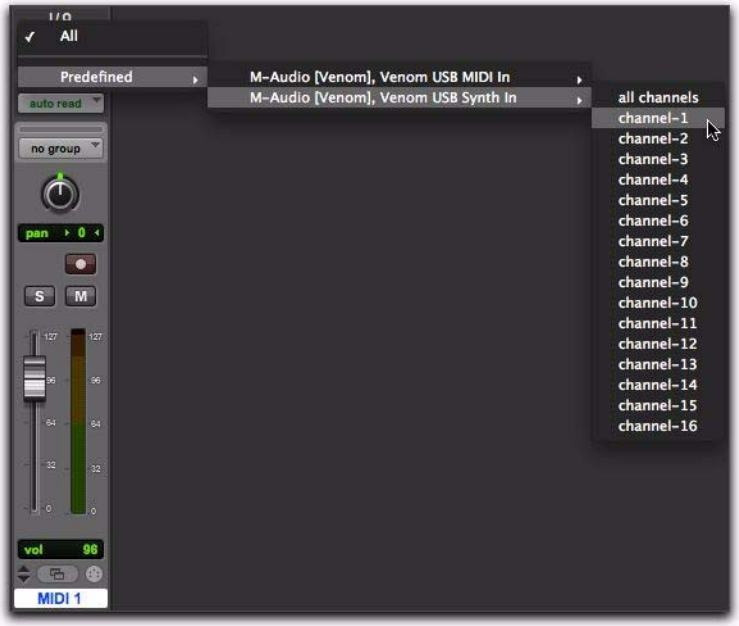
Once you have installed the M-Audio Venom drivers, you can record MIDI from Venom in Pro Tools or use it to play virtual instruments in Pro Tools. Venom can send MIDI from the keyboard and top-panel controls, or it can pass MIDI through from the external MIDI In port on the rear panel (for example, if you are using an external controller with Venom, you can record that MIDI in Pro Tools too).

#### To record MIDI from Venom in Pro Tools:

1 Create a new MIDI or Instrument track. By default, Pro Tools receives MIDI from all connected sources.

2 From the MIDI Input selector, select one of the following:

- All, select this if you want to record MIDI from all sources.
- Venom USB MIDI In and the MIDI channel number, select this if you want to record MIDI from only the MIDI In port on the rear panel of Venom.
- Venom USB Synth In and the MIDI channel number, select this if you want to record MIDI from only the Venom keyboard and top panel controls.




*Selecting Venom USB Synth In as the input to a MIDI track in Pro Tools*

3 Record enable the MIDI or Instrument track.

4 Start recording.

5 Start playing Venom or your external MIDI controller (depending on what you selected from the MIDI Input selector).

6 When you are finished playing, stop recording.

## Playing Venom from MIDI in Pro Tools

Once you have installed the M-Audio Venom drivers, you can send MIDI from a Pro Tools MIDI or Instrument track to play the Venom synthesizer.

#### To play Venom from MIDI tracks in Pro Tools:

**1** Choose the MIDI track you just used to record MIDI from Venom (see "Recording MIDI from Venom" on page 34).

**2** From the MIDI Output selector, select one of the following:

- Venom USB Synth Out. Select this if you want to send MIDI to the synthesiser.
- Venom USB MIDI Out. Select this if you want the MIDI track you've recorded to play sounds within a hardware synthesizer or sound module connected to the MIDI Out port on the back panel of Venom. You will also need to make sure the MIDI Out mode for Venom is set to USB.

*For more information about using Venom with hardware sythesizers refer to "Venom MIDI Connections" on page 15. Refer to "Selecting MIDI Output" on page 24 for more information about MIDI Out selection.*

*When playing a Multi Program from Pro Tools, assigning different MIDI channels from Pro Tools will play the corresponding Multi Part. This way you can play multi-timbral performances on Venom from Pro Tools.*

**3** Start playback.

# Chapter 5: Advanced Synthesizer and Effects Editing

## Vyzex Venom Editor

The Vyzex Venom Editor lets you can edit every available parameter in Venom Single and Multi Program patches. It also lets you edit Global parameters, manage patch banks, and configure Venom MIDI settings. When Venom is connected to your computer using USB, the Vyzex Venom Editor lets you program all of the parameters of Venom (including those not available from the top panel controls). The Vyzex Venom Editor/Librarian also lets you store Venom patches on your computer. The Vyzex Venom Editor is designed, built, and supported by Psicraft Designs, Inc. (http://support.vyzor.com).

When using Vyzex in Direct mode, changes made in Vyzex Venom affect the selected Single or Multi Program on Venom in real-time. The Vyzex Venom Editor lets you create and save programs and banks of programs on your computer and load them into the selected program or bank on Venom. However, you must save the programs on Venom separately after editing the selected program in the Vyzex Venom Editor in order for it to be available for recall on Venom.

*Refer to Chapter 3, "Using Venom Standalone" for more information about saving programs on Venom.*

**To install the Vyzex Venom Editor:**

1 Insert the Venom disc into your computer or download the latest version of the Vyzex Venom Editor from our website (www.m-audio.com).

2 Double-click the Vyzex Venom installer application:

- Vyzex Venom.pkg (Mac)

– or –

- Vyzex Venom Setup.exe (Windows)

3 Follow the on-screen instructions.

**To launch the Vyzex Venom Editor:**

1 Ensure that Venom is powered on and connected to your computer using USB.

2 On your computer, locate and double-click the Vyzex Venom Editor.

## Vyzex Venom Editor Window

The Vyzex Venom Editor window lets you access and edit various Venom controls and parameters from your computer.

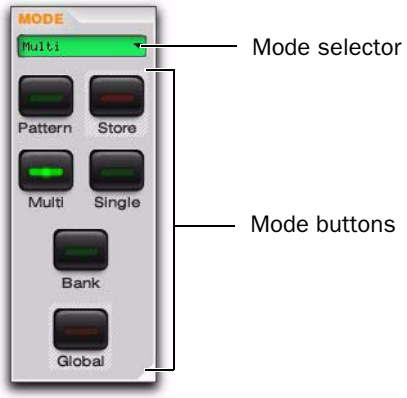

*Figure 8. Vyzex Venom Editor application window, Multi Parts controls shown*

## Common Controls

The Vyzex Venom Editor provides several common controls along the left side and on the bottom of the windows regardless of which Mode is selected. Specific controls for the selected Mode are available in the middle part of the window. These controls mirror the physical buttons and knobs on the top panel of Venom (see "Top Panel Overview" on page 5).

### Mode

Use the Mode buttons to select a mode for editing (such as Multi or Single). The main part of the window updates to display the specific controls for the selected mode.




*Mode buttons*

#### Mode Selector

The Mode selector lets you select which mode you want to display for editing. Several of the options are also available by clicking the corresponding Mode or Multi Part button. The complete list of options available from the Mode selector include:

- Single
- Pattern
- Multi
- Multi-Single1
- Multi-Single2
- Multi-Single3
- Multi-Single4
- Multi-Pattern1
- Multi-Pattern2
- Multi-Pattern3
- Multi-Pattern4
- Global

#### Pattern

When selected, the Pattern button provides access to the Pattern Parameter Table controls.

#### Store

The Store button lets you save the current settings for the selected Pattern, or Multi or Single program.

**To save the current settings for the selected Pattern, or Multi or Single program:**

1 Configure the settings for the selected Pattern, or Multi or Single program as desired.

2 Click the Store button.

3 From the Store To pane, select the Bank and Program number to which you want to save the current settings.


*Saving the current settings for the selected Multi program*

4 Click Store.

#### Single

When selected, the Single button provides access to the Single Program controls (see "Single Program Editor" on page 41).

#### Multi

When selected, the Multi button provides access to the Multi Program controls (see "Multi Program Editor" on page 65).

#### Bank

When selected, the Bank button provides access to the Bank Manager for the selected mode: Pattern, Multi, or Single (see "Bank Manager" on page 79).

#### Global

When selected, the Global button provides access to the Global Parameter Table (see "Global Editor" on page 77).

## Arp (Arpeggiator)

The Arp buttons in Vyzex Venom provide the same functionality as the top panel buttons (see "Phrase Arpeggiator" on page 6).

## Octave

The Octave buttons let you shift the keyboard up or down one octave at a time, up to three octaves in either direction.

*Refer to "Global Editor" on page 77 for more information about transposing the keyboard in octaves or semitones.*

## Pitch Bend and Modulation

The Pitch Bend and Modulation wheels Vyzex Venom provide the same functionality as the top panel controls (see “Pitch Bend and Modulation Wheels” on page 6).

## Performance Controls

The Performance controls in Vyzex Venom provide the same functionality as the top controls (see “Performance Control Matrix” on page 7). When adjusting the Performance Controls for the selected Single Program, these controls override the corresponding Single Program Editor controls. When adjusting the Performance Controls for the selected Multi Program, these controls override the corresponding Multi Part Program Editor controls for the selected Multi Parts.

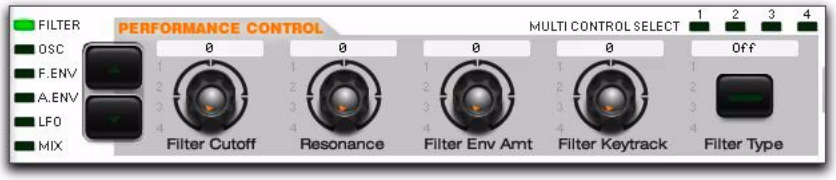



*Figure 9. Performance Controls*

## Single Program Editor

The Single Program pages provide controls for editing Venom Single Program parameters.

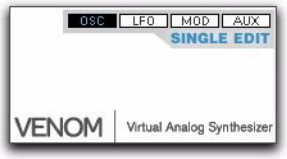
**To view the Single Program Editor:**

- Click the Single button so that the button's LED is lit.


*Figure 10. Single Program, OSC Page*

**To view different Single Program Editor pages:**

- Click the OSC, LFO, MOD, or AUX button to view the corresponding page.




***Single Program Editor Page buttons (OSC, LFO, MOD, AUX)***

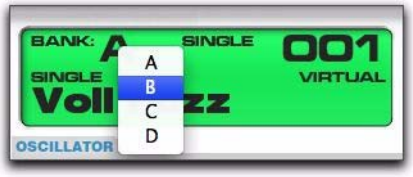
**To select a Single Program for editing, do one of the following:**

- Use the Bank Manager to select the Single Program preset you want (see“Bank Manager” on page 79).


*Selecting a Single Program using the Bank Manger*

– or –

- Do the following:
  - Right-click (or double-click) the Bank display and select Bank A, B, C, or D.
  - Right-click (or double-click) the Program Number display, select the Single Program you want from the list and click OK.




*Right-clicking to select the Bank*

**Program Name**

The Program Name field lets you type in a name for the currently selected Single Program. Program names are limited to 10 characters or less and show up in the Venom LCD display when updated.

**To edit the currently selected Venom Single Program name:**

1. Click in the Program Name field.
2. Type a name of 10 characters or less.
3. Click OK.

## OSC Page

The Oscillator (OSC) page of the Single Program Editor provides access to the Oscillator, Mix, Filter, Envelope, Voice, and Pitch controls for the selected Venom Single Program.


*Single Edit, OSC page controls*

## Oscillator Controls


*Oscillator controls*

### Oscillator 1


*Oscillator 1 controls*

Oscillator 1 is the main oscillator. It can be used as the carrier oscillator in a simple FM algorithm with Oscillator 3 acting as the modulator, it can Ring Modulated by Oscillator 2, and it can serve as the master for synchronizing the waveform start of either or both Oscillators 2 and 3.

**Waveform** Lets you select the Oscillator waveform from a wavetable (or using NRPN 017AH).

**Keytrack** Lets you enable or disable key tracking for the oscillator. When Keytrack is enabled, the pitch of the oscillator is determined by the MIDI note number (before any alteration by the Coarse and Fine tuning settings). When Keytrack is disabled, the pitch of the oscillator is determined solely by the Coarse and Fine tuning settings and remains constant regardless of the MIDI note number.

**Coarse** Adjusts the bipolar tuning of the oscillator from concert pitch (A = 440 Hz). The range is from –36 semitones to +36 semitones. The Coarse Tune for Oscillator 1 can also be edited using MIDI CC 29.

**Fine** Adjusts the bipolar tuning of the oscillator from concert pitch (A = 440 Hz). The range is from –50 to +50 Cents. The Fine Tune for Oscillator 1 can also be edited using MIDI CC 61.

**Osc3 > FM** Determines the amount of frequency modulation (FM) applied to Oscillator 1 from Oscillator 3. Depending on the interval (frequency ratio) between the oscillators and the amount of frequency modulation applied, you can greatly increase the harmonic complexity of a sound with FM. Use this with the Sync control to enhance harmonic complexity even more. You can adjust the amount of frequency modulation using the Osc 3 > 1 FM knob on the top panel Performance Control matrix (knob 1, row 2), as well as using MIDI CC 50.

**Waveshape** Controls the Venom Waveshaper function as applied to Oscillator 1, which can be used for PWM (pulse width modulation) depending on the chosen waveform. The width of the pulses is determined by the threshold set by the Waveshape parameter (Off, 0–127). If the input waveform amplitude is greater than the positive threshold level, the output is set to full positive amplitude. If the input waveform amplitude is less than the positive threshold, the output is set to full negative amplitude. When used with a sawtooth wave, modulating the Waveshape parameter generates classic PWM, but we encourage you to try other input waveforms as they can produce interesting and varied results.

*Try using the Waveshape control with a Sawtooth wave (rather than a Square wave) for the most audible effects.*

#### Oscillator 2

Oscillator 2 has all of the same parameters as Oscillator 1, except for the FM Amount and Waveshape settings. Additionally, Oscillator 2 has an Oscillator Sync toggle.


*Oscillator 2 controls*

**Waveform** Lets you select the Waveform for Oscillator 2. The Waveform can also be selected using NRPN 017BH (see "Oscillator 1" on page 43).

**Keytrack** (See "Oscillator 1" on page 43.)

**Coarse** Can be edited using MIDI CC 30 (see "Oscillator 1" on page 43).

**Fine** Can be edited using MIDI CC 62 (see "Oscillator 1" on page 43).

**Osc1 Sync** When enabled, synchronizes the waveform start of Oscillator 2 to the waveform start of OSC 1.

#### Oscillator 3

Oscillator 3 has all of the exact same parameters as Oscillator 2.


*Oscillator 3 controls*

**Waveform** Can be edited using NRPN 017CH (see “Oscillator 1” on page 43).

**Keytrack** (See “Oscillator 1” on page 43.)

**Coarse** Can be edited using MIDI CC 31 (see “Oscillator 1” on page 43).

**Fine** Can be edited using MIDI CC 63 (see “Oscillator 1” on page 43).

**Osc2 Sync** Synchronizes the waveform start of Oscillator 3 to the waveform start of OSC 1.

#### Start Mod and Drift Controls

The Start Mod and Drift controls apply to all three oscillators.


*Oscillator Start Mod and Drift controls*

**Start Mod** Lets you set a range for the randomization of the start point in the waveform when a note is triggered. The Start Mod parameter varies the sample start point for each oscillator randomly in order to emulate the character of an analog synthesizer’s free-running oscillators. The larger the value, the greater the possible range of start point modulation within the sample. This can be especially useful with percussive sounds to vary the character of the attack.

**Drift** Lets you set a range for the randomization of the initial pitch of each oscillator when a note is triggered. The pitch variances are fixed for the duration of the note, but they are all recalculated randomly for each new note. This emulates the pitch variances of analog oscillators. The larger the value, the greater the possible range of pitch variance.

*Using a smooth sample and hold shape from one of the LFOs results in a constantly changing randomized pitch variance.*

## Mix Controls


*Mix controls*

The Mix section provides controls for mixing the relative volumes of the three oscillators, the amount of Ring Modulation of Oscillator 2 on Oscillator 1, and also any external input into Venom (such as a Microphone or Instrument) before the signal is fed into the Venom Filter.

**Osc1** Determines the level of Oscillator 1 that is mixed with other Pre-Filter audio sources and sent to the filter. The Mix Level for Oscillator 1 can be edited using MIDI CC 56.

**Osc2** Determines the level of Oscillator 2 that is mixed with other Pre-Filter audio sources and sent to the filter. The Mix Level for Oscillator 2 can be edited using MIDI CC 57.

**Osc3** Determines the level of Oscillator 3 that is mixed with other Pre-Filter audio sources and sent to the filter. The Mix Level for Oscillator 3 can be edited using MIDI CC 58.

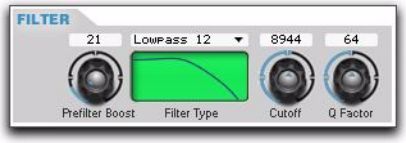
**Ring** Determines the level of Ring Modulation that is mixed with other Pre-Filter audio sources and sent to the filter. The inputs to the Ring Modulator are Oscillators 1 and 2, which are tapped before the Oscillator Level parameters. Adjust the amount of ring modulation from the top-panel control or using MIDI CC 51.

**External** Determines the level of the selected External Audio Input (such as a Microphone or Instrument connected to the Venom back-panel inputs) that is mixed with other Pre-Filter audio sources and sent to the filter. The Mix Level for External Audio Input can be edited using MIDI CC 54.

**External Source** Determines which physical input source (0 = None, 1 = Mic/Aux Left, 2 = Line/Aux Right, 3 = Analog Both, 4 = USB Left, 5 = USB Right, and 6 = USB Both) is routed to the External Audio Input level control. The External Audio Input Source can be edited using MIDI CC 55.

## Filter Controls

The Filter section of Venom processes the combined output from the Oscillators section as well as any external audio input (as set in the Mix section).




*Filter controls*

**Pre-Filter Boost** Lets you boost the signal level fed from the Pre-Filter Mixer into the Filter stage. When set to 0, no boost is applied. When set to 127, a +24 dB boost is applied.

**Mode** Lets you select from the various filter types available in Venom: 2-Pole Low Pass (LP12), 4-Pole Low Pass (LP24), 2-Pole Band Pass (BP12), 4-Pole Band Pass (BP24), 2-Pole High Pass (HP12), and 4-Pole High Pass (HP24). Press the Filter Type button on the top panel Performance Control matrix (row 1) to cycle through the different filter types. You can also select the Filter Type using MIDI CC 70. Send one of the following values for the corresponding Filter Type: 0 = bypass, 1 = 12 dB LP, 2 = 12 dB BP, 3 = 12 dB HP, 4 = 24 dB LP, 5 = 24 dB BP, and 6 = 24 dB HP).


*Selecting the Filter mode*

**Cutoff** Determines the initial cutoff frequency (20 Hz–16 kHz) of the filter. Adjust the Cutoff frequency using the Filter Cutoff knob on the top panel Performance Control matrix (knob 1, row 1), or using MIDI CC 74 (MIDI CC 3 provides coarse control and MIDI CC 35 provides fine control).

