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You can read the recommendations in the user guide, the technical guide or the installation guide for M-AUDIO AXIOM 49. You'll find the answers to all your questions on the M-AUDIO AXIOM 49 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual M-AUDIO AXIOM 49
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M-AUDIO

Axiom

User Guide

English

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Register online at www.m-audio.com/register Your new keyboard provides extensive control of virtual instruments, DAWs, hardware synthesizers, samplers and any other MIDIcompatible device. The eight fully assignable pads give you the ability to trigger samples and loops separately from the keyboard in real-time. The eight fully assignable endless rotary encoders allow for instant control of your software's features and can pick up just where you left off.

@ @Eight fully programmable endless rotary encoders. Eight fully programmable sample trigger pads. Nine fully assignable 40mm sliders (Axiom 49 and 61 only). USB 1.1 port to connect the Axiom to a computer.

@ @MIDI IN and MIDI OUT ports for connecting external MIDI gear. Expression pedal socket (expression pedal not included). Sustain pedal socket (sustain pedal not included). Fully programmable monophonic aftertouch. Null mode for full parameter recall with each preset. @ @ @ @Rotary encoders can be programmed to use any of six popular increment/decrement methods for compatibility with virtually all software with encoder support. The encoders can also function as standard MIDI controllers with a range of 0 to 127. A range of different acceleration curves for the encoders for realistic dial control. Trigger pads respond to velocity or pressure and can be programmed to either send MIDI note data or controller messages, allowing for full control over all your software samplers, for triggering loops and much more. < < < < < < < < < About This Manual There are five sections to this manual.

Section 1 provides an overview of your new Axiom keyboard and gives you details how to set up the keyboard with your computer. Section 2 explains some of your keyboard's basic control features to get you started right away. In section 3, we delve into more advanced functions and programming, and in section 4 we provide examples of your Axiom keyboard in use. Finally, section 5 explains more about MIDI and some often misunderstood MIDI message types. 3 English Axiom Line User Guide Section 1: Getting Started 1.1 Axiom Keyboards Overview 1.1.1 Top Panel Overview 1.1.2 Back Panel Overview 1.

1.3 Control Definitions These controls are referred by name throughout this manual. 1: 2: 3: 4: 5: 6: 7: 8: LCD display Sliders (Axiom 49/61 only) Encoders Transport buttons Assignable buttons (Axiom 49/61 only) Trigger Pads Function buttons Numeric Keypad (Axiom 49/61 only) 9: 10: 11: 12: 13: 14: 15: 16: 17: Octave buttons Pitch Bend wheel Modulation wheel Keyboard with Aftertouch Expression pedal socket Sustain Pedal socket MIDI OUT port MIDI IN port USB 1.1 port 4 18: 19: 20: DC power socket Power switch Kensington Lock Hole English Axiom Line User Guide 1.2 Setup If you intend to connect your Axiom keyboard to a computer, please read sections 1.

2 and 1.3 first. If you only intend to use your Axiom keyboard to control a sound module or synthesizer using the external MIDI OUT you should skip to section 1.4. 1.

2.1 Minimum System Requirements If you are using your Axiom with a computer, the following minimum system requirements apply: Windows Pentium 3 800 MHz or higher (CPU requirement may be higher for laptops) 256 MB RAM DirectX 9.

0b or higher Windows XP (SP2) or higher (Windows 98, Me, NT or 2000 not supported) Mac OS Macintosh G3* 800/G4* 733 MHz or higher (CPU requirement may be higher for laptops) OS X 10.3.9 with 256 MB RAM, OS X 10.4.2 or greater with 512 MB RAM *G3/G4 accelerator cards are not supported. M-Audio suggests you also check the minimum system requirements for your software, as they may be greater than the above. USB hubs are not supported. M-Audio suggests that you connect directly to one of your computer's built in USB ports.