**Q Factor** Controls how much frequencies near the Cutoff frequency are emphasized, and how much those that are farther away are suppressed. Higher resonance settings add a characteristically ringing, nasal quality to sounds. Adjust the Q Factor using the Resonance knob on the top panel Performance Control matrix (knob 2, row 1), or using MIDI CC 71.

## Envelope Controls

Venom provides 3 separate envelope generators (EG). Envelopes are time based modulation sources that react to how the keys are played. All envelopes can be used as a modulation sources for a variety of destinations (see Modulation Matrix). EG 1 is “hard wired” to Amplitude and as such always effects Amplitude in addition to any other modulation destination to which it may be assigned. EG 2 is typically applied to the Filter and EG 3 is freely assignable using the Modulation Matrix.


*Envelope controls*

**Attack** Sets the amount of time (2 ms to 20 sec.) it takes for the envelope to go from minimum level (0) to maximum level. Attack is the first stage of the envelope and occurs right as the key is pressed. You can use the following MIDI CC numbers to edit the Attack Time for the corresponding envelope generator: EG 1 = MIDI CC 73, EG 2 = MIDI CC 20, and EG 3 = MIDI CC 25.

**Hold** Sets the amount of time (2 ms to 20 sec.) the envelope holds at maximum level before entering the Decay stage. Hold is the second stage of the envelope and occurs if the key is still held after the Attack stage. You can use the following MIDI CC numbers to edit the Hold Time for the corresponding envelope generator: EG 1 = MIDI CC 28, EG 2 = MIDI CC 21, and EG 3 = MIDI CC 26.

**Decay** Sets the amount of time (0–20 sec.) it takes for the envelope to go from maximum level to the Sustain level. Decay is the third stage of the envelope and occurs if the key is still held after the Hold stage. You can use the following MIDI CC numbers to edit the Decay Time for the corresponding envelope generator: EG 1 = MIDI CC 75, EG 2 = MIDI CC 22, and EG 3 = MIDI CC 27.

**Sustain** Sets the level that the envelope holds at while the key is held. Sustain is the fourth stage of the envelope and continues as long as the key is held. You can use the following MIDI CC numbers to edit the Sustain Level for the corresponding envelope generator: EG 1 = MIDI CC 79, EG 2 = MIDI CC 23, and EG 3 = MIDI CC 76.

**Release** Sets the amount of time (2 ms to 20 sec.) it takes for the envelope to go from the Sustain Level to minimum level (0). Release is the fifth and final stage of the envelope and occurs when the key is let up. You can use the following MIDI CC numbers to edit the Release Time for the corresponding envelope generator: EG 1 = MIDI CC 72, EG 2 = MIDI CC 24, and EG 3 = MIDI CC 77 (range 0–126).

Setting Release for ENV 2 or ENV 3 to 127 results in an infinite release time, or “Release Hold.”

## Voice Controls

### Voice Mode

**Poly Voice Mode** In Poly Voice mode, each note played on the keyboard or using MIDI triggers a voice, up to the limit of 12-voice polyphony. Voices continue to sound until their Amplitude Envelope releases to silence, or until they are stolen by new voice triggers according to voice allocation. If Unison Mode is enabled, the additional voices play in parallel to the original voices and follow the same envelope and pitch behavior, up to the limit of 12-voice polyphony.

**Mono Voice Mode** The primary behavior in Mono (or "Legato") Voice Mode is that only one note plays at a time in the Single Program, no matter how many other note triggers are received. If notes are played in legato fashion (next note is triggered before the first one is released), the envelopes do not re-trigger, but continue as if the original note was still being held. The pitch of the oscillators follows the keyboard or MIDI note value from the last received trigger. If Unison Mode is enabled, the additional voices play in parallel to the original voice and follow the same envelope and pitch behavior.


*Voice controls*

**Unison** Turns the Unison option on and off. Unison is an additional mode that lets you stack a number of voices on one note. The Unison option can be enabled (or disabled) in either Poly or Mono Voice Modes.

**UniVoices** Selects the maximum number of voices to be layered on each note. When more than one note is played in Poly Voice Mode, the voices are divided equally between the held notes as shown in Table 6.

*Table 6. Voicing in Poly Mode with Unison enabled*

| Number of notes played | Max. number of polyphonic voices |
|---|---|
| 1 | 12 |
| 2 | 6 |
| 3 | 4 |
| 4 | 3 |
| 5 | 2 |
| 6 | 2 |
| 7 | 1 |
| 8 | 1 |
| 9 | 1 |
| 10 | 1 |
| 11 | 1 |
| 12 | 1 |

**Detune** Detunes (0–100 cents) the layered notes up and down equally from a central position. Multiple voice pitches "fan out" within the detune range and are spaced equidistant from each other in order to maintain a correct pitch center.

**Transpose** Transposes the currently selected Single Program up or down +/– 64 semitones.

**Fine Tune** Transposes the currently selected Single Program up or down +/– 50 cents.

## Pitch Controls


*Pitch controls*

**Glide** Turns portamento on and off without affecting the portamento time. You can also press the Glide On/Off button on the top panel Performance Control matrix (row 5), or turn Glide On or Off using MIDI CC 65.

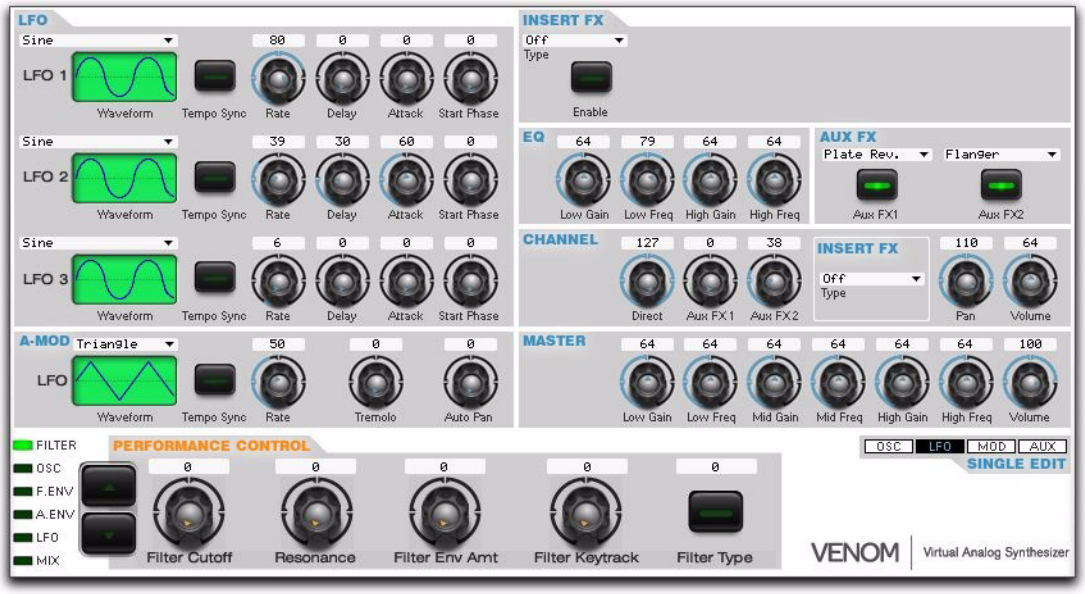
**Glide Rate** In Poly Voice Mode Glide Rate determines the rate at which the current voice pitch reaches the pitch of the next played note. The overall time it takes to complete the glide is based on the distance between the two notes. When Glide Rate mode is active, you can still control the value with the Glide Time knob on the top panel Performance Control matrix (knob 4, row 5), or using MIDI CC 5.

**Glide Time** When Mono Voice Mode is selected, you can choose between Rate and Time glide modes. Glide Rate is described above. Glide Time determines the time it takes for the current voice pitch to reach the pitch of the next played note regardless of the distance between them. The range is from 2 milliseconds to 10 seconds. You can adjust the Glide Time knob on the top panel Performance Control matrix (knob 4, row 5), or using MIDI CC 5.

**Bend Range** Controls how much the frequency of all the oscillators is affected by pitch bend messages. The range is +63 and -64 semitones bipolar. The Pitch Bend Range can be edited using RPN 0000.

## LFO Page

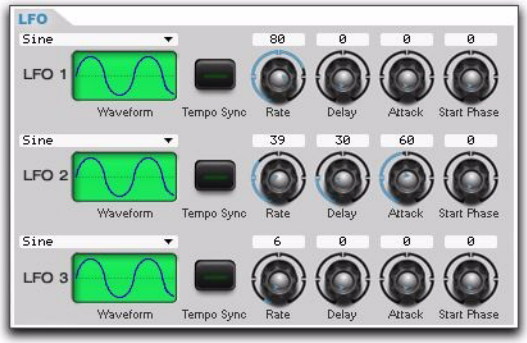
The LFO page of the Single Program Editor provides access to the LFO, Amp Mod, Insert FX, EQ, Aux FX, Insert FX, and Master controls for the selected Venom Single Program.




*Single Edit, LFO page controls*

## LFO Controls

Venom provides three Low Frequency Oscillators (LFOs) as periodic modulation sources. Note that LFO 3 is monophonic (calculated across all voices), while LFOs 1 and 2 are polyphonic (calculated individually for each voice played). LFOs can be set to be unipolar in the Modulation Matrix, which offsets the waveform output so that it is completely positive. The range of the LFO can also be set in the modulation matrix with a Fine range for vibrato, and a Wide range for more pronounced effects.




*LFO controls*

**LFO Waveform** Sets the waveform for the LFO. You can select from the following waveforms: Sine, Sine+, Triangle, Saw, Square, Sample and Hold, Linear Sample and Hold, Logarithmic Sample and Hold, Logarithmic Square, Exponential Square, Logarithmic Up Saw, and Exponential Up Saw.

You can change the Waveform for LFO 2 by adjusting the LFO 2 Shape knob on the top panel Performance Controls matrix (knob 3, row 5), or using MIDI CC 15. The Waveform for LFO 1 and LFO 3 can be changed using MIDI CC 87 and MIDI CC 85 respectively. The following values select the corresponding waveform: 0 = Sine, 1 = Sine+, 2 = Triangle, 3 = Saw, 4 = Square, 5 = Sample and Hold, 6 = Linear Sample and Hold, 7 = Logarithmic Sample and Hold, 8 = Logarithmic Square, 9 = Exponential Square, 10 = Logarithmic Up Saw, and 11 = Exponential Up Saw.

**Tempo Sync** Synchronizes the LFO cycle to note divisions of Tempo. When this parameter is on, the Rate parameter is measured in musical note divisions (such as 1/8-note or 1/16-note).

**Rate** Determines the frequency (0.01 Hz–30 Hz) of the LFO. You can change the Rate for LFO 1 by adjusting the LFO 1 Rate knob on the top panel Performance Controls matrix (knob 1, row 5), or using MIDI CC 86; and for LFO 2 by adjusting the LFO 2 Rate knob on the top panel Performance Controls matrix (knob 2, row 5), or using MIDI CC 14. The Rate for LFO 3 can be changed using MIDI CC 84.

When changing the Rate using MIDI CC, values of 0–110 specify a fixed LFO rate. Values of 111 and higher specify a tempo synchronized ratio as follows (expressed in rhythmic note values where the quarter note is the beat): 111 = 1/32, 112 = 1/24 (or triplet sixteenth), 113 = 1/16, 114 = 1/12 (or triplet eighth), 115 = 1/8, 116 = 1/6 (or triplet quarter), 117 = 1/4, 118 = 1/3 (or triplet half), 119 = 1/2, 120 = 1/1, 121 = 2/1, 122 = 3/1, and 123 = 4/1.

**Delay** Determines the amount of time (0–20 sec.) the onset of the LFO is delayed after the voice is triggered. LFO Delay is not available in LFO 3. The LFO Delay for LFO 1 and 2 can be edited using MIDI CC 90 and MIDI CC 18 respectively.

**Attack** Sets an attack time (0–20 sec.) from 0 level to maximum level of the LFO. The attack time begins at the onset of the LFO. Ramp is not available in LFO 3. The LFO Ramp for LFO 1 and 2 can be edited using MIDI CC 89 and MIDI CC 17 respectively.

**Start Phase** Sets the starting phase (0–359 Degrees) of the LFO wave, which begins at the onset of the LFO. Start Phase is not available in LFO 3. The LFO Start Phase for LFO 1 and 2 can be edited using MIDI CC 88 and MIDI CC 16 respectively.

## A-MOD

The A-Mod section provides amplitude modulation controls for Tremolo and Auto Pan effects.The Tremolo and Auto Pan effects are available on any Single Program and are independently available on each Multi Part of a Multi Program.


*A-MOD controls*

**Waveform** Selects the shape (Sine, Triangle, Saw Up, Saw Down, or Square) of the LFO used for controlling the Tremolo and Auto Pan effects.

**Tempo Sync** Synchronizes of the Rate of the LFO to the current tempo.

**Rate** Adjusts the rate (0.01 Hz–30 Hz) of the LFO used for controlling the Tremolo and Auto Pan effects.

**Tremolo** Adjusts the amount (0–100%) of the Tremolo effect.

**Auto Pan** Adjusts the amount (0–100%) of the Auto Pan effect.

## Insert Effect

The Insert Effect lies between the voice output of the synthesizer engine and the Bus Effect Send. The following effects are available: EQ Bandpass, Compressor, Auto Wah, Distortion, and Reducer. Select the desired effect from the Type selector. The controls for the selected effect are shown in the Insert FX section. Effects parameters can also be edited using MIDI NRPN messages. For a complete list of NRPN messages for Venom, see Appendix A, "MIDI Specifications."

### EQ Bandpass


*Insert Effect, EQ Bandpass*

**Gain** Sets the level of boost or attenuation (–12 dB to +12 dB) of the EQ band.

**Q Factor** Sets the Q factor, or "resonance," amount (0.5–4.0) of the EQ frequency.

**Frequency** Sets the frequency (300 Hz–10 kHz) of the EQ band.

### Compressor


*Insert Effect, Compressor*

**Attack** Controls the time (2 ms–200 ms) it takes for the compressor to reach its full compression ratio after the signal has crossed the threshold.

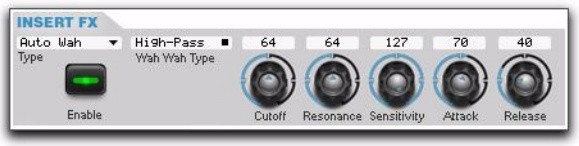
**Release** Controls the time (100 ms–5 sec) it takes for the compressor to return to 1:1 ratio after the signal falls below the threshold.

**Threshold** Sets the threshold (0–100%) at which compression begins to take effect.

**Ratio** Sets the ratio (1:1–20:1) of the input signal to the compressed output signal.

**Makeup Gain** Controls the output makeup gain (0–100%) of the compressor.

### Auto Wah




*Insert Effect, Auto Wah*

**Type** Selects either a High-Pass or Low-Pass filter for the Auto Wah effect.

**Cutoff** Determines the initial cutoff frequency (20 Hz–16 kHz) of the filter.

**Resonance** Determines the resonance level (0–100) of the filter.

**Sensitivity** Sets the amount (–100 to +100%) that the triggered envelope modulates the filter cutoff frequency, and is based on the amplitude of the input signal.

**Attack** Adjusts the attack time (2 ms–2 sec) of the triggered envelope.

**Release** Adjusts the release time (2 ms–2 sec) of the triggered envelope.

#### Distortion


*Insert Effect, Distortion*

**Type** Selects the type of distortion (Overdrive, Distortion, or Fuzz).

**Depth** Adjusts the input level (0–100%) or "drive" of the effect.

**Pre Gain** Adjusts the input level (0–100%) of the effect.

**Post Gain** Adjusts the output level (0–100%) of the effect.

**High Cutoff** Adjusts the corner frequency of a 24 dB low pass filter on the output of the effect.

#### Reducer


*Insert Effect, Reducer*

**Bit-Depth** Adjusts the Bit-Depth of the effect. Reducing the bit-depth increases the amount of square wave distortion applied to the audio signal.

**Sample Rate** Adjusts the sample rate (44.1 kHz–1.0 kHz) of the effect. Reducing the sample rate increases aliasing and the degradation of the audio signal.

## Channel

The Channel controls provide output channel mixing controls for the currently selected Single Program. These settings are useful for balancing the effects and the direct synth signal for the Single Program, as well as providing output channel EQ.


*Channel controls*

**Direct** Sets the amount of dry (*un-effected*) signal for the currently selected Single Program.

**Aux 1** Determines the level of Aux 1 processing for the currently selected Single Program. You can change the send level to Aux 1 using the FX Send 1 Level knob on the top-panel Performance Control matrix (knob 3, row 6).

**Aux 2** Determines the level of Aux 2 processing for the currently selected Single Program. You can change the send level to Aux 2 using the FX Send 2 Level knob on the top-panel Performance Control matrix (knob 4, row 6).

**Insert FX Type** Selects the type of Insert effect for the channel output (see "Insert Effect" on page 53).

**Pan** Determines the panning location of the signal in the stereo field for the currently selected Single Program.

**Volume** Sets the overall output level for the currently selected Single Program.

## Master

The Master section provides controls for master channel gain and EQ.


*Master controls*

### Master EQ

The Master EQ is applied on the main output after the Aux 1 and 2 Effects Returns and before the Main output.

**Low Gain** Boosts or attenuates (–12 dB to +12 dB) the low-shelf EQ below the corner frequency.

**Low Freq** Sets the corner frequency (20 Hz–1 kHz) of the low-shelf EQ.

**Mid Gain** Boosts or attenuates (–12 dB to +12 dB) the Mid EQ band.

**Mid Freq** Sets the center frequency (300 Hz–10 kHz) of the Mid EQ band.

**High Gain** Boosts or attenuates (–12 dB to +12 dB) the high-shelf EQ above the corner frequency.

**High Freq** Sets the corner frequency (500 Hz–10 kHz) of the high-shelf EQ.

#### Volume

The Master Volume gain stage follows the Master EQ. This gain stage lets you balance the volume of Single Programs to ensure that all of your Programs are of consistent volume. This is especially useful when using Multi Programs. The Master Volume gain stage is not accessible from the top panel hardware controls, and is controllable only over MIDI.

## MOD Page

### Mod Matrix

The modulation matrix provides definable modulation routes drawing from a list of Modulation Sources and Destinations. The modulation route connects the Source to the Destination and provides a value for the Amount of modulation. There are 16 routes available, with controls for selecting the modulation source and destination, and for setting the amount of modulation.

⚠ *You cannot use a polyphonic source to modulate a monophonic destination. Unsupported routings are hidden by the Vyzex Editor based on the source and destination selections.*


*Modulation Matrix controls*

**Source** Selects the Source (see Table 7 below) of the modulation route.

*Table 7. Modulation Sources*

| *Table 8. Mod Source* | *MIDI Message* |
|---|---|
| Env 1 | NRPN01A0H–NRPN01AFH: 1 |
| Env 2 | NRPN01A0H–NRPN01AFH: 2 |
| Env 3 | NRPN01A0H–NRPN01AFH: 3 |
| Env 1 Bipolar | NRPN01A0H–NRPN01AFH: 4 |
| Env 2 Bipolar | NRPN01A0H–NRPN01AFH: 5 |

*Table 7. Modulation Sources*

| | |
|---|---|
| Env 3 Bipolar | NRPN01A0H–NRPN01AFH: 6 |
| LFO 1 Wide Bipolar | NRPN01A0H–NRPN01AFH: 13 |
| LFO 2 Wide Bipolar | NRPN01A0H–NRPN01AFH: 14 |
| LFO 3 Wide Bipolar | NRPN01A0H–NRPN01AFH: 15 |
| LFO 1 Wide Unipolar | NRPN01A0H–NRPN01AFH: 16 |
| LFO 2 Wide Unipolar | NRPN01A0H–NRPN01AFH: 17 |
| LFO 3 Wide Unipolar | NRPN01A0H–NRPN01AFH: 18 |
| LFO 1 Fine Bipolar | NRPN01A0H–NRPN01AFH: 7 |
| LFO 2 Fine Bipolar | NRPN01A0H–NRPN01AFH: 8 |
| LFO 3 Fine Bipolar | NRPN01A0H–NRPN01AFH: 9 |
| LFO 1 Fine Unipolar | NRPN01A0H–NRPN01AFH: 10 |
| LFO 2 Fine Unipolar | NRPN01A0H–NRPN01AFH: 11 |
| LFO 3 Fine Unipolar | NRPN01A0H–NRPN01AFH: 12 |
| Velocity (positive) | NRPN01A0H–NRPN01AFH: 19 |
| Velocity (negative) | NRPN01A0H–NRPN01AFH: 20 |
| Keytrack | NRPN01A0H–NRPN01AFH: 21 |
| Mod Wheel | NRPN01A0H–NRPN01AFH: 22 |
| Pitch Bend Wheel | NRPN01A0H–NRPN01AFH: 23 |
| Channel Aftertouch | NRPN01A0H–NRPN01AFH: 24 |
| Expression pedal (positive) | NRPN01A0H–NRPN01AFH: 25 |
| Expression pedal (negative) | NRPN01A0H–NRPN01AFH: 26 |
| Sustain | NRPN01A0H–NRPN01AFH: 27 |
| Channel Touch (negative) | NRPN01A0H–NRPN01AFH: 29 |
| Keytrack (negative) | NRPN01A0H–NRPN01AFH: 30 |
| Mod Wheel (negative) | NRPN01A0H–NRPN01AFH: 31 |
| Sustain (negative) | NRPN01A0H–NRPN01AFH: 32 |
| None | NRPN01A0H–NRPN01AFH: 0 |

**Destination** Selects the Destination (see Table 9 below) of the modulation route.

*Table 9. Modulation Destinations*

| *Table 10. Mod Destination* | *MIDI Message* |
|---|---|
| LFO 3 Rate | NRPN0180H–NRPN018FH: 0 |
| Filter Cutoff | NRPN0180H–NRPN018FH: 1 |
| Pitch | NRPN0180H–NRPN018FH: 2 |
| Osc 1 Pitch | NRPN0180H–NRPN018FH: 3 |
| Osc 2 Pitch | NRPN0180H–NRPN018FH: 4 |
| Osc 3 Pitch | NRPN0180H–NRPN018FH: 5 |
| Amplitude | NRPN0180H–NRPN018FH: 6 |
| Filter Resonance | NRPN0180H–NRPN018FH: 7 |
| Ring Mod | NRPN0180H–NRPN018FH: 8 |
| External Input Level | NRPN0180H–NRPN018FH: 9 |
| FM Amount | NRPN0180H–NRPN018FH: 10 |
| Osc 1 Waveshaper | NRPN0180H–NRPN018FH: 11 |
| LFO 1 Rate | NRPN0180H–NRPN018FH: 12 |
| LFO 2 Rate | NRPN0180H–NRPN018FH: 13 |
| Osc Detune | NRPN0180H–NRPN018FH: 14 |
| Osc 1 Level | NRPN0180H–NRPN018FH: 15 |
| Osc 2 Level | NRPN0180H–NRPN018FH: 16 |
| Osc 3 Level | NRPN0180H–NRPN018FH: 17 |
| Mod 1 Amount | NRPN0180H–NRPN018FH: 64 |
| Mod 2 Amount | NRPN0180H–NRPN018FH: 65 |
| Mod 3 Amount | NRPN0180H–NRPN018FH: 66 |
| Mod 4Amount | NRPN0180H–NRPN018FH: 67 |
| Mod 5 Amount | NRPN0180H–NRPN018FH: 68 |
| Mod 6 Amount | NRPN0180H–NRPN018FH: 69 |
| Mod 7 Amount | NRPN0180H–NRPN018FH: 70 |
| Mod 8 Amount | NRPN0180H–NRPN018FH: 71 |
| Mod 9 Amount | NRPN0180H–NRPN018FH: 72 |
| Mod 10 Amount | NRPN0180H–NRPN018FH: 73 |

*Table 9. Modulation Destinations*

| | |
|---|---|
| Mod 11 Amount | NRPN0180H–NRPN018FH: 74 |
| Mod 12 Amount | NRPN0180H–NRPN018FH: 75 |
| Mod 13 Amount | NRPN0180H–NRPN018FH: 76 |
| Mod 14 Amount | NRPN0180H–NRPN018FH: 77 |
| Mod 15 Amount | NRPN0180H–NRPN018FH: 78 |
| Mod 16 Amount | NRPN0180H–NRPN018FH: 79 |

**Amount** Sets the amount of modulation (from –64 to +63). Since this control is bipolar, negative modulations can also be applied. The modulation amount can be edited using NRPN01C0H–NRPN01CFH.

## AUX Page

The Aux page provides access to controls for two Aux effects, the Arpeggiator, and Single Program File notes.


*Single Edit, Aux page controls*

## Aux FX 1


*Auxiliary Effect 1 controls*

**Type** Selects the effect algorithm for Aux Effect 1.

The available algorithms are:

- Plate Reverb
- Room Reverb
- Hall Reverb
- Mono Echo
- Stereo Echo
- Mono 3/4 Echo
- Stereo 3/4 Echo
- Mono 4/4 Echo
- Stereo 4/4 Echo
- Mono Triplet
- Stereo Triplet
- Long Mono Delay
- Long Ping Pong Delay

**Enable** Enables (or disables) the selected effect algorithm for Aux Effect 1.

#### Reverb Controls

When a Reverb effect is selected for Aux Effect 1, the following controls are available:

***Reverb***


*Reverb controls*

**Depth** Sets the mix between the direct signal and the effected signal with a setting of 0 being completely dry and a setting of 127 being completely "wet."

**Pre HP** Adds a high pass filter on the input of the effect.

**Pre Delay** Determines the amount of time that elapses between the original audio event and the onset of reverberation. Under natural conditions, the amount of Pre-delay depends on the size and construction of the acoustic space, and the relative position of the sound source and the listener. Long Pre-Delay settings place the reverberant field behind rather than on top of the original audio signal.

**Hi Damp** Reduces the output of the higher frequencies of the effect.

**Time** Sets the overall decay time for reverbs.

*Gate*


*Gate controls*

**Tempo Sync** Synchronizes the Reverb Gate Time to the current Tempo setting.

**Time** Sets the length of the Reverb Gate Time (0–127).

**Threshold** Sets a level where the output of the effect is muted when it falls below the specified Threshold. This can be used for Gated Reverb effects.

*Tone*

Tone provides controls for a simple parametric EQ.

**Gain** Lets you adjust the gain of the set frequency band.

**Freq** Lets you set the frequency band for the parametric EQ.

#### Delay Controls

When a Delay effect is selected for Aux Effect 1, the following controls are available:

*Delay*


*Delay controls*

**Depth** Sets the mix between the direct signal and the effected signal with a setting of 0 being completely dry and a setting of 127 being completely “wet.”

**Pre HP** Adds a high pass filter on the input of the effect.

**Pre Delay** Determines the amount of time that elapses between the original audio event and the onset of delay effect.

**Hi Damp** Reduces the output of the higher frequencies of the effect.

**Feedback** Adjusts the feedback level for delay effects.

*Time*


*Delay controls*

**Tempo Sync** Synchronizes the Delay Tap Time to the current Tempo setting.

**Time** Sets the length of the Delay Tap Time (0–127).

## Aux FX 2


*Aux 2 Effect controls*

**Type** Selects the effect algorithm for Aux Effect 2.

The available algorithms are:

- Chorus
- Flanger
- Phaser
- Delay

**Enable** Enables (or disables) the selected effect algorithm for Aux Effect 2.

*Delay*

**Depth** Sets the mix between the direct signal and the effected signal with a setting of 0 being completely dry and a setting of 127 being completely "wet."

**Pre LP** Adds a low pass filter on the input of the effect.

**Pre HP** Adds a high pass filter on the input of the effect.

**Hi Damp** Reduces the output of the higher frequencies of the effect.

**Time** Adjusts the overall delay time for the effect.

**Feedback** Adjusts the feedback level for the effect.

*Send*

**To Aux 1** Determines how much of the post Aux Effect 2 signal is sent to Aux Effect 1. This is useful for serial effects processing.

*LFO*

**Rate** Sets the LFO speed for the effect.

**Depth** Sets the amount of LFO modulation for the effect.

## Arp

The Arpeggiator controls determine how the Arpeggiator performs for the currently selected Single Program.


*Single Edit, Arpeggiator controls*

#### Arp Source

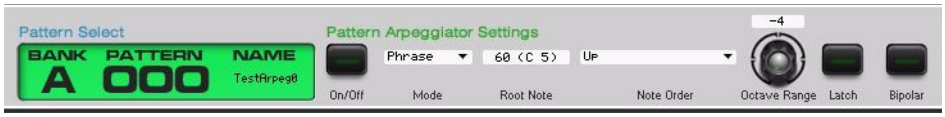
The Single Program Arpeggiator lets you select Single (S) or Pattern (P) to use either the arpeggiator settings stored with the pattern or those stored with the Single Program.


*Arpeggiator source controls, Pattern selected*

**S (Single)** When selected, the Multi Part uses the Arpeggiator settings stored with the referenced Single Program. When Single (S), is selected, all Single Program Arpeggiator controls are available. Select this option when you want this Single Program to play back with these arpeggiator settings every time it is recalled from memory.

**P (Pattern)** Lets you select any available stored Pattern Bank and Program Number. When Pattern (P) is selected, the selected Pattern overrides the settings stored with the referenced Single Program. When editing Pattern parameter controls, you are editing the settings for the selected Pattern (which may be referenced by any number of Single Programs or Multi Parts. Select this option when you want to change the Arpeggiator pattern itself so that the pattern plays this way each time it recalled, regardless of which Single or Multi Program is being used.

#### Pattern Select Controls and Arpeggiator Settings




*Pattern Select and Arpeggiator settings*

**Bank** Lets you select either Pattern Bank A or Bank B.

**Program Number** Lets you select the pattern program number.

**On/Off** Lets you enable or disable the Arpeggiator.

**Mode** Selects the Arpeggiator type (Standard, Phrase, or Drum) and determines the manner in which the pattern data is played back.

**Root Note** Determines the root note reference (0–127, or C–2 to G8) for the pattern. The Root Note setting only applies when the Arpeggiator Mode is set to Phrase. The root note sets the relationship of the output MIDI data (from the selected Phrase Pattern) to the input note data. For example, if the Pattern MIDI note is C3, and the root note is a D3, playing G4 on the keyboard results the pattern playing back transposed down a whole step (F4).

**Note Order** Controls how Arpeggiator plays back (Up, Down, Up/Down Exclusive, Up/Down Inclusive, Down/Up Exclusive, Down/Up Inclusive, or Chord).

**Octave Range** Determines the number of octaves (–4 to +4) in which the arpeggiator plays notes. A setting of +1 means that the arpeggiator plays the keys that are held, then plays the same notes an octave higher. Negative settings make the arpeggiator play notes in octaves below the ones that are held. This parameter is disabled when the Arpeggiator Mode is set to Drum.

**Latch** Determines whether the arpeggiator latching function is active. If the Latch is enabled, the arpeggiator continues playing the current note data after you release the keys. If the Latch is disabled, the arpeggiator stops when the keys are released.

**Bipolar** Enables or disables bipolar operation of the Octave Range setting (On or Off). If the Octave Range setting is +1 and Bipolar Range is turned On, the arpeggiator plays the held notes first, then plays an octave up, then plays the held notes, then plays the notes an octave down.

### Single File Notes

The Vyzex Venom Editor lets you store metadata for each Single Program. This information is only saved with Vyzex Venom Editor files stored on your computer, this information is *not* stored on the Venom synthesizer.

## Multi Program Editor

The Multi Program pages provide controls for editing Venom Multi Program parameters. A Multi Program references up to 4 Single Programs (Multi Parts), each with individual Insert Effects and Arpeggiators, two global Aux Effects busses, and a Master EQ. The Single Programs (Multi Parts) and Arpeggiator Patterns are essentially sub-objects that are referenced by the Multi Program, and aspects of each sub-object may be overridden by the Multi parameters described in this section.

**To view the Multi Program Editor:**

- Click the Multi button so that the button's LED is lit.


*Figure 11. Multi Program, PARTS Page*

**To view different Multi Program Editor pages:**

- Click the PARTS, VOICE, ARP, or AUX button to view the corresponding page.


***Multi Program Editor Page buttons (PARTS, VOICE, ARP, AUX)***

**To select a Multi Program for editing, do one of the following:**

- Use the Bank Manager to select the Multi Program preset you want (see“Bank Manager” on page 79).


*Selecting a Multi Program using the Bank Manger*

– or –

- Do the following:
  - Right-click (or double-click) the Bank display and select Bank A or B.
  - Right-click (or double-click) the Program Number display, select the Multi Program you want from the list and click OK.

**Program Name**

The Program Name field lets you type in a name for the currently selected Multi Program. Program names are limited to 10 characters or less and show up in the Venom LCD display when updated.

**To edit the currently selected Venom Multi Program name:**

1. Click in the Program Name field.
2. Type a name of 10 characters or less.
3. Click OK.

## Multi Part Selectors

The Multi Part selectors provide the same controls as on the top panel of Venom (see “Multi Controls” on page 9). These controls are available regardless of which Multi Editor page is viewed. The interactive display to the left of the Multi Part Selector buttons is unique to the Vyzex Venom Editor. This interactive display lets you enable, select, and mute any of the four available Multi Parts.


*Multi Editor, Multi Part selectors*

**To select a Multi Part and assign a Single Program:**

**1** Select the desired Multi Part using the Multi Part Selector buttons, the interactive display, or the Mode selector (see “Mode Selector” on page 38).

**2** Do one of the following:

- Use the Bank Manager to select the Single Program preset you want to use for the use for the Multi Part (see“Bank Manager” on page 79).


*Selecting a Single Program for Multi Part 3 using the Bank Manger*

– or –

- Do the following:
  - Right-click (or double-click) the Bank display and select Bank A, B, C, or D.
  - Right-click (or double-click) the Program Number display, select the Single Program you want from the list and click OK.

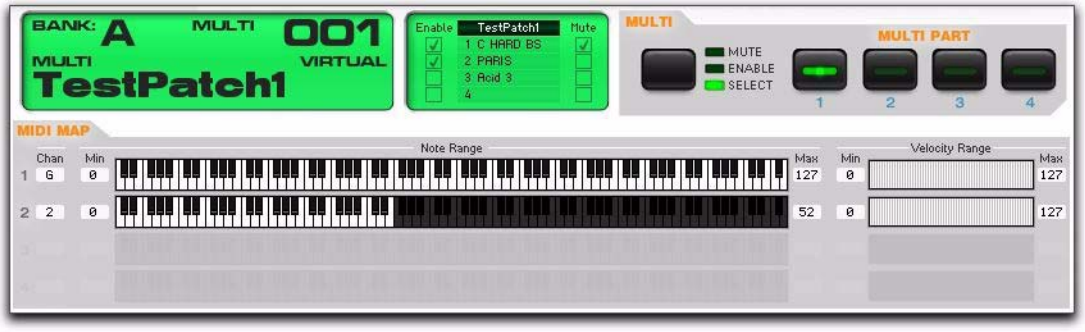
## PARTS Page

The Parts page of the Multi Program Editor provides access to the MIDI Map, Parts, Auxiliary effects, and Master controls for the selected Venom Multi Program. Each Venom Multi Program can have up to four Multi Parts. Each Multi Part is made up of a Single Program, a set of Control options, Channel mix controls, MIDI Map and General settings, and an Arpeggiator. Each of the four parts provides the same set of controls, but the settings are unique to each part.


*Multi Editor, PARTS page controls*

## MIDI Map Controls

The MIDI Map controls let you set the MIDI channel, Note Range, and Velocity Range for each available part. These controls are only available for enabled parts.




*MIDI Map controls*

**Channel** Sets the MIDI Channel (Global, 1–16) for the selected Multi Part. Part 1 defaults to MIDI channel 1, Part 2 defaults to MIDI channel 2, and so on. Select Global to have the Multi Part MIDI channel follow the Global MIDI channel.

*Note Range*

The Vyzex Venom Editor lets you enter the Min and Max note values for the Note Range for any Enabled Multi Part, either by typing the values or by clicking and dragging across the desired note range on the keyboard graphic.

**Min** Sets the low key (MIDI note number) for the playable range of the selected Multi Part. Notes below this setting do not play. This can be especially useful for setting up keyboard splits. For example, you might want a lead synth part to only play above middle C (MIDI note number 64) from the keyboard.

**Max** Sets the high key (MIDI note number) for the playable range of the selected Multi Part. Notes above this setting do not play. This can be especially useful for setting up keyboard splits. For example, you might want a bass part to only play below middle C (MIDI note number 64) from the keyboard.

*Velocity Range*

The Vyzex Venom Editor lets you enter the Min and Max velocity values for the Velocity Range for any Enabled Multi Part, either by typing the values or by clicking and dragging across the desired note range on the velocity scale graphic.

**Min** Sets the low velocity for the playable range of the selected Multi Part. Velocities below this setting do not sound. This can be especially useful for setting up velocity splits. For example, you might want a brighter, more noisy sound to play above the Min setting for a loud percussive sound or a brassy lead.

**Max** Sets the high velocity for the playable range of the selected Multi Part. Velocities above this setting do not sound. This can be especially useful for setting up velocity splits. For example, you might want a more muted, dull sound to play below the Max setting for a soft percussive sound.