1.3 Driver Installation Procedure Important: Do not connect the USB cable to a computer until you have read and understood the instructions in the Quick Start Guide. A printed copy of this is included in the box and you will also find this on the Keyboard Controller Series CD-ROM. 1.3.3 Using The Axiom with Your Software When installed, the Axiom appears as a simple MIDI device with two input ports and one output port. You should select the first listed Axiom input port as the MIDI input device in your software. Once this is set, your software should be able to receive notes and controller data from the Axiom. If you have connected external MIDI gear like a drum machine or another keyboard to your Axiom's MIDI IN port, this gear can be interfaced to the computer by selecting the second listed Axiom input port. This way, your Axiom is acting as a MIDI to USB interface.

It is also possible to stream data from your computer to external MIDI gear connected to the MIDI OUT port of your Axiom-- effectively a USB to MIDI interface. To do this, you should select the Axiom output device in your software. Note that some other steps are necessary to make this work that will be fully explained later in this manual. The port names are defined in the table below. Note thatin a value between 0 and 127.

Press the Enter key to confirm the value. < Use the -/+ buttons to make small single step adjustments. As you enter data from the keyboard numeric keys or use the -/+ buttons, the current value is displayed on the LCD. 2.0.

3 Function Index Function Advanced (Axiom 25 only) -/+ Snapshot Zone Range Zone/Group Recall* Program* Mute Null Glob. Chan* Panic Ctrl Assign Chan. Assign Vel. Lock Bank LSB Bank MSB Section 2.0.2 2.0.2 3.3.3 3.

6.4 3.6.2 3.2 2.4.2 and 3.6.6 3.3.

1players like to play in a particular key like C or F, for example. Transpose lets you change the pitch you are controlling and continue to play in the key that is most comfortable for you. It is possible to transpose up or down by as much as 12 MIDI notes (or semitones). This means if you press one of the transpose buttons 12 times, the tone will sound exactly one octave higher or lower. To transpose the pitch you are playing: < Locate the Octave / Transpose buttons and press them both together.

The current transpose value will show on the LCD display. Press either > to transpose up by one half step, or < to transpose down by one half step. The transpose value on the LCD will update accordingly. When you stop pressing the Octave / Transpose buttons, the "Trans" symbol on the LCD display will stop flashing and performance mode will resume. < < The maximum transpose value is +12 (up) or -12 (down) semitones.

Once you have set the transpose value, the Octave / Transpose buttons will again control the Octave shift. Octave and Transpose settings can be saved to any of the 20 memory locations of your Axiom. This process is explained in section 3.2. 9 English Axiom Line User Guide 2.2 MIDI Channel MIDI messages can be sent on any of 16 channels. If you are connected to a computer, the MIDI software will be receiving on all channels in most cases. However, when you are connected to external MIDI synthesizers, sound modules and some virtual instruments, you need to match the transmit channel of your keyboard with the receiving channel of the MIDI device for the connection to work properly. To set the channel of your keyboard: 49- and 61-note versions: < < Press the Glob Chan button. The LCD will show the channel on which the keyboard is currently transmitting.

Enter a channel between 1-16 on the numeric keypad. The LCD will update to display the new channel selected as you enter the data. You can also use the -/+ buttons to step through the channels. < 25-note version: < Press Recall and Program together to access the Glob Chan setting. The LCD will flash the GLOB CHAN symbol. Use the -/+ buttons to select a channel between 1-16. As you press these buttons, you will see the selected channel change on the LCD display. < Or < < < < Press the Advanced button. Press Recall and Program together to access the Glob. Chan setting.

Enter a channel between 1-16 on the numeric data entry keys. Press the Enter key to confirm the entered value. Controlling Percussion Sounds Setting the transmit channel of your keyboard to channel 10 will allow you to control percussion sounds on any GM, GM2, GS or XG compatible module or synthesizer. The Global MIDI channel setting can be saved to any of the 20 memory locations of your Axiom. This process is explained in detail in section 3. 2. Note: It is possible to assign the controls of your Axiom to channels on an individual basis. This is explained in section 3.6.7.

2.3 Program and Bank Changes Program messages (commonly referred to as program changes) are used to select different instrument sounds in a MIDI device. Program messages cover a range of 128 instruments. These instruments are accessed by sending program numbers 0 to 127. Some MIDI devices have more than 128 instruments. If this is the case, the instruments tend to be separated into groups of 128, called banks. You can send bank MSB and bank LSB messages to access these different banks. Please consult the user manual of your MIDI device to see how the bank change numbers relate to the sounds on your device. To send a program change: 49- and 61-note versions: < < < < Press the Program button. The LCD will flash the program number that was last sent out.