## Parts Controls

The Parts controls let you set the MIDI Control, Voice, Channel, and Arpeggiator settings for each available part. These controls are only available for enabled parts.


*Parts controls*

*Control*


*Multi Parts MIDI Control settings*

**Bend** Enables or disables Pitchbend control for the selected Multi Part.

**Mod** Enables or disables Modulation wheel control (MIDI CC 1) for the selected Multi Part.

**Sustain** Enables or disables Sustain Pedal control (MIDI CC 64) for the selected Multi Part.

**Expr** Enables or disables the Expression Pedal control (MIDI CC 11) for the selected Multi Part.

**Keyb** Enables or disables the Keyboard control (MIDI note numbers) for the selected Multi Part.

**MIDI** Enables or disables the External MIDI Input for the selected Multi Part. This includes the USB input as well as the MIDI In jack.

*Voice*


*Multi Parts Voice settings*

**M (Use Multi Settings)** Overrides the referenced Single Program Voice settings and uses the Multi Part Voice settings.

**S (Use Single Settings)** Uses the referenced Single Program Voice settings and disables the Multi Part Voice settings.

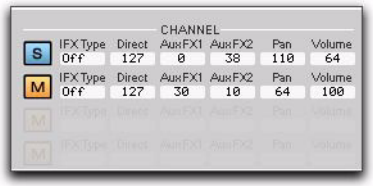
**V. Mode** Selects the Voice mode (Mono or Poly) for Venom. For more information on Voice modes, see "Voice Mode" on page 49.

**Unison** Turns the Unison option On and Off. Unison is an additional mode that lets you stack a number of voices on one note. The Unison option can be enabled (or disabled) in either Poly or Mono Voice Modes.

**Transpose** Transposes the currently selected Multi Part up or down +/– 64 semitones.

## Channel Controls

The Channel controls provide output channel mixing controls for the selected Multi Part. This can be especially useful for balancing the combination of Single Programs and their effects in different ways in different Multi Parts and Multi Programs. Each Multi Part can either use the Channel settings saved with the referenced Single Program, or it can override those settings and use the Multi Part Channel settings.




*Multi Parts Channel controls*

**M (Use Multi Settings)** Overrides the referenced Single Program Channel settings and uses the Multi Part Channel settings.

**S (Use Single Settings)** Uses the referenced Single Program Channel settings and disables the Multi Part Channel settings.

**IFX Type** Lets you select the Insert Effect Type for the selected Multi Part (Off, EQ Bandpass, Compressor, Auto Wah, Distortion, or Reducer).

**Direct** Sets the amount of dry (*un-effected*) signal for the currently selected Multi Part.

**Aux 1** Determines the level of Aux 1 processing for the currently selected Multi Part. You can change the send level to Aux 1 using the FX Send 1 Level knob on the top-panel Performance Control matrix (knob 3, row 6).

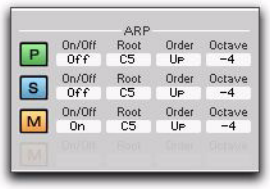
**Aux 2** Determines the level of Aux 2 processing for the currently selected Multi Part. You can change the send level to Aux 2 using the FX Send 2 Level knob on the top-panel Performance Control matrix (knob 4, row 6).

**Pan** Determines the panning location of the signal in the stereo field for the currently selected Multi Part.

**Volume** Sets the overall output level for the currently selected Multi Part.

## Arpeggiator

The Arpeggiator controls determine how the Arpeggiator performs for the currently selected Multi Program. The following parameters are individual Multi-mode Arpeggiator parameters. There are up to 4 arpeggiators per Multi Program (one per Part) and each can have its own settings.




*Multi Part Arpeggiator settings*

The Multi Program Editor Arpeggiator controls let you select M (Use Multi Data), S (Use Single Data), or P (Use Pattern Data) for the selected Multi Part Arpeggiator.

**M (Use Multi Data)** Lets you specify the Arpeggiator parameters for the selected Multi Part. When Use Multi Data is selected, the Multi Part settings override the settings stored with the referenced Single Program.

**S (Use Single Data)** When selected, the Multi Part uses the Arpeggiator settings stored with the referenced Single Program.

**P (Use Pattern Data)** Lets you select any available stored Pattern Bank and Program Number. When Use Pattern Data is selected, the selected Pattern overrides the settings stored with the referenced Single Program.

**On/Off** Lets you enable or disable the Arpeggiator.

**Root** Determines the root note reference (0–127, or C–2 to G8) for the pattern. The Root Note setting only applies when the Arpeggiator Mode is set to Phrase. The root note sets the relationship of the output MIDI data (from the selected Phrase Pattern) to the input note data. For example, if the Pattern MIDI note is C3, and the root note is a D3, playing G4 on the keyboard results the pattern playing back transposed down a whole step (F4).

**Order** Controls how Arpeggiator plays back (Up, Down, Up/Down Exclusive, Up/Down Inclusive, Down/Up Exclusive, Down/Up Inclusive, or Chord).

**Octave** Determines the number of octaves (–4 to +4) in which the arpeggiator plays notes. A setting of +1 means that the arpeggiator plays the keys that are held, then plays the same notes an octave higher. Negative settings make the arpeggiator play notes in octaves below the ones that are held. This parameter is disabled when the Arpeggiator Mode is set to Drum.

## Aux & Master Controls

The Aux and Master controls let you set the Auxiliary Effect 1, Auxiliary Effect 2, and Master controls for the selected Multi Part.


*Multi Part Arpeggiator settings*

**M (Use Multi Settings)** Overrides the referenced Single Program Auxiliary Effects and Master settings and uses the Multi Part settings.

**1–4 (Use Single Settings)** Uses the referenced Single Program settings for Multi Part 1, 2, 3, or 4 and disables the Multi Part settings.

#### *AUX FX 1*

The Aux FX 1 controls provide access to the Type, On/Off, Depth, Time, and Gate Time controls for Auxiliary Effect 1 (see “Aux FX 1” on page 60).

#### *AUX FX 2*

The Aux FX 2 controls provide access to the Type, On/Off, Depth, Feedback, and Aux Send controls for Auxiliary Effect 2 (see “Aux FX 2” on page 62).

#### *Master*

The Master controls provide access to the Low Gain, Mid Frequency, Mid Gain, High Gain, and Volume controls for Master EQ and Volume (see “Master” on page 55).

## VOICE Page

The Voice page of the Multi Program Editor provides access to the Voice and Channel controls for the enabled Multi Parts for the selected Venom Multi Program.


*Multi Editor, VOICE page controls*

### Voice Controls

The Voice controls let you set the Voice settings for each enabled Multi Part. These controls are only available for enabled parts. Each Multi Part provides the same Voice controls as Single Programs (see "Voice Controls" on page 49).


*Multi Editor, Multi Part Voice controls*

**M (Use Multi Settings)** Overrides the referenced Single Program Voice settings and uses the Multi Part Voice settings.

**S (Use Single Settings)** Uses the referenced Single Program Voice settings and disables the Multi Part Voice settings.

### Channel Controls

The Channel controls let you set the Channel settings for each enabled Multi Part. These controls are only available for enabled parts. Each Multi Part provides the same Channel controls as Single Programs (see “Channel” on page 55).


*Multi Editor, Multi Part Channel controls*

**M (Use Multi Settings)** Overrides the referenced Single Program Voice settings and uses the Multi Part Voice settings.

**S (Use Single Settings)** Uses the referenced Single Program Voice settings and disables the Multi Part Voice settings.

## ARP Page

The ARP page of the Multi Program Editor provides access to the Arpeggiator controls for the enabled Multi Parts for the selected Venom Multi Program.


*Multi Editor, ARP page controls*

### ARP Controls

The ARP controls let you set the Arpeggiator settings for each enabled Multi Part. These controls are only available for enabled parts. Each Multi Part provides the same Arpeggiator controls as Single Programs (see “Arp” on page 63).

The Multi Part Arpeggiator controls let you select M (Use Multi Data), S (Use Single Data), or P (Use Pattern Data) for the selected Multi Part Arpeggiator.

**M (Use Multi Data)** Lets you specify the Arpeggiator parameters for the selected Multi Part. When Use Multi Data is selected, the Multi Part settings override the settings stored with the referenced Single Program.

**S (Use Single Data)** When selected, the Multi Part uses the Arpeggiator settings stored with the referenced Single Program. When Use Single Data, is selected, only the Enable control is available.

**P (Use Pattern Data)** Lets you select any available stored Pattern Bank and Program Number. When Use Pattern Data is selected, the selected Pattern overrides the settings stored with the referenced Single Program. When Use Pattern Data, is selected, only the Bank, Program Number, and Enable controls are available.

## AUX Page

The AUX page of the Multi Program Editor provides access to the Auxiliary Effects 1 and 2 controls, and the Master EQ and Volume for the selected Venom Multi Program. It also provides Multi Program File notes.


*Multi Editor, AUX page controls*

**M (Use Multi Settings)** Overrides the referenced Single Program Auxiliary Effects and Master settings and uses the Multi Part settings.

**1–4 (Use Single Settings)** Uses the referenced Single Program settings for Multi Part 1, 2, 3, or 4 and disables the Multi Part settings.

### AUX FX 1

The Aux FX 1 controls provide access to the controls for Auxiliary Effect 1 (see “Aux FX 1” on page 60).

### AUX FX 2

The Aux FX 2 controls provide access to the controls for Auxiliary Effect 2 (see “Aux FX 2” on page 62).

### Master

The Master controls provide access to the controls for Master EQ and Volume (see “Master” on page 55).

### Multi File Notes

The Vyzex Venom Editor lets you store metadata for each Multi Program. This information is only saved with Vyzex Venom Editor files stored on your computer, this information is *not* stored on the Venom synthesizer.

## Pattern Editor

The Pattern Editor lets you edit the Pattern parameters for the Venom synthesizer. For information on importing your own patterns, see “Pattern Import” on page 31.

#### To view the Pattern Editor:

- Click the Pattern button so that its LED is lit.

**Enable** Enables (or disables) the selected arpeggiator pattern.

**Arp Source** Lets you select Use Pattern Data, Use Single Data, or Use Multi Data to use either the arpeggiator settings stored with the pattern, or those stored with the Single or Multi Program.

**Bank** Lets you select either Pattern Bank A or Bank B.

**Program Number** Lets you select the Pattern Program number.

**Mode** Selects the Arpeggiator type (Standard, Phrase, or Drum) and determines the manner in which the pattern data is played back.

**Note Order** Controls how Arpeggiator plays back (Up, Down, Up/Down Exclusive, Up/Down Inclusive, Down/Up Exclusive, Down/Up Inclusive, or Chord).

**Octave Range** Determines the number of octaves (–4 to +4) in which the arpeggiator plays notes. A setting of +1 means that the arpeggiator plays the keys that are held, then plays the same notes an octave higher. Negative settings make the arpeggiator play notes in octaves below the ones that are held. This parameter is disabled when the Arpeggiator Mode is set to Drum.

**Bipolar** Enables or disables bipolar operation of the Octave Range setting (On or Off). If the Octave Range setting is +1 and Bipolar Range is turned On, the arpeggiator plays the held notes first, then plays an octave up, then plays the held notes, then plays the notes an octave down.

**Latch** Determines whether the arpeggiator latching function is active. If the Latch is enabled, the arpeggiator continues playing the current note data after you release the keys. If the Latch is disabled, the arpeggiator stops when the keys are released.

**Root Note** Determines the root note reference (0–127, or C–2 to G8) for the pattern. The Root Note setting only applies when the Arpeggiator Mode is set to Phrase. The root note sets the relationship of the output MIDI data (from the selected Phrase Pattern) to the input note data. For example, if the Pattern MIDI note is C3, and the root note is a D3, playing G4 on the keyboard results the pattern playing back transposed down a whole step (F4).

## Global Editor

The Global Editor lets you edit the Global parameters for the Venom synthesizer.

**To view the Global Editor:**

- Click the Global button so that its LED is lit.

### Global Controls

**Octave** Selections from this drop down menu transpose the keyboard up or down an octave at a time, up to 3 octaves in either direction.

**Transpose** Selections from this drop down menu transpose the keyboard up or down a semitone at a time, up to 12 semitones in either direction.

**Master Tune** Selections from this drop down menu adjust the tuning of the synthesizer in cents (–50 to +50).

**Master Tempo** Adjusts the master tempo reference in BPM (50–300, Ext). When the Receive MIDI Clock parameter is enabled, the external tempo reference is used and its value is displayed in the LCD.

**Global MIDI Channel** Sets the main MIDI channel (1–16) on which Venom transmits and receives MIDI in Single Mode. When in Multi Mode, the Multi Program's MIDI parameters allow the Global MIDI Channel to be referenced.

**Local Mode** Determines whether or not the keyboard, Pitch Bend and Modulation Wheels, and Sustain and Expression Pedals control the internal synthesizer. When Local Mode is set to Off, Venom still sends MIDI data out the rear panel MIDI Out port and over USB, and the synthesizer can be controlled using MIDI data coming in the rear panel MIDI In port and over USB. You may want to disable Local Mode when using Venom with your computer and MIDI sequencing software, but be sure to enable Local Mode to use Venom as a standalone synthesizer.

**Velocity Curve** Adjusts velocity response of the keyboard. The following options are available:

- Low—Makes it easier to play quietly.
- Normal—Provides the widest and most even velocity response.
- High—Makes it easier to play loudly.
- Fixed—Sets the velocity output at one level no matter how hard or soft you play.

**Fixed Velocity** Sets the note velocity value (0–127) if Fixed is selected as the Velocity Curve option.

**MIDI Receive Clock** Determines whether or not the Master Tempo synchronizes to external MIDI Clock. When set to On, the master clock always synchronizes to incoming MIDI clock pulses and stops if they are not present. When set to Off, the master clock is autonomous and runs based on the Tempo setting. When set to Auto, Venom looks for clock pulses to synchronize to within the supported tempo range, but if no external clock pulses are present, the master clock runs autonomously. If clock is present on both the USB and MIDI input jacks, the clock from USB takes precedence.

**MIDI Transmit Clock** Determines whether or not Venom transmits MIDI Clock based on the Master Tempo setting. When set to On/Arp, Venom transmits clock pulses only when the Arpeggiator is running. When set to On/Always, clock pulses are transmitted at all times according to the master clock. When set to Off, clock is never transmitted.

**MIDI Single Select** Determines whether or not Single Programs respond to MIDI Program Change messages.

**MIDI Multi Select** Determines whether or not Multi Programs respond to MIDI Program Change messages. Note that since Multi Parts can be set to any MIDI channel, Multi Program changes are handled with the bank change number assignments above the Single Program banks.

**Arp Routing** Determines globally where MIDI data from the Arpeggiator is sent. When set to Local+Keyb, arpeggiator data is sent to the sound engine, but not to the MIDI outputs. When set to Local+MIDI, arpeggiator data is sent to both simultaneously.

**Sustain Pedal CC** Determines the MIDI controller number (0–131) of the Sustain pedal. The default setting is MIDI Controller 64 (Sustain), but it can be set to any MIDI controller number.

**Expression Pedal CC** Determines the MIDI controller number (0–131) of the Expression pedal. It defaults to controller 11 (Expression), but it can be set to any MIDI controller number.

**Mod Wheel CC** Determines the MIDI controller number (0–131) of the Modulation Wheel. It defaults to controller 1 (Modulation Wheel), but it can be set to any MIDI controller number.

**USB Record** Lets you choose whether or not the internal voices of the synthesizer will be mixed into the USB audio stream sent to the computer. When disabled, no audio from the synthesizer engine is transmitted over USB, but any audio signal coming in the Auxiliary Input, Microphone Input, and Instrument Input ports is.

**Mono Record** When this option is enabled, and the Mono button is enabled, the Microphone, Instrument, and Auxiliary inputs are recorded in mono in addition to being monitored in mono. When this option is disabled, the Mono button does not affect the USB record stream; the Microphone and Instrument inputs will be recorded to the Left and Right channels respectively, and the Auxiliary Inputs are recorded in stereo.

## Bank Manager

The Vyzex Venom Bank Manager lets you select the Bank and Program number for Single, Multi, and Pattern programs.


*Figure 12. Bank Manager window, Single Programs*

**Select All** Selects all Programs in all Banks.

**Deselect All** Deselects all currently selected Programs in all Banks.

**Get Selected** Gets the selected Programs from the Venom synthesizer.

**Sync Selected** Sends the selected Programs from the Vyzex Venom Editor to the selected Programs on the Venom synthesizer.

**Patch Collidor** This is a random patch generator. Select a range of Programs to affect, then choose one of the collide options (Mix All, Mix, Blend, Morph, or Generate 4) Some options are only available when 2 or 4 programs are selected.

# Appendix A: MIDI Specifications

## MIDI Channel Messages

* n: Channel 00h~0Fh 0~15

* vv: Value 00h~7Fh 0~127

* kk: Note No. 00h~7Fh 0~127 (C-1~G9)

| Message | MIDI [H] | Description |
|---|---|---|
| Note On<br>Note OFF<br>Note OFF | 9n kk vv<br>9n kk 00<br>8n kk vv | kk: 0~127 (Note),vv: 1~127 (Velocity)<br>kk: 0~127 (Note)<br>kk: 0~127 (Note),vv: 1~127 (Velocity) |
| Program Change | Cn vv | vv: 0~127 (Program) |
| Channel Pressure | Dn vv | vv: 0~127 (Pressure) |
| Pitch Bend Change | En ll mm | ll:mm: 0:0 ~ 0:64 ~ 127:127 => -8192 ~ 0 ~ +8191 |
| Polyphonic Pressure | An kk vv | Not Transmitted or Received. |

| Message | MIDI [H] | Description |
|---|---|---|
| CTRL 00 | Bn 00 vv | Bank Select |
| CTRL 01 | Bn 01 vv | Modulation Wheel |
| CTRL 03 | Bn 03 vv | Filter Cutoff coarse |
| CTRL 05 | Bn 05 vv | Portamento (Glide) time |
| CTRL 07 | Bn 07 vv | Synth Track Volume (default=100) |
| CTRL 09 | Bn 09 vv | Voice Detune coarse (0=-64 Semitones, 64=neutral, 127=+63 Semitones) |
| CTRL 10 | Bn 0A vv | Pan (default=64 center) |
| CTRL 11 | Bn 0B vv | Expression |
| CTRL 14 | Bn 0E vv | LFO2 Rate (*see LFO1 Rate) |
| CTRL 15 | Bn 0F vv | LFO2 Wave 0=sin, 1=sin+, 2=tri, 3=Saw, 4=Sqr, 5=S&H, 6=linS&H, 7=gs&H, unofficial: 8=logSqr,9=expSqr,10=logUpSaw,11=expUpSaw) |
| CTRL 16 | Bn 10 vv | LFO2 Wave Start (was LFO2 VCF amount) |
| CTRL 17 | Bn 11 vv | LFO2 Attack Rate (was LFO2 VCA amount) |
| CTRL 18 | Bn 12 vv | LFO2 delay |
| CTRL 19 | Bn 13 vv | Synth Direct Level |
| CTRL 20 | Bn 14 vv | EG2 attack time |
| CTRL 21 | Bn 15 vv | EG2 attack hold time |
| CTRL 22 | Bn 16 vv | EG2 decay time |
| CTRL 23 | Bn 17 vv | EG2 sustain level |
| CTRL 24 | Bn 18 vv | EG2 release time (Range 0..126, 127=Release Hold) |
| CTRL 25 | Bn 19 vv | EG3 attack time |
| CTRL 26 | Bn 1A vv | EG3 attack hold time |
| CTRL 27 | Bn 1B vv | EG3 decay time |
| CTRL 28 | Bn 1C vv | EG1 attack hold time |
| CTRL 29 | Bn 1D vv | OSC1 coarse tune (…52=16'… 64=8' … 72=4' … 84=2'…) |
| CTRL 30 | Bn 1E vv | OSC2 coarse tune (…52=16'… 64=8' … 72=4' … 84=2'…) |

| | | |
|---|---|---|
| CTRL 31 | Bn 1F vv | OSC3 coarse tune (…52=16'… 64=8' … 72=4' … 84=2'…) |
| | | |
| CTRL 35 | Bn 23 vv | Filter Cutoff fine |
| CTRL 41 | Bn 29 vv | Voice Detune fine (0=-0.5 Semitones … 64=no detune … 127=+0.5 Semitones) |
| | | |
| CTRL 49 | Bn 31 vv | Wave-Shape level (PW) |
| CTRL 50 | Bn 32 vv | OSC3->OSC1 FM amount |
| CTRL 51 | Bn 33 vv | OSC1*OSC2 (Ring-Mod) mix level |
| CTRL 52 | Bn 34 vv | Startpoint Modulation |
| CTRL 53 | Bn 35 vv | Oscillator Drift |
| CTRL 54 | Bn 36 vv | External In Level |
| CTRL 55 | Bn 37 vv | Ext. Source 0=None,1=An Left, 2=Right, 3=Sum,4=USB Left,5=Right,6=Sum |
| CTRL 56 | Bn 38 vv | OSC1 mix level |
| CTRL 57 | Bn 39 vv | OSC2 mix level |
| CTRL 58 | Bn 3A vv | OSC3 mix level |
| CTRL 60 | Bn 3C vv | Pitch Bend Range (64=none, 65=+1 semitone, 63=-1 semitone, 76=+1 octave) |
| CTRL 61 | Bn 3D vv | OSC1 fine tune (0=-0.5 Semitones … 64=no detune … 127=+0.5 Semitones) |
| CTRL 62 | Bn 3E vv | OSC2 fine tune (0=-0.5 Semitones … 64=no detune … 127=+0.5 Semitones) |
| CTRL 63 | Bn 3F vv | OSC3 fine tune (0=-0.5 Semitones … 64=no detune … 127=+0.5 Semitones) |
| | | |
| CTRL 64 | Bn 40 vv | Sustain Pedal (<= 63:Off, >=64 :On) |
| CTRL 65 | Bn 41 vv | Portamento (Glide) ON/OFF (<= 63:Off, >=64 :On) |
| | | |
| CTRL 70 | Bn 46 vv | VCF type (0=Bypass, 1=12dB LP, 2=12dB BP, 3=12dB HP,<br>4=24dB LP, 5=24dB BP, 6=24dB HP) |
| CTRL 71 | Bn 47 vv | VCF Resonance |
| CTRL 72 | Bn 48 vv | EG1 release time (Range 0..126, 127=Release Hold) |
| CTRL 73 | Bn 49 vv | EG1 attack time |
| CTRL 74 | Bn 4A vv | VCF cutoff freq |
| CTRL 75 | Bn 4B vv | EG1 decay time |
| CTRL 76 | Bn 4C vv | EG3 sustain level |
| CTRL 77 | Bn 4D vv | EG3 release time (Range 0..126, 127=Release Hold) |
| | | |
| CTRL 79 | Bn 4F vv | EG1 sustain level |
| | | |
| CTRL 83 | Bn 53 vv | OSC Detune |
| CTRL 84 | Bn 54 vv | LFO3 Rate (*see LFO1 Rate) |
| CTRL 85 | Bn 55 vv | LFO3 Wave 0=sin, 1=sin+, 2=tri, 3=Saw, 4=Sqr, 5=S&H, 6=linS&H, 7=gs&H,<br>unofficial: 8=logSqr,9=expSqr,10=logUpSaw,11=expUpSaw) |
| CTRL 86 | Bn 56 vv | LFO1 Rate<br>Values 0..110 specify a fixed LFO rate. Values 111 and higher specify a tempo synched value: 111=1/32, 112=1/24, 113=1/16, 114=1/12, 115=1/8, 116=1/6, 117=1/4, 118=1/3, 119=1/2, 120=1/1, 121=2/1, 122=3/1, 123=4/1<br>(Note: Longer note values are not available at slower tempos) |
| CTRL 87 | Bn 57 vv | LFO1 Wave 0=sin, 1=sin+, 2=tri, 3=Saw, 4=Sqr, 5=S&H, 6=linS&H, 7=gs&H,<br>unofficial: 8=logSqr,9=expSqr,10=logUpSaw,11=expUpSaw) |
| CTRL 88 | Bn 58 vv | LFO1 Wave Start (was LFO2 VCF amount) |
| CTRL 89 | Bn 59 vv | LFO1 Attack Rate (was LFO2 VCA amount) |
| CTRL 90 | Bn 5A vv | LFO1 delay |
| CTRL 91 | Bn 5B vv | Reverb send level |
| | | |
| CTRL 93 | Bn 5D vv | Delay send level |
| | | |

| | | |
|---|---|---|
| CTRL 98 | Bn 62 vv | NRPN fine |
| CTRL 99 | Bn 63 vv | NRPN coarse |
| CTRL 100 | Bn 64 vv | RPN fine |
| CTRL 101 | Bn 65 vv | RPN coarse |
| | | |
| CTRL 103 | Bn 67 vv | Modulation Depth Node 1 |
| CTRL 104 | Bn 68 vv | Modulation Depth Node 2 (EG2 -> VCF Cutoff) |
| CTRL 105 | Bn 69 vv | Modulation Depth Node 3 (EG3 -> Pitch) |
| CTRL 106 | Bn 6A vv | Modulation Depth Node 4 (LFO1 -> Pitch) |
| CTRL 107 | Bn 6B vv | Modulation Depth Node 5 (LFO2 -> VCF Cutoff) |
| CTRL 108 | Bn 6C vv | Modulation Depth Node 6 (LFO2 -> Volume) |
| CTRL 109 | Bn 6D vv | Modulation Depth Node 7 (LFO3 -> Pitch) |
| CTRL 110 | Bn 6E vv | Modulation Depth Node 8 (Modwheel -> LFO1->PitchDepth) |
| CTRL 111 | Bn 6F vv | Modulation Depth Node 9 (Pitchbend -> Pitch) |
| CTRL 112 | Bn 70 vv | Modulation Depth Node 10 (Velocity -> Volume) |
| CTRL 113 | Bn 71 vv | Modulation Depth Node 11 (Velocity -> Cutoff) |
| CTRL 114 | Bn 72 vv | Modulation Depth Node 12 (Note -> Cutoff) |
| CTRL 115 | Bn 73 vv | Modulation Depth Node 13 |
| CTRL 116 | Bn 74 vv | Modulation Depth Node 14 |
| CTRL 117 | Bn 75 vv | Modulation Depth Node 15 |
| CTRL 118 | Bn 76 vv | Modulation Depth Node 16 |
| | | |
| CTRL 126 | Bn 7E 00 | Mono on |
| CTRL 127 | Bn 7F 00 | Poly on (default power-up) |

## Registered Parameter Numbers (RPN)

| Message | MIDI | Description |
|---|---|---|
| RPN 0000 | Bn 65 00, 64 00, 06 vv | Pitch Bend Sensitivity in semi-tones (default=2) |
| RPN 0001 | Bn 65 00, 64 01, 06 vv | Fine Tuning in cents (vv: 0~64~127 => -100 ~ 0 ~ +100) |
| RPN 0002 | Bn 65 00, 64 02, 06 vv | Coarse Tuning in semi-tones (vv: 0~64~127 => -64 ~ 0 ~ +64) |

## Non-Registered Parameter Numbers (NRPN)

### Master Effects (Ignoring Channel)

| Message [H] | MIDI [Hex] | Description |
|---|---|---|
| NRPN 0100H | Bn 63 02, 62 00, 06 vv | Reverb Preset (0 ~ 27. For comparison only–do not use!) |
| NRPN 0101H | Bn 63 02, 62 01, 06 vv | Aux1 Reverb Model (0 ~ 12) 0=Plate Reverb, 1=Room Reverb, 2=Hall Reverb, 3=Mono Echo, 4=Stereo Echo, 5=Mono ¾ Echo, 6=Stereo ¾ Echo, 7=Mono 4/4 Echo, 8=Stereo 4/4 Echo, 9=Mono Triplet Echo, 10=Stereo Triplet Echo, 11=Long Mono Delay, 12=Long Ping Pong Delay |
| NRPN 0102H | Bn 63 02, 62 02, 06 vv | Aux1 Reverb Mode (<= 63:Off, >=64 :On) |
| NRPN 0103H | Bn 63 02, 62 03, 06 vv | Aux1 Reverb Level |
| NRPN 0104H | Bn 63 02, 62 04, 06 vv | Aux1 Reverb PreHP |
| NRPN 0105H | Bn 63 02, 62 05, 06 vv | Aux1 Reverb Hdamp |
| NRPN 0106H | Bn 63 02, 62 06, 06 vv | Aux1 Reverb Time (* For Delay-Modes see LFO1 Rate) |
| NRPN 0107H | Bn 63 02, 62 07, 06 vv | Aux1 Reverb Echo Feedback |
| NRPN 0108H | Bn 63 02, 62 08, 06 vv | Aux1 Reverb PreDelay |
| NRPN 0109H | Bn 63 02, 62 09, 06 vv | Aux1 Reverb TresholdGate |
| NRPN 010AH | Bn 63 02, 62 0A, 06 vv | Aux1 Reverb ToneGain |
| NRPN 010BH | Bn 63 02, 62 0B, 06 vv | Aux1 Reverb ToneFreq |

| | | |
|---|---|---|
| NRPN 010CH | Bn 63 02, 62 0C, 06 vv | Aux1 Reverb GateHoldTime / Delay Time |
| | | |
| NRPN 0111H | Bn 63 02, 62 11, 06 vv | Aux2 Delay Type: (0=Chorus, 1=MonoFlanger, 2=Phaser, 3=Delay) |
| NRPN 0112H | Bn 63 02, 62 12, 06 vv | Aux2 Delay Mode (<= 63:Off, >=64 :On) |
| NRPN 0113H | Bn 63 02, 62 13, 06 vv | Aux2 Delay Level |
| NRPN 0114H | Bn 63 02, 62 14, 06 vv | Aux2 Delay Send to Reverb |
| NRPN 0115H | Bn 63 02, 62 15, 06 vv | Aux2 Delay PreHP |
| NRPN 0116H | Bn 63 02, 62 16, 06 vv | Aux2 Delay DelayPreLP |
| NRPN 0117H | Bn 63 02, 62 17, 06 vv | Aux2 Delay DelayTime |
| NRPN 0118H | Bn 63 02, 62 18, 06 vv | Aux2 Delay Feedback |
| NRPN 0119H | Bn 63 02, 62 19, 06 vv | Aux2 Delay HDamp |
| NRPN 011AH | Bn 63 02, 62 1A, 06 vv | Aux2 Delay LFO Modulation Depth |
| NRPN 011BH | Bn 63 02, 62 1B, 06 vv | Aux2 Delay LFO Rate (*see LFO1 Rate) |

## Insert Effects (Per Channel)

| Message [H] | MIDI [Hex] | Description |
|---|---|---|
| NRPN 0120H | Bn 63 02, 62 20, 06 vv | Insert Select:<br>0:None, 1:EQ Bandpass, 2:Compressor, 3:WahWah, 4:Distortion, 5:Destructive |
| NRPN 0121H | Bn 63 02, 62 21, 06 vv | Distortion Depth (Insert Select=4 Distortion) |
| NRPN 0122H | Bn 63 02, 62 22, 06 vv | Distortion Pre-Gain (Insert Select=4 Distortion) |
| NRPN 0123H | Bn 63 02, 62 23, 06 vv | Distortion Post-Gain (Insert Select=4 Distortion) |
| NRPN 0124H | Bn 63 02, 62 24, 06 vv | Distortion HiCut Freq (Insert Select=4 Distortion) |
| NRPN 0125H | Bn 63 02, 62 25, 06 vv | Distortion Type 0=Overdrive, 1=Distortion, 2=Fuzz (Insert Select=4 Distortion) |
| | | |
| NRPN 0131H | Bn 63 02, 62 31, 06 vv | EQ Low Gain |
| NRPN 0132H | Bn 63 02, 62 32, 06 vv | EQ Low Freq |
| NRPN 0133H | Bn 63 02, 62 33, 06 vv | EQ High Gain |
| NRPN 0134H | Bn 63 02, 62 34, 06 vv | EQ High Freq |
| NRPN 0135H | Bn 63 02, 62 35, 06 vv | EQ Bandpass Gain (Insert Select=1 EQ Bandpass) |
| NRPN 0136H | Bn 63 02, 62 36, 06 vv | EQ Bandpass Freq (Insert Select=1 EQ Bandpass) |
| NRPN 0137H | Bn 63 02, 62 37, 06 vv | EQ Bandpass Q (Insert Select=1 EQ Bandpass) |
| | | |
| NRPN 0141H | Bn 63 02, 62 41, 06 vv | WahWah Filter Cutoff (Insert Select=3 WahWah) |
| NRPN 0142H | Bn 63 02, 62 42, 06 vv | WahWah Filter Resonance (Insert Select=3 WahWah) |
| NRPN 0143H | Bn 63 02, 62 43, 06 vv | WahWah Filter Type (0:BP, 1:LP) (Insert Select=3 WahWah) |
| NRPN 0144H | Bn 63 02, 62 44, 06 vv | WahWah Auto Sensitivity (Insert Select=3 WahWah) |
| | | |
| NRPN 0148H | Bn 63 02, 62 48, 06 vv | WahWah and Compressor Attack (Insert Select=2 Compressor or 3 WahWah) |
| NRPN 0149H | Bn 63 02, 62 49, 06 vv | WahWah and Compressor Release (Insert Select=2 Compressor or 3 WahWah) |
| NRPN 014AH | Bn 63 02, 62 4A, 06 vv | Compressor Threshold (Insert Select=2 Compressor) |
| NRPN 014BH | Bn 63 02, 62 4B, 06 vv | Compressor Ratio (Insert Select=2 Compressor) |
| NRPN 014CH | Bn 63 02, 62 4C, 06 vv | Compressor Boost (Insert Select=2 Compressor) |
| | | |
| NRPN 0151H | Bn 63 02, 62 51, 06 vv | Modulator Rate (*see LFO1 Rate) |
| NRPN 0152H | Bn 63 02, 62 52, 06 vv | Modulator Type (0=sine, 1=triangle, 2=saw up, 3=saw dn, 4=square) |
| NRPN 0153H | Bn 63 02, 62 53, 06 vv | Modulator to Volume |
| NRPN 0154H | Bn 63 02, 62 54, 06 vv | Modulator to Pan |
| | | |

| | | |
|---|---|---|
| NRPN 0158H | Bn 63 02, 62 58, 06 vv | Bit Reducer 0..12 Bits reduction = 16...4 Bit resolution (Ins Select=5 Destructive) |
| NRPN 0159H | Bn 63 02, 62 59, 06 vv | Rate Reducer 0..127, 0=original, 1= Samplerate/2, 2=SR/3 ... 127=SR/128 (Ins=5) |

## Various

| Message [H] | MIDI [Hex] | Description |
|---|---|---|
| NRPN 0164H | Bn 63 02, 62 64, 06 vv | Portamento Mode (< 64: Rate Based, >=64: Time based) |

## Oscillator Keytracking Controls

| Message [H] | MIDI [Hex] | Description |
|---|---|---|
| NRPN 0165H | Bn 63 02, 62 65, 06 vv | Osc 1 Keytracking (<64: On, >=64: Off) |
| NRPN 0166H | Bn 63 02, 62 66, 06 vv | Osc 2 Keytracking (<64: On, >=64: Off) |
| NRPN 0167H | Bn 63 02, 62 67, 06 vv | Osc 3 Keytracking (<64: On, >=64: Off) |

## Unisono Controls

| Message [H] | MIDI [Hex] | Description |
|---|---|---|
| NRPN 0168H | Bn 63 02, 62 68, 06 vv | Unisono Detune |
| NRPN 0169H | Bn 63 02, 62 69, 06 vv | Unisono Voices (2-12) |
| NRPN 016AH | Bn 63 02, 62 6A, 06 vv | Unisono Switch (<= 63:Off, >=64 :On) |

## Master Section Controls

| Message [H] | MIDI [Hex] | Description |
|---|---|---|
| NRPN 016BH | Bn 63 02, 62 6B, 06 vv | USB-from-Host to Analog Output (<=63:Off, >=64:On) |
| NRPN 016DH | Bn 63 02, 62 6D, 06 vv | Input Monitoring Monitor Switch (Bit 0: Left Input Active, Bit 1: Right Input Active, Bit 2: Mono Monitoring Switch, Bit 3: Mono In Record Switch) |
| NRPN 016EH | Bn 63 02, 62 6E, 06 vv | Signal on USB-to-Host: 0:Off, 1:Synth, 2:Analog, 3:Both |
| NRPN 0170H | Bn 63 02, 62 70, 06 vv | Program Volume Level Adjust (1/3dB Steps, 0=-30dB, 19=0dB, 127=+12dB) |
| | | |
| NRPN 0174H | Bn 63 02, 62 74, 06 vv | Master EQ Low Gain |
| NRPN 0175H | Bn 63 02, 62 75, 06 vv | Master EQ Low Freq |
| NRPN 0176H | Bn 63 02, 62 76, 06 vv | Master EQ High Gain |
| NRPN 0177H | Bn 63 02, 62 77, 06 vv | Master EQ High Freq |
| NRPN 0178H | Bn 63 02, 62 78, 06 vv | Master EQ Bandpass Gain |
| NRPN 0179H | Bn 63 02, 62 79, 06 vv | Master EQ Bandpass Freq |

## Oscillator Controls

| Message [H] | MIDI [Hex] | Description |
|---|---|---|
| NRPN 017AH | Bn 63 02, 62 7A, 06 vv | OSC1 Wave (numeric order based on current soundbank) |
| NRPN 017BH | Bn 63 02, 62 7B, 06 vv | OSC2 Wave (numeric order based on current soundbank) |
| NRPN 017CH | Bn 63 02, 62 7C, 06 vv | OSC3 Wave (numeric order based on current soundbank) |
| NRPN 017DH | Bn 63 02, 62 7D, 06 vv | OSC2 Sync (<= 63:Off, >=64 :On) |
| NRPN 017EH | Bn 63 02, 62 7E, 06 vv | OSC3 Sync (<= 63:Off, >=64 :On) |
| NRPN 017FH | Bn 63 02, 62 7F, 06 vv | OSC1 Wave-Shape ON/OFF (<= 63:Off, >=64 :On) |

## Modulation Matrix Access

| Message [H] | MIDI [Hex] | Description |
|---|---|---|
| NRPN 0180H - NRPN 018FH | Bn 63 03, 62 00, 06 vv<br>Bn 63 03, 62 0F, 06 vv | Set Modulation Target on Node 1-16:<br>0:LFO3 Rate, 1=Cutoff, 2=Pitch, 3=OSC1 Pitch, 4=OSC2 Pitch, 5=OSC3 Pitch<br>6=Amplitude, 7=FilterQ, 8=Ringmod, 9=ExtIn, 10=FM Amount,<br>11=OSC1 PWM, 12=LFO1 Rate, 13=LFO2 Rate, 14=OSC Detune,<br>15=OSC1 Vol, 16=OSC2 Vol, 17=OSC3 Vol,<br>64:Modulate Node 1, 65:Modulate Node 2, ...79:Modulate Node 16 |
| NRPN 01A0H - NRPN 01AFH | Bn 63 03, 62 20, 06 vv<br>Bn 63 03, 62 2F, 06 vv | Set Modulation Soure on Node 1-16:<br>0:None, 1:EG1, 2:EG2, 3:EG3, 4:EG1rel, 5:EG2rel, 6:EG3rel,<br>7:LFO1, 8:LFO2, 9:LFO3, 10:LFO1un, 11:LFO2un, 12:LFO3im,<br>13:LFO1lo, 14:LFO2lo, 15:LFO3lo, 16:LFO1unlo, 17:LFO2unlo,<br>18:LFO3unlo,<br>19:Velocity, 20:Velocity (negative), 21:Key, 22:ModWheel, 23:PitchBend<br>24:ChnTouch, (25:PolyTouch), 26:Expression, (27:Sustain), (28:Portamento)<br>29:Control1, 30:Control2 |
| NRPN 01C0H - NRPN 01CFH | Bn 63 03, 62 40, 06 vv<br>Bn 63 03, 62 4F, 06 vv | Set Modulation Depth on Node 1-16<br>For Pitch modulations the following values provide proper tune scaling (values in octaves):<br>0:neutral, 127=+2, 110=+1, 95=+1/2, 83=+1/4, 45=-1/4, 22=-1/2, 18=-1, 0=-2 |

# Appendix B: System Exclusive Implementation

## SysEx Format

The basic format of the Venom SysEx message is described in the table below:

| Data [H] | Size (bytes) |
|---|---|
| F0 | 1 |
| <header> | 5 |
| <cmd> | 1 |
| <addr> | 3 |
| <data> | Variable |
| <cs> | 1 |
| F7 | 1 |

### <header> Format

Venom sends and responds to SysEx messages constructed using the following header:

| Data [H] | Description |
|---|---|
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Device Class ID |
| <id> | Device ID |

### <cmd> Format

The Command byte follows the header. The Command byte instructs Venom of the intended purpose of the proceeding data. The following commands are available:

| Cmd [H] | Function |
|---|---|
| 00 | Send ASCII code firmware version |
| 01 | Request Data Dump |
| 02 | Write Data Dump |
| 05 | Recall Patch |
| 06 | Store Patch |
| 09 | Restore factory defaults |
| 7D | Cancel data transfer |
| 7E | Transfer received successfully (ACK) |
| 7F | Transfer received unsuccessfully (NAK) |

### <addr> Format

Following the Command byte is the address:

| Data [H] | Description |
|---|---|
| <addr1> | Type ID of data being addressed |
| <addr2> | Bank Number to Dump 0~1 or addr high |
| <addr3> | Patch Number to Dump 0~127 or addr low |

## <addr1> Format

| <Addr1> | Function |
|---|---|
| 00 | Edit Buffer Dump |
| 01 | Single Patch Dump |
| 02 | Multi Patch Dump |
| 03 | Arpeg Data Dump |
| 04 | Arpeg Pattern Dump |
| 05 | Single Name String |
| 06 | Multi Name String |
| 07 | Arpeg Name String |
| | |
| 08 | Edit Global Param |
| 09 | Edit Single Param |
| 0A | Edit Multi Param |
| 0B | Edit Multi Part1 Param |
| 0C | Edit Multi Part2 Param |
| 0D | Edit Multi Part3 Param |
| 0E | Edit Multi Part4 Param |
| 0F | Edit Effect Param |
| 10 | Edit Arpeg Single Param |
| 11 | Edit Arpeg Part1 Param |
| 12 | Edit Arpeg Part2 Param |
| 13 | Edit Arpeg Part3 Param |
| 14 | Edit Arpeg Part4 Param |

## <addr2> / <addr3> Format

The Address format can have 3 different types of data to address, either individual patches or used as an index into actual patch data itself.

#### Address Edit Buffer Format

When Addr1 ID is 00 for accessing Edit Buffers, the format is as follows:

| Data [H] | Description |
|---|---|
| 00 | Edit Buffer Dump |
| <addr2> | Selects which Edit buffer to address |
| 00 | Addr3 has no significance in this SysEx |

The following table details the values used for Addr2 ID to select an Edit buffer:

| <Addr2> | Description |
|---|---|
| 00 | Global Edit Dump |
| 01 | Single Edit Dump |
| 02 | Multi Edit Dump |
| 03 | Multi Part1 Edit Dump |
| 04 | Multi Part2 Edit Dump |
| 05 | Multi Part3 Edit Dump |
| 06 | Multi Part4 Edit Dump |
| 07 | Effect Edit Dump |
| 08 | Arp Header Single Edit Dump |
| 09 | Arp Header Part1 Edit Dump |
| 0A | Arp Header Part2 Edit Dump |
| 0B | Arp Header Part3 Edit Dump |
| 0C | Arp Header Part4 Edit Dump |
| 0D | Arp Pattern Single Edit Dump |
| 0E | Arp Pattern Part1 Edit Dump |
| 0F | Arp Pattern Part2 Edit Dump |
| 10 | Arp Pattern Part3 Edit Dump |
| 11 | Arp Pattern Part4 Edit Dump |

For example, to send an Arpeggiator Header block for the Multi Part1 Edit buffer, the SysEx string would be:

| Data [H] | Description |
|---|---|
| F0 | SysEx ID |
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Class ID |
| <id> | Device ID |
| 02 | Cmd ID = Write Data Dump |
| 00 | Addr1 ID = Edit Buffer Dump |
| 09 | Addr2 ID = Multi Part1 Buffer |
| 00 | Addr3 ID = 0 (Not used) |
| <data> | Variable length block, encoded using 7-bit system |
| <cs> | Checksum value |
| F7 | End of SysEx ID |

#### Address Patch Format

When Addr1 ID is 01~08 for accessing data dumps, Addr2 ID is used to select if a single patch or all patches are sent:

| Data [H] | Description |
|---|---|
| 01~07 | Data Dump type 1~7 |
| <addr2> | 0 = All Patches, 1 = Individual Patch |
| <addr3> | Patch Number 0~127, 0 when Addr2 ID=0 |

So to request that all Arpeggiator Data is sent, the SysEx string would be:

| Data [H] | Description |
|---|---|
| F0 | SysEx ID |
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Class ID |
| <id> | Device ID |
| 01 | Cmd ID = Request Data Dump |
| 03 | Addr1 ID = Arpeg Data |
| 00 | Addr2 ID = All Patches |
| 00 | Addr3 ID = 0 (Not used) |
| F7 | End of SysEx ID |

#### Address Index Format

When Addr1 ID is 08~10, which are used to access parameters within a patch, Addr2/Addr3 are used to supply 14-bit offset into the patch.

| Data [H] | Description |
|---|---|
| 08~10 | Patch Edit Parameter |
| <addr2> | Upper 7-bits of Offset into patch |
| <addr3> | Lower 7-bits of Offset into patch |

For example, the SysEx string to request that Multi parameter number 180 for part2 be sent would be:

| Data [H] | Description |
|---|---|
| F0 | SysEx ID |
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Class ID |
| <id> | Device ID |
| 01 | Cmd ID = Request Data Dump |
| 0C | Addr1 ID = Multi Part2 Patch Param |
| 01 | Addr2 ID = MSB of param 180 |
| 34 | Addr3 ID = LSB of param 180 |
| F7 | End of SysEx ID |

The data value is sent as a 14-bit number, so the response SysEx string to store 0x2FF would look like:

| Data [H] | Description |
|---|---|
| F0 | SysEx ID |
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Class ID |
| <id> | Device ID |
| 02 | Cmd ID = Write Data Dump |
| 0C | Addr1 ID = Multi Part2 Patch Param |
| 01 | Addr2 ID = MSB of param 180 |
| 34 | Addr3 ID = LSB of param 180 |
| 05 | MSB 7-bits of data value |
| 7F | LSB 7-bits of data value |
| F7 | End of SysEx ID |

Since there is no check-sum needed for sending individual parameters, there is no need for the host program to send an ACK/NAK packet to confirm that the data was received OK. ACK/NAKs are only used for patch dumps that make use of the data format detailed in the following section (see "<data> Format" on page 89).

## <data> Format

The internal data for various parameters is stored as 8-bit data, therefore it is necessary convert that data into a 7-bit format to be compatible with MIDI SysEx data. Since the data-dumps are the only types that need to send 8-bit data blocks, only Type IDs 0-7 need to be converted.

The following tables show how the data is converted from the what is stored internally. The first byte of the MIDI sequence holds a compilation of the top bits from the seven bytes. The trailing seven data bytes, then have their top bit set to 0.

**Internal Data, 8bits x 7bytes**

| Byte | 0 | . | . | . | . | . | . | 0 | | 1 | . | . | . | . | . | . | 1 | | 2 | . | . | . | . | . | . | 2 | .. | 6 | . | . | . | . | . | . | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | .. | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

**MIDI Data, as 7bits x 8bytes**

| Byte | | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | 0 | . | . | . | . | . | 0 | | | 1 | . | . | . | . | . | 1 | .. | | 6 | . | . | . | . | . | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bit | 0 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | | 0 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | 0 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | .. | 0 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

## <cs> Checksum

The tail end of the SysEx message includes a checksum byte, followed by EOX (0xF7). The checksum is calculated as the sum of all bytes taken from the <cmd> byte and stores 0-Total with the top bit set to 0. When a SysEx is received, it totals up all values from the <cmd> byte including the checksum and the result in the bottom 7 bits should be 0.

The checksum value is only used on data-dumps which make use of the data format detailed in the proceeding section (see "<data> Format" on page 89). As a data dump can generate long SysEx messages there's a possibility Windows may end up corrupting the data, so the checksum ensures that the data is always valid.

## SysEx Strings

String data is limited to 7-bit ASCII. However, string data will still be transmitted using the <data> format detailed above.

In order to request that all Single string data is sent, the SysEx string would be:

| Data [H] | Description |
|---|---|
| F0 | SysEx ID |
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Class ID |
| <id> | Device ID |
| 01 | Cmd ID = Request Data Dump |
| 07 | Addr1 ID = Arpeg Name Strings |
| 00 | Addr2 ID = All Patches |
| 00 | Addr3 ID = 0 (Not used) |
| F7 | End of SysEx ID |

The initial SysEx response would take the format:

| Data [H] | Description |
|---|---|
| F0 | SysEx ID |
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Class ID |
| <id> | Device ID |
| 02 | Cmd ID = Write Data Dump |
| 07 | Addr1 ID = Arpeg Name String |
| 01 | Addr2 ID = Individual Patch, Bank A |
| 00 | Addr3 ID = Initial Patch #0 |
| <ASCII> | ASCII data string, variable num of bytes |
| F7 | End of SysEx ID |

For example, Patch #20 with a name such as “Soft Bass 1” would be sent as:

F0 00 01 05 21 7F 02 07 01 00 14 53 6F 66 74 20 42 00 61 73 73 20 31 4C F7

The F7 value is used to terminate the string, so the there is no length parameter and the number of bytes can vary if the string is longer/shorter. Strings are 10-characters or less in length.

## Storing and Recalling Patches

It is possible to load a Patch into an Edit Buffer and save the contents of the Edit Buffer to memory on Venom using SysEx commands. In order to recall the Single Program stored in Bank D, Program 15 to the Edit Buffer, the following would be sent:

| Data [H] | Description |
|---|---|
| F0 | SysEx ID |
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Class ID |
| <id> | Device ID |
| 05 | Cmd ID = Recall Patch |
| 01 | Addr1 ID = Single Patch |
| 04 | Addr2 ID = Bank D |
| 0F | Addr3 ID = Program 15 |
| F7 | End of SysEx ID |

When the recall completes, Venom switches modes based on the type of patch recalled. If Addr1==1, Venom switches to Single mode. If Addr1==2, Venom switches to Multi Mode. If Addr2==0, no patch is recalled, but Venom switches modes as dictated by Addr1.

In order to store the current Multi Edit Buffer into Bank B Program 40, the following would be sent:

| Data [H] | Description |
|---|---|
| F0 | SysEx ID |
| 00 01 05 | M-Audio Manufacturer SysEx ID |
| 21 | Class ID |
| <id> | Device ID |
| 06 | Cmd ID = Store Patch |
| 02 | Addr1 ID = Multi Patch |
| 02 | Addr2 ID = Bank B |
| 28 | Addr3 ID = Program 40 |
| F7 | End of SysEx ID |

When storing and recalling patches, Venom responds with ACK once the store/recall process completes. Venom responds with NAK if the save fails (such as when attempting to write a patch to a read-only memory location).

## Handshaking

Venom expects to receive acknowledgement that a requested data transfer was successful. This is achieved through handshaking. Handshaking involves the following Command IDs:

0x7D Cancel – data transfer should be terminated

0x7E NAK – data packet received incorrectly

0x7F ACK – data packet received, checksum and length are correct

### ACK

This flag is sent after receiving a patch dump correctly. It indicates that the next data packet can be sent. The memory number should match that of the packet that was sent. The device responds to an ACK message by sending the next data packet. The device also sends this message upon receiving a correct data packet.

0xF0 SysEx ID

0x00 0x01 0x05 M-Audio Manufacturer SysEx ID

0x21 Device Class

<id> Device ID

0x7F Command ID (Cancel)

0xF7 EOX

### NAK

This flag is sent if a patch dump was received incorrectly. This will be the case if the checksum does *not* match or the number of bytes in the packet does not match the value defined in the length byte. The device responds by re-sending the last data packet. The device also sends this message upon receiving an incorrect data packet. After three consecutive attempts to receive a data packet have failed the device sends the Cancel Message.

0xF0 SysEx ID

0x00 0x01 0x05 M-Audio Manufacturer SysEx ID

0x21 Device Class

<id> Device ID

0x7E Command ID (NAK)

0xF7 EOX

### Cancel

The device responds to the Cancel Message by aborting a data transfer. It is also possible for the device to send the Cancel Message. This occurs after 3 unsuccessful attempts to send a data packet.

Additionally, if a data packet is expected, but not received within a 1 second period, the device sends a Cancel Message.

0xF0 SysEx ID

0x00 0x01 0x05 M-Audio Manufacturer SysEx ID

0x21 Device Class

<id> Device ID

0x7D Command ID (Cancel)

0xF7 EOX

## Arpeggiator Data Format

Each event is stored in a 4-byte packet. Since the maximum size of a pattern is 1024 bytes, the maximum number of events is 256. Each event includes a note on, controller, or pitch bend event, packed into a 4-byte packet (where note off events are always represented as note on, velocity zero).

| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|
| | T | T | T | T | T | T | T | T |
| | S | S | S | S | S | S | S | S |

| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|
| T | T | T | T | T | T | T | T |
| S | S | S | S | S | S | S | S |

| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|
| F | D | D | D | D | D | D | D |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|
| F | D | D | D | D | D | D | D |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

TS: 16 bits of Time-stamp relative to pattern start, 96 ticks per quarter note.

F1 & F2: two single bits that are used to define the event type.

| F2 | F1 | Event Type |
|---|---|---|
| 0 | 0 | Note |
| 0 | 1 | Controller |
| 1 | 1 | Pitch Bend |

D1 & D2: Are the two 7-bit data bytes for an event & contain the following values:

| Event Type | D1 | D2 |
|---|---|---|
| Note | Note Num | Velocity |
| Controller | CC Num | Value |
| Pitch Bend | PB LSB | PB MSB |

The only other event type is the end marker, which is stored as a 32-bit 0 (0x00000000).

The header data for a pattern is stored as a separate block of data (see "Arpeggiator Header Data Dump" on page 102).

Arpeggiator Limitations:

- Patterns are limited to being only 2 bars long.
- Patterns must fit inside 1024 bytes.
- Clock Resolution is set to 96 clocks per quarter note.
- Up to 5 different controllers per pattern are allowed (Pitchbend, Mod wheel, and MIDI CCs)
- No RPNs or NRPNs should be used in a pattern.

# SysEx Parameters

## Multi Program Dump

When an Edit buffer is recalled the following data is sent as part of a SysEx:

Parameters can also be individually updated using the appropriate address.

| Addr [H] | Parameter Name | Range |
|---|---|---|
| 00 00 | MltParam.PartSrc_f [PART1] | 0 ~ 7 * |
| 00 01 | MltParam.PartSrc_f [PART2] | 0 ~ 7 * |
| 00 02 | MltParam.PartSrc_f [PART3] | 0 ~ 7 * |
| 00 03 | MltParam.PartSrc_f [PART4] | 0 ~ 7 * |
| 00 04 | MltParam.Aux1ParamSrc | 0 ~ 4 |
| 00 05 | MltParam.Aux2ParamSrc | 0 ~ 4 |
| 00 06 | MltParam.MixerSrc | 0 ~ 4 |
| 00 07 | MltParam.SaveBank | 0 ~ 1 |
| 00 08 | MltParam.SavePatch | 0 ~ 127 |
| 00 09 | PartMap [PART1].Enable | Off/On *** |
| 00 0A | PartMap [PART2].Enable | Off/On *** |
| 00 0B | PartMap [PART3].Enable | Off/On *** |
| 00 0C | PartMap [PART4].Enable | Off/On *** |
| 00 0D | PartMap [PART1].Bank | 0 ~ 3 |
| 00 0E | PartMap [PART1].Program | 0 ~ 127 |
| 00 0F | Transpose [PART1].CoarseTune | 0 ~ 127 |
| 00 10 | Transpose [PART1].FineTune | 0 ~ 127 |
| 00 11 | Transpose [PART1].VoiceMode | 0 ~ 1 |
| 00 12 | Transpose [PART1].UnisonMode | Off/On *** |
| 00 13 | Transpose [PART1].UnisonCount | 2 ~ 12 |
| 00 14 | Transpose [PART1].UnisonDetune | 0 ~ 127 |
| 00 15 | ChanStrip [PART1].Volume | 0 ~ 127 |

| | | |
|---|---|---|
| 00 16 | ChanStrip [PART1].Pan | 0 ~ 127 |
| 00 17 | ChanStrip [PART1].Direct | 0 ~ 127 |
| 00 18 | ChanStrip [PART1].Aux1Send | 0 ~ 127 |
| 00 19 | ChanStrip [PART1].Aux2Send | 0 ~ 127 |
| 00 1A | ChanStrip [PART1].FX_Type | 0 ~ 5 |
| 00 1B | KeyMap [PART1].Channel | 0 ~ 16 |
| 00 1C | KeyMap [PART1].KeyLow | 0 ~ 127 |
| 00 1D | KeyMap [PART1].KeyHigh | 0 ~ 127 |
| 00 1E | KeyMap [PART1].VelLow | 0 ~ 127 |
| 00 1F | KeyMap [PART1].VelHigh | 0 ~ 127 |
| 00 20 | KeyMap [PART1].CtrlEnable_f | 0 ~ 63 |
| 00 21 | PartMap [PART2].Bank | 0 ~ 3 |
| 00 22 | PartMap [PART2].Program | 0 ~ 127 |
| 00 23 | Transpose [PART2].CoarseTune | 0 ~ 127 |
| 00 24 | Transpose [PART2].FineTune | 0 ~ 127 |
| 00 25 | Transpose [PART2].VoiceMode | 0 ~ 1 |
| 00 26 | Transpose [PART2].UnisonMode | Off/On *** |
| 00 27 | Transpose [PART2].UnisonCount | 2 ~ 12 |
| 00 28 | Transpose [PART2].UnisonDetune | 0 ~ 127 |
| 00 29 | ChanStrip [PART2].Volume | 0 ~ 127 |
| 00 2A | ChanStrip [PART2].Pan | 0 ~ 127 |
| 00 2B | ChanStrip [PART2].Direct | 0 ~ 127 |
| 00 2C | ChanStrip [PART2].Aux1Send | 0 ~ 127 |
| 00 2D | ChanStrip [PART2].Aux2Send | 0 ~ 127 |
| 00 2E | ChanStrip [PART2].FX_Type | 0 ~ 5 |
| 00 2F | KeyMap [PART2].Channel | 0 ~ 16 |
| 00 30 | KeyMap [PART2].KeyLow | 0 ~ 127 |
| 00 31 | KeyMap [PART2].KeyHigh | 0 ~ 127 |
| 00 32 | KeyMap [PART2].VelLow | 0 ~ 127 |
| 00 33 | KeyMap [PART2].VelHigh | 0 ~ 127 |
| 00 34 | KeyMap [PART2].CtrlEnable_f | 0 ~ 63 |
| 00 35 | PartMap [PART3].Bank | 0 ~ 3 |
| 00 36 | PartMap [PART3].Program | 0 ~ 127 |
| 00 37 | Transpose [PART3].CoarseTune | 0 ~ 127 |
| 00 38 | Transpose [PART3].FineTune | 0 ~ 127 |
| 00 39 | Transpose [PART3].VoiceMode | 0 ~ 1 |
| 00 3A | Transpose [PART3].UnisonMode | Off/On *** |
| 00 3B | Transpose [PART3].UnisonCount | 2 ~ 12 |
| 00 3C | Transpose [PART3].UnisonDetune | 0 ~ 127 |
| 00 3D | ChanStrip [PART3].Volume | 0 ~ 127 |
| 00 3E | ChanStrip [PART3].Pan | 0 ~ 127 |
| 00 3F | ChanStrip [PART3].Direct | 0 ~ 127 |
| 00 40 | ChanStrip [PART3].Aux1Send | 0 ~ 127 |
| 00 41 | ChanStrip [PART3].Aux2Send | 0 ~ 127 |
| 00 42 | ChanStrip [PART3].FX_Type | 0 ~ 5 |
| 00 43 | KeyMap [PART3].Channel | 0 ~ 16 |
| 00 44 | KeyMap [PART3].KeyLow | 0 ~ 127 |
| 00 45 | KeyMap [PART3].KeyHigh | 0 ~ 127 |
| 00 46 | KeyMap [PART3].VelLow | 0 ~ 127 |
| 00 47 | KeyMap [PART3].VelHigh | 0 ~ 127 |
| 00 48 | KeyMap [PART3].CtrlEnable_f | 0 ~ 63 |
| 00 49 | PartMap [PART4].Bank | 0 ~ 3 |

| | | |
|---|---|---|
| 00 4A | PartMap [PART4].Program | 0 ~ 127 |
| 00 4B | Transpose [PART4].CoarseTune | 0 ~ 127 |
| 00 4C | Transpose [PART4].FineTune | 0 ~ 127 |
| 00 4D | Transpose [PART4].VoiceMode | 0 ~ 1 |
| 00 4E | Transpose [PART4].UnisonMode | Off/On *** |
| 00 4F | Transpose [PART4].UnisonCount | 2 ~ 12 |
| 00 50 | Transpose [PART4].UnisonDetune | 0 ~ 127 |
| 00 51 | ChanStrip [PART4].Volume | 0 ~ 127 |
| 00 52 | ChanStrip [PART4].Pan | 0 ~ 127 |
| 00 53 | ChanStrip [PART4].Direct | 0 ~ 127 |
| 00 54 | ChanStrip [PART4].Aux1Send | 0 ~ 127 |
| 00 55 | ChanStrip [PART4].Aux2Send | 0 ~ 127 |
| 00 56 | ChanStrip [PART4].FX_Type | 0 ~ 5 |
| 00 57 | KeyMap [PART4].Channel | 0 ~ 16 |
| 00 58 | KeyMap [PART4].KeyLow | 0 ~ 127 |
| 00 59 | KeyMap [PART4].KeyHigh | 0 ~ 127 |
| 00 5A | KeyMap [PART4].VelLow | 0 ~ 127 |
| 00 5B | KeyMap [PART4].VelHigh | 0 ~ 127 |
| 00 5C | KeyMap [PART4].CtrlEnable_f | 0 ~ 63 |
| 00 5D | Aux1Reverb.Mode | Off/On *** |
| 00 5E | Aux1Reverb.Type | 0 ~ 1 |
| 00 5F | Aux1Reverb.Depth | 0 ~ 127 |
| 00 60 | Aux1Reverb.PreHP | 0 ~ 127 |
| 00 61 | Aux1Reverb.PreDelay | 0 ~ 127 |
| 00 62 | Aux1Reverb.HighDamp | 0 ~ 127 |
| 00 63 | Aux1Reverb.Time | 0 ~ 127 |
| 00 64 | Aux1Reverb.EchoFeedback | 0 ~ 127 |
| 00 65 | Aux1Reverb.GateDelayTime | 0 ~ 123 |
| 00 66 | Aux1Reverb.GateThresh | 0 ~ 127 |
| 00 67 | Aux1Reverb.ToneGain | 0 ~ 127 |
| 00 68 | Aux1Reverb.ToneFreq | 0 ~ 127 |
| 00 69 | Aux2Delay.Mode | Off/On *** |
| 00 6A | Aux2Delay.Type | 0 ~ 4 |
| 00 6B | Aux2Delay.Depth | 0 ~ 127 |
| 00 6C | Aux2Delay.ToAux1 | 0 ~ 127 |
| 00 6D | Aux2Delay.PreHP | 0 ~ 127 |
| 00 6E | Aux2Delay.PreLP | 0 ~ 127 |
| 00 6F | Aux2Delay.Time | 0 ~ 127 |
| 00 70 | Aux2Delay.Feedback | 0 ~ 127 |
| 00 71 | Aux2Delay.HighDamp | 0 ~ 127 |
| 00 72 | Aux2Delay.LfoRate | 0 ~ 123 |
| 00 73 | Aux2Delay.LfoDepth | 0 ~ 127 |
| 00 74 | Mixer.ProgVolume | 0 ~ 127 |
| 00 75 | MasterEQ.LowFreq | 0 ~ 127 |
| 00 76 | MasterEQ.LowGain | 0 ~ 127 |
| 00 77 | MasterEQ.MidFreq | 0 ~ 127 |
| 00 78 | MasterEQ.MidGain | 0 ~ 127 |
| 00 79 | MasterEQ.HighFreq | 0 ~ 127 |
| 00 7A | MasterEQ.HighGain | 0 ~ 127 |
| 00 7B | ArpPatch [PART1].Enable | Off/On *** |
| 00 7C | ArpPatch [PART1].ArpSrc_f | Off/On *** |
| 00 7D | ArpPatch [PART1].Bank | 0 ~ 1 |

| | | |
|---|---|---|
| 00 7E | ArpPatch [PART1].Pattern | 0 ~ 127 |
| 00 7F | ArpData [PART1].ArpMode | 0 ~ 2 |
| 01 00 | ArpData [PART1].NoteOrder | 0 ~ 4 |
| 01 01 | ArpData [PART1].OctaveRange | -4 ~ +4 |
| 01 02 | ArpData [PART1].BiPolar | Off/On *** |
| 01 03 | ArpData [PART1].LatchKeys | Off/On *** |
| 01 04 | ArpData [PART1].RootNote | 0 ~ 127 |
| 01 05 | ArpPatch [PART2].Enable | Off/On *** |
| 01 06 | ArpPatch [PART2].ArpSrc_f | Off/On *** |
| 01 07 | ArpPatch [PART2].Bank | 0 ~ 1 |
| 01 08 | ArpPatch [PART2].Pattern | 0 ~ 127 |
| 01 09 | ArpData [PART2].ArpMode | 0 ~ 2 |
| 01 0A | ArpData [PART2].NoteOrder | 0 ~ 4 |
| 01 0B | ArpData [PART2].OctaveRange | -4 ~ +4 |
| 01 0C | ArpData [PART2].BiPolar | Off/On *** |
| 01 0D | ArpData [PART2].LatchKeys | Off/On *** |
| 01 0E | ArpData [PART2].RootNote | 0 ~ 127 |
| 01 0F | ArpPatch [PART3].Enable | Off/On *** |
| 01 10 | ArpPatch [PART3].ArpSrc_f | Off/On *** |
| 01 11 | ArpPatch [PART3].Bank | 0 ~ 1 |
| 01 12 | ArpPatch [PART3].Pattern | 0 ~ 127 |
| 01 13 | ArpData [PART3].ArpMode | 0 ~ 2 |
| 01 14 | ArpData [PART3].NoteOrder | 0 ~ 4 |
| 01 15 | ArpData [PART3].OctaveRange | -4 ~ +4 |
| 01 16 | ArpData [PART3].BiPolar | Off/On *** |
| 01 17 | ArpData [PART3].LatchKeys | Off/On *** |
| 01 18 | ArpData [PART3].RootNote | 0 ~ 127 |
| 01 19 | ArpPatch [PART4].Enable | Off/On *** |
| 01 1A | ArpPatch [PART4].ArpSrc_f | Off/On *** |
| 01 1B | ArpPatch [PART4].Bank | 0 ~ 1 |
| 01 1C | ArpPatch [PART4].Pattern | 0 ~ 127 |
| 01 1D | ArpData [PART4].ArpMode | 0 ~ 2 |
| 01 1E | ArpData [PART4].NoteOrder | 0 ~ 4 |
| 01 1F | ArpData [PART4].OctaveRange | -4 ~ +4 |
| 01 20 | ArpData [PART4].BiPolar | Off/On *** |
| 01 21 | ArpData [PART4].LatchKeys | Off/On *** |
| 01 22 | ArpData [PART4].RootNote | 0 ~ 127 |
| 01 23 | PatchName [0] | 0 ~ 127 |
| 01 24 | PatchName [1] | 0 ~ 127 |
| 01 25 | PatchName [2] | 0 ~ 127 |
| 01 26 | PatchName [3] | 0 ~ 127 |
| 01 27 | PatchName [4] | 0 ~ 127 |
| 01 28 | PatchName [5] | 0 ~ 127 |
| 01 29 | PatchName [6] | 0 ~ 127 |
| 01 2A | PatchName [7] | 0 ~ 127 |
| 01 2B | PatchName [8] | 0 ~ 127 |
| 01 2C | PatchName [9] | 0 ~ 127 |

** MltParam.PartSrc_f [part] is a compilation of 3 bits with the following values*

Bit0: 1 = Flags that ChanStrip params are taken from the Single part.

Bit1: 2 = Flags that Transpose params are taken from the Single part

Bit2: 4 = Flags that Arpeg params are taken from the Single part

*** KeyMap [part].CtrlEnable_f is a compilation of 6 bits with following values:*

Bit0: 1 = Flags that the Pitchbend wheel is enabled.

Bit1: 2 = Flags that the Modulation wheel is enabled.

Bit2: 4 = Flags that the Sustain pedal is enabled.

Bit3: 8 = Flags that the Expression pedal is enabled.

Bit4: 16 = Flags that the Keyboard is enabled.

Bit5: 32 = Flags that the External MIDI Input is enabled.

**** Off/On is determined by evaluating the CC value received. If the CC value is 63 or lower, the state is "Off". If it is 64 or higher, the state is "On."*

## Single Program Dump

When an Edit buffer is recalled the following data is sent as part of a SysEx:

Parameters can also be individually updated using the appropriate address.

| Addr [H] | Parameter Name | Range |
|---|---|---|
| 00 00 | SglParam.GlideMode | 0 ~ 127 |
| 00 01 | SglParam.GlideTime | 0 ~ 127 |
| 00 02 | SglParam.SaveBank | 0 ~ 1 |
| 00 03 | SglParam.SavePatch | 0 ~ 127 |
| 00 04 | Envelope [ENV1].Attack | 0 ~ 127 |
| 00 05 | Envelope [ENV1].Hold | 0 ~ 127 |
| 00 06 | Envelope [ENV1].Decay | 0 ~ 127 |
| 00 07 | Envelope [ENV1].Sustain | 0 ~ 127 |
| 00 08 | Envelope [ENV1].Release | 0 ~ 127 |
| 00 09 | Envelope [ENV2].Attack | 0 ~ 127 |
| 00 0A | Envelope [ENV2].Hold | 0 ~ 127 |
| 00 0B | Envelope [ENV2].Decay | 0 ~ 127 |
| 00 0C | Envelope [ENV2].Sustain | 0 ~ 127 |
| 00 0D | Envelope [ENV2].Release | 0 ~ 127 |
| 00 0E | Envelope [ENV3].Attack | 0 ~ 127 |
| 00 0F | Envelope [ENV3].Hold | 0 ~ 127 |
| 00 10 | Envelope [ENV3].Decay | 0 ~ 127 |
| 00 11 | Envelope [ENV3].Sustain | 0 ~ 127 |
| 00 12 | Envelope [ENV3].Release | 0 ~ 127 |
| 00 13 | OscMisc.StartMod | 0 ~ 127 |
| 00 14 | OscMisc.OscDrift | 0 ~ 127 |
| 00 15 | OscMisc.BendRange | 0 ~ 127 |
| 00 16 | OscMisc.RingMod | 0 ~ 127 |
| 00 17 | OscMisc.FM_Level | 0 ~ 127 |
| 00 18 | OscMisc.OscFlags | 0 ~ 127 ** |
| 00 19 | OscMisc.WaveShapeWidth | 0 ~ 127 |
| 00 1A | Oscillator [OSC1].Waveform | 0 ~ 127 |
| 00 1B | Oscillator [OSC1].CoarseTune | 0 ~ 127 |
| 00 1C | Oscillator [OSC1].FineTune | 0 ~ 127 |
| 00 1D | Oscillator [OSC2].Waveform | 0 ~ 127 |
| 00 1E | Oscillator [OSC2].CoarseTune | 0 ~ 127 |
| 00 1F | Oscillator [OSC2].FineTune | 0 ~ 127 |
| 00 20 | PreMixer.Boost | 0 ~ 127 |

| | | |
|---|---|---|
| 00 21 | Oscillator [OSC3].Waveform | 0 ~ 127 |
| 00 22 | Oscillator [OSC3].CoarseTune | 0 ~ 127 |
| 00 23 | Oscillator [OSC3].FineTune | 0 ~ 127 |
| 00 24 | Reserved.Data2 | 0 ~ 127 |
| 00 25 | Lfo [LFO1].Waveform | 0 ~ 7 |
| 00 26 | Lfo [LFO1].Rate | 0 ~ 123 |
| 00 27 | Lfo [LFO1].Delay | 0 ~ 127 |
| 00 28 | Lfo [LFO1].Attack | 0 ~ 127 |
| 00 29 | Lfo [LFO1].StartPhase | 0 ~ 127 |
| 00 2A | Lfo [LFO2].Waveform | 0 ~ 7 |
| 00 2B | Lfo [LFO2].Rate | 0 ~ 123 |
| 00 2C | Lfo [LFO2].Delay | 0 ~ 127 |
| 00 2D | Lfo [LFO2].Attack | 0 ~ 127 |
| 00 2E | Lfo [LFO2].StartPhase | 0 ~ 127 |
| 00 2F | Lfo [LFO3].Waveform | 0 ~ 7 |
| 00 30 | Lfo [LFO3].Rate | 0 ~ 123 |
| 00 31 | Lfo [LFO3].Delay | 0 ~ 127 |
| 00 32 | Lfo [LFO3].Attack | 0 ~ 127 |
| 00 33 | Lfo [LFO3].StartPhase | 0 ~ 127 |
| 00 34 | ModRoute [MOD1].Source | 0 ~ 30 |
| 00 35 | ModRoute [MOD2].Source | 0 ~ 30 |
| 00 36 | ModRoute [MOD3].Source | 0 ~ 30 |
| 00 37 | ModRoute [MOD4].Source | 0 ~ 30 |
| 00 38 | ModRoute [MOD5].Source | 0 ~ 30 |
| 00 39 | ModRoute [MOD6].Source | 0 ~ 30 |
| 00 3A | ModRoute [MOD7].Source | 0 ~ 30 |
| 00 3B | ModRoute [MOD8].Source | 0 ~ 30 |
| 00 3C | ModRoute [MOD9].Source | 0 ~ 30 |
| 00 3D | ModRoute [MOD10].Source | 0 ~ 30 |
| 00 3E | ModRoute [MOD11].Source | 0 ~ 30 |
| 00 3F | ModRoute [MOD12].Source | 0 ~ 30 |
| 00 40 | ModRoute [MOD13].Source | 0 ~ 30 |
| 00 41 | ModRoute [MOD14].Source | 0 ~ 30 |
| 00 42 | ModRoute [MOD15].Source | 0 ~ 30 |
| 00 43 | ModRoute [MOD16].Source | 0 ~ 30 |
| 00 44 | ModRoute [MOD1].Destination | 0 ~ 79 |
| 00 45 | ModRoute [MOD2].Destination | 0 ~ 79 |
| 00 46 | ModRoute [MOD3].Destination | 0 ~ 79 |
| 00 47 | ModRoute [MOD4].Destination | 0 ~ 79 |
| 00 48 | ModRoute [MOD5].Destination | 0 ~ 79 |
| 00 49 | ModRoute [MOD6].Destination | 0 ~ 79 |
| 00 4A | ModRoute [MOD7].Destination | 0 ~ 79 |
| 00 4B | ModRoute [MOD8].Destination | 0 ~ 79 |
| 00 4C | ModRoute [MOD9].Destination | 0 ~ 79 |
| 00 4D | ModRoute [MOD10].Destination | 0 ~ 79 |
| 00 4E | ModRoute [MOD11].Destination | 0 ~ 79 |
| 00 4F | ModRoute [MOD12].Destination | 0 ~ 79 |
| 00 50 | ModRoute [MOD13].Destination | 0 ~ 79 |
| 00 51 | ModRoute [MOD14].Destination | 0 ~ 79 |
| 00 52 | ModRoute [MOD15].Destination | 0 ~ 79 |
| 00 53 | ModRoute [MOD16].Destination | 0 ~ 79 |
| 00 54 | ModRoute [MOD1].Scaling | 0 ~ 127 |

| | | |
|---|---|---|
| 00 55 | ModRoute [MOD2].Scaling | 0 ~ 127 |
| 00 56 | ModRoute [MOD3].Scaling | 0 ~ 127 |
| 00 57 | ModRoute [MOD4].Scaling | 0 ~ 127 |
| 00 58 | ModRoute [MOD5].Scaling | 0 ~ 127 |
| 00 59 | ModRoute [MOD6].Scaling | 0 ~ 127 |
| 00 5A | ModRoute [MOD7].Scaling | 0 ~ 127 |
| 00 5B | ModRoute [MOD8].Scaling | 0 ~ 127 |
| 00 5C | ModRoute [MOD9].Scaling | 0 ~ 127 |
| 00 5D | ModRoute [MOD10].Scaling | 0 ~ 127 |
| 00 5E | ModRoute [MOD11].Scaling | 0 ~ 127 |
| 00 5F | ModRoute [MOD12].Scaling | 0 ~ 127 |
| 00 60 | ModRoute [MOD13].Scaling | 0 ~ 127 |
| 00 61 | ModRoute [MOD14].Scaling | 0 ~ 127 |
| 00 62 | ModRoute [MOD15].Scaling | 0 ~ 127 |
| 00 63 | ModRoute [MOD16].Scaling | 0 ~ 127 |
| 00 64 | PreMixer.OscVolume [OSC1] | 0 ~ 127 |
| 00 65 | PreMixer.OscVolume [OSC2] | 0 ~ 127 |
| 00 66 | PreMixer.OscVolume [OSC3] | 0 ~ 127 |
| 00 67 | PreMixer.ExtInVolume | 0 ~ 127 |
| 00 68 | PreMixer.ExtInSource | 0 ~ 6 |
| 00 69 | Filter.Type | 0 ~ 7 |
| 00 6A | Filter.Cutoff High | 0 ~ 127 |
| 00 6B | Filter.Cutoff Low | 0 ~ 127 |
| 00 6C | Filter.Resonance | 0 ~ 127 |
| 00 6D | Transpose.CoarseTune | 0 ~ 127 |
| 00 6E | Transpose.FineTune | 0 ~ 127 |
| 00 6F | Transpose.VoiceMode | 0 ~ 1 |
| 00 70 | Transpose.UnisonMode | Off/On *** |
| 00 71 | Transpose.UnisonCount | 2 ~ 12 |
| 00 72 | Transpose.UnisonDetune | 0 ~ 127 |
| 00 73 | ChanStrip.Volume | 0 ~ 127 |
| 00 74 | ChanStrip.Pan | 0 ~ 127 |
| 00 75 | ChanStrip.Direct | 0 ~ 127 |
| 00 76 | ChanStrip.Aux1Send | 0 ~ 127 |
| 00 77 | ChanStrip.Aux2Send | 0 ~ 127 |
| 00 78 | ChanStrip.FX_Type | 0 ~ 5 |
| 00 79 | HiLoEQ.LowFreq | 0 ~ 127 |
| 00 7A | HiLoEQ.LowGain | 0 ~ 127 |
| 00 7B | HiLoEQ.HighFreq | 0 ~ 127 |
| 00 7C | HiLoEQ.HighGain | 0 ~ 127 |
| 00 7D | Tremolo.Waveform | 0 ~ 4 |
| 00 7E | Tremolo.Rate | 0 ~ 127 |
| 00 7F | Tremolo.VolDepth | 0 ~ 127 |
| 01 00 | Tremolo.PanDepth | 0 ~ 127 |
| 01 01 | AutoWah.Type | 0 ~ 1 |
| 01 02 | AutoWah.Cutoff | 0 ~ 127 |
| 01 03 | AutoWah.Resonance | 0 ~ 127 |
| 01 04 | AutoWah.Sensitivity | 0 ~ 127 |
| 01 05 | Compressor.Attack | 0 ~ 127 |
| 01 06 | Compressor.Release | 0 ~ 127 |
| 01 07 | Compressor.Threshold | 0 ~ 127 |
| 01 08 | Compressor.Ratio | 0 ~ 127 |

| | | |
|---|---|---|
| 01 09 | Compressor.Gain | 0 ~ 127 |
| 01 0A | Distortion.Type | 0 ~ 2 |
| 01 0B | Distortion.Depth | 0 ~ 127 |
| 01 0C | Distortion.PreGain | 0 ~ 127 |
| 01 0D | Distortion.PostGain | 0 ~ 127 |
| 01 0E | Distortion.HighCutoff | 0 ~ 127 |
| 01 0F | BandPass.MidFreq | 0 ~ 127 |
| 01 10 | BandPass.MidGain | 0 ~ 127 |
| 01 11 | BandPass.MidQ | 0 ~ 127 |
| 01 12 | Reducer.BitDepth | 0 ~ 12 |
| 01 13 | Reducer.SampleRate | 0 ~ 127 |
| 01 14 | Aux1Reverb.Mode | Off/On *** |
| 01 15 | Aux1Reverb.Type | 0 ~ 1 |
| 01 16 | Aux1Reverb.Depth | 0 ~ 127 |
| 01 17 | Aux1Reverb.PreHP | 0 ~ 127 |
| 01 18 | Aux1Reverb.PreDelay | 0 ~ 127 |
| 01 19 | Aux1Reverb.HighDamp | 0 ~ 127 |
| 01 1A | Aux1Reverb.Time | 0 ~ 127 |
| 01 1B | Aux1Reverb.EchoFeedback | 0 ~ 127 |
| 01 1C | Aux1Reverb.GateDelayTime | 0 ~ 123 |
| 01 1D | Aux1Reverb.GateThresh | 0 ~ 127 |
| 01 1E | Aux1Reverb.ToneGain | 0 ~ 127 |
| 01 1F | Aux1Reverb.ToneFreq | 0 ~ 127 |
| 01 20 | Aux2Delay.Mode | Off/On *** |
| 01 21 | Aux2Delay.Type | 0 ~ 4 |
| 01 22 | Aux2Delay.Depth | 0 ~ 127 |
| 01 23 | Aux2Delay.ToAux1 | 0 ~ 127 |
| 01 24 | Aux2Delay.PreHP | 0 ~ 127 |
| 01 25 | Aux2Delay.PreLP | 0 ~ 127 |
| 01 26 | Aux2Delay.Time | 0 ~ 127 |
| 01 27 | Aux2Delay.Feedback | 0 ~ 127 |
| 01 28 | Aux2Delay.HighDamp | 0 ~ 127 |
| 01 29 | Aux2Delay.LfoRate | 0 ~ 123 |
| 01 2A | Aux2Delay.LfoDepth | 0 ~ 127 |
| 01 2B | Mixer.ProgVolume | 0 ~ 127 |
| 01 2C | MasterEQ.LowFreq | 0 ~ 127 |
| 01 2D | MasterEQ.LowGain | 0 ~ 127 |
| 01 2E | MasterEQ.MidFreq | 0 ~ 127 |
| 01 2F | MasterEQ.MidGain | 0 ~ 127 |
| 01 30 | MasterEQ.HighFreq | 0 ~ 127 |
| 01 31 | MasterEQ.HighGain | 0 ~ 127 |
| 01 32 | ArpPatch.Enable | Off/On *** |
| 01 33 | ArpPatch.ArpSrc_f | Off/On *** |
| 01 34 | ArpPatch.Bank | 0 ~ 1 |
| 01 35 | ArpPatch.Pattern | 0 ~ 127 |
| 01 36 | ArpData.ArpMode | 0 ~ 2 |
| 01 37 | ArpData.NoteOrder | 0 ~ 4 |
| 01 38 | ArpData.OctaveRange | -4 ~ +4 |
| 01 39 | ArpData.BiPolar | Off/On *** |
| 01 3A | ArpData.LatchKeys | Off/On *** |
| 01 3B | ArpData.RootNote | 0 ~ 127 |
| 01 3C | PatchName [0] | 0 ~ 127 |

| | | |
|---|---|---|
| 01 3D | PatchName [1] | 0 ~ 127 |
| 01 3E | PatchName [2] | 0 ~ 127 |
| 01 3F | PatchName [3] | 0 ~ 127 |
| 01 40 | PatchName [4] | 0 ~ 127 |
| 01 41 | PatchName [5] | 0 ~ 127 |
| 01 42 | PatchName [6] | 0 ~ 127 |
| 01 43 | PatchName [7] | 0 ~ 127 |
| 01 44 | PatchName [8] | 0 ~ 127 |
| 01 45 | PatchName [9] | 0 ~ 127 |

## Effects and Mixer Data Dump

When an Effects Edit buffer data is recalled the following data is sent as part of the SysEx:

Parameters can also be individually updated using the appropriate address.

| Addr [H] | Parameter Name | Range |
|---|---|---|
| 00 00 | Aux1Reverb.Mode | Off/On *** |
| 00 01 | Aux1Reverb.Type | 0 ~ 1 |
| 00 02 | Aux1Reverb.Depth | 0 ~ 127 |
| 00 03 | Aux1Reverb.PreHP | 0 ~ 127 |
| 00 04 | Aux1Reverb.PreDelay | 0 ~ 127 |
| 00 05 | Aux1Reverb.HighDamp | 0 ~ 127 |
| 00 06 | Aux1Reverb.Time | 0 ~ 127 |
| 00 07 | Aux1Reverb.EchoFeedback | 0 ~ 127 |
| 00 08 | Aux1Reverb.GateDelayTime | 0 ~ 123 |
| 00 09 | Aux1Reverb.GateThresh | 0 ~ 127 |
| 00 0A | Aux1Reverb.ToneGain | 0 ~ 127 |
| 00 0B | Aux1Reverb.ToneFreq | 0 ~ 127 |
| 00 0C | Aux2Delay.Mode | Off/On *** |
| 00 0D | Aux2Delay.Type | 0 ~ 4 |
| 00 0E | Aux2Delay.Depth | 0 ~ 127 |
| 00 0F | Aux2Delay.ToAux1 | 0 ~ 127 |
| 00 10 | Aux2Delay.PreHP | 0 ~ 127 |
| 00 11 | Aux2Delay.PreLP | 0 ~ 127 |
| 00 12 | Aux2Delay.Time | 0 ~ 127 |
| 00 13 | Aux2Delay.Feedback | 0 ~ 127 |
| 00 14 | Aux2Delay.HighDamp | 0 ~ 127 |
| 00 15 | Aux2Delay.LfoRate | 0 ~ 123 |
| 00 16 | Aux2Delay.LfoDepth | 0 ~ 127 |
| 00 17 | Mixer.ProgVolume | 0 ~ 127 |
| 00 18 | MasterEQ.LowFreq | 0 ~ 127 |
| 00 19 | MasterEQ.LowGain | 0 ~ 127 |
| 00 1A | MasterEQ.MidFreq | 0 ~ 127 |
| 00 1B | MasterEQ.MidGain | 0 ~ 127 |
| 00 1C | MasterEQ.HighFreq | 0 ~ 127 |
| 00 1D | MasterEQ.HighGain | 0 ~ 127 |

## Arpeggiator Header Data Dump

When an Arpeggiator Edit buffer data is recalled the following data is sent as part of the SysEx:-

Parameters can also be individually updated using the appropriate address.

| Addr [H] | Parameter Name | Range |
|---|---|---|
| 00 00 | ArpPatch.Enable | Off/On *** |
| 00 01 | ArpPatch.ArpSrc_f | Off/On *** |
| 00 02 | ArpPatch.Bank | 0 ~ 1 |
| 00 03 | ArpPatch.Pattern | 0 ~ 127 |
| 00 04 | ArpData.ArpMode | 0 ~ 2 |
| 00 05 | ArpData.NoteOrder | 0 ~ 4 |
| 00 06 | ArpData.OctaveRange | -4 ~ +4 |
| 00 07 | ArpData.BiPolar | Off/On *** |
| 00 08 | ArpData.LatchKeys | Off/On *** |
| 00 09 | ArpData.RootNote | 0 ~ 127 |
| 00 0A | PatchName [0] | 0 ~ 127 |
| 00 0B | PatchName [1] | 0 ~ 127 |
| 00 0C | PatchName [2] | 0 ~ 127 |
| 00 0D | PatchName [3] | 0 ~ 127 |
| 00 0E | PatchName [4] | 0 ~ 127 |
| 00 0F | PatchName [5] | 0 ~ 127 |
| 00 10 | PatchName [6] | 0 ~ 127 |
| 00 11 | PatchName [7] | 0 ~ 127 |
| 00 12 | PatchName [8] | 0 ~ 127 |
| 00 13 | PatchName [9] | 0 ~ 127 |

**** Off/On is determined by evaluating the CC value received. If the CC value is 63 or lower, the state is "Off." If it is 64 or higher, the state is "On."*

## Global Parameters Data Dump

When a Global data is recalled the following data is sent as part of the SysEx:

Parameters can also be individually updated using the appropriate address.

| Addr [H] | Parameter Name | Range |
|---|---|---|
| 00 00 | Octave | 61-68 (-3 ~ +3) |
| 00 01 | Transpose | 48-72 (-12 ~ +12) |
| 00 02 | MasterTune | 14-114 (-50 ~ +50) |
| 00 03 | MasterTempo | 50 ~ 300 |
| 00 04 | GlobalChan | 0 ~ 15 |
| 00 05 | MidiOutMode | 0 ~ 1 |
| 00 06 | LocalMode | 0 ~ 1 |
| 00 07 | VelCurve | 0 ~ 3 |
| 00 08 | FixedVel | 1 ~ 127 |
| 00 09 | MidiReceiveClockMode | 0 ~ 2 |
| 00 0A | MidiTransmitClockMode | 0 ~ 2 |
| 00 0B | MidiSingleSel_f | Off/On *** |
| 00 0C | MidiMultiSel_f | Off/On *** |
| 00 0D | ArpegRoute | 0 ~ 1 |
| 00 0E | SustainPedal CC | 0 ~ 134 |
| 00 0F | ExpresssionPedal CC | 0 ~ 131 |

| | | |
|---|---|---|
| 00 10 | ModulationWheel CC | 0 ~ 131 |
| 00 11 | UsbRecord_f | Off/On *** |
| 00 12 | MonoRecord_f | Off/On *** |

*** *Off/On is determined by evaluating the CC value received. If the CC value is 63 or lower, the state is "Off." If it is 64 or higher, the state is "On."*

# Appendix C: Compliance Information

## Environmental Compliance

### Disposal of Waste Equipment by Users in the European Union

This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

### Proposition 65 Warning

⚠ *This product contains chemicals, including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.*

### Perchlorate Notice

This product may contain a lithium coin battery. The State of California requires the following disclosure statement: “Perchlorate Material – special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate.”

### Recycling Notice

# EMC (Electromagnetic Compliance)

Avid declares that this product complies with the following standards regulating emissions and immunity:

- FCC Part 15 Class A
- EN55022 Class A
- EN 55024
- AS/NZS CISPR 22 Class A
- CISPR 22 Class A

## FCC Compliance for United States

### Radio and Television Interference

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

**DECLARATION OF CONFORMITY**
We, Avid, 2001 Junipero Serra Boulevard
Daly City, CA 94014-3886, USA
650-731-6300
declare under our sole responsibility that the product
Venom
complies with Part 15 of FCC Rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

**Communication Statement**
NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or locate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any modifications to the unit, unless expressly approved by Avid, could void the user's authority to operate the equipment.

## Australian Compliance

Avid

## Canadian Compliance

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations ICES-003.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur ICES-003 du Canada.

## CE Compliance

### (EMC and Safety)

CE 97

Avid is authorized to apply the CE (Conformité Européenne) mark on this compliant equipment thereby declaring conformity to EMC Directive: 2004/108/EC and Low Voltage Directive: 2006/95/EC.

# Safety Compliance

## Safety Statement

This equipment has been tested to comply with USA and Canadian safety certification in accordance with the specifications of UL Standards: UL60065 7th /IEC 60065 7th and Canadian CAN/CSA C22.2 60065:03. Avid Inc., has been authorized to apply the appropriate UL & CUL mark on its compliant equipment.

## Warning


## Japan PSE Safety


## Important Safety Instructions

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this equipment near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other equipment (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect power cords from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the equipment.

11) Only use attachments/accessories specified by the manufacturer.

12) For products that are not rack-mountable: Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the equipment. When a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.

13) Unplug this equipment during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the equipment, the equipment has been exposed to rain or moisture, does not operate normally, or has been dropped.

15) For products that are a Mains powered device:
The equipment shall not be exposed to dripping or splashing and no objects filled with liquids (such as vases) shall be placed on the equipment.

**Warning**! To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.

16) For products containing a lithium battery:
**CAUTION!** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

17) For products with a power switch:
The main power switch is located on the front panel of the HD OMNI. It should remain accessible after installation.

18) The equipment shall be used at a maximum ambient temperature of 40° C.

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Technical Support (USA)
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