Enter the program change in the range 0-127 on the numeric keypad. You can also use the -/+ buttons to step through programs. 25-note version: < < < Press the Program button. The LCD will flash the PROG symbol. Use the -/+ buttons to select a program change in the range 0-127. Or 10 English Axiom Line User Guide < < < < Press the Advanced button. Press the Program button. Enter the program change in the range of 0-127 on the numeric data entry keys. Press the Enter key to confirm the entered value To send a bank change: 49- and 61-note versions: < < < Press the Bank LSB or Bank MSB button. The LCD will flash the bank number that was last sent out.

Enter the new bank number in the range of 0-127 on the numeric keypad. 25-note version: < < < < < Press the Advanced button. Press either the Bank LSB key or Bank MSB key. The LCD will flash the bank number that was last sent out.

Enter the new bank number in the range 0-127 on the numeric data entry keys.

Press the Enter key to confirm the entered value. Program and bank settings can be saved to any of the 20 memory locations on your Axiom. This process is explained in detail in section 3.2. 2.

4 MIDI Controller Messages There are 128 MIDI controller messages that are used for controlling the MIDI-adjustable parameters in your software or on your external MIDI gear. Examples of these controllable parameters include volume, pan, expression, reverb, chorus and portamento. Each of the controls on your Axiom keyboard is able to send any of the 128 standard MIDI controller messages to control such parameters. Please note that in order for these effects to work, the MIDI device you are sending to must be able to receive these messages. A full list of these control messages is given in Appendix C. For example, you may want to set the Modulation wheel to control the reverb amount. This is done by assigning controller 91 to the Modulation wheel (control A10 on Axiom 25, control A19 on Axiom 49 and Axiom 61). . Examples of other popular effects are listed in the table below. (Please consult Appendix C for the full list.

) Effect Modulation Volume Pan Expression Reverb depth Chorus depth Control Number 1 7 10 11 91 93 There are many different types of virtual instruments available and most of these respond to MIDI controller messages, allowing you to control a variety of parameters from your Axiom keyboard. Please review the manual that came with your software or external gear to see what these controller numbers are. 11 English Axiom Line User Guide 2.4.1 Extra Messages - 128 To 131 You may have noticed that although we have stated there are 128 MIDI controller messages (0 127), Appendix C shows 132 assignable controller messages. This is because messages 128 131 are a different type of MIDI message, defined in the General MIDI Specification as RPN messages. You can assign these to the controls on your Axiom keyboard in exactly the same way as any other MIDI controller message. The RPN messages control the following: Controller Number 128 129 130 131 MIDI Message Pitch Bend Sensitivity Master Tune (coarse) Master Tune (fine) Monophonic Aftertouch* Use Alters the range of a pitch bend message Adjusts the tuning of your sound module or synthesizer in large steps Adjusts the tuning of your sound module or synthesizer in small steps Adds a vibrato effect *Monophonic aftertouch is not an RPN message. However, it is an additional effect message defined in the General MIDI specification and this is why we have included it in Appendix C. 2.

4.2 Programming the Controls on Your Axiom When programming a physical controller on your Axiom, the controller that was last used will be the first one selected for programming. To select a different physical controller for programming, use one of the following two methods: Method 1: 25-, 49- and 61-note versions: < Move the physical controller you wish to program, or press the assignable button or pad. Method 2: 49- and 61-note versions: < < < Press Chan Assign and Ctrl Assign together to access the Ctrl Select setting. The LCD display will flash the last used control.

Use the numeric keypad to enter the number of the physical controller you want to select for programming. 25-note version: < < < < Press the Advanced button. Press the Ctrl Select key on the keyboard. The LCD display will show the last used control. Use the numeric data entry keys to enter the number of the physical programming.

Press the Enter key to confirm and return to performance mode. controller you want to select for < The advantage of method 2 is that you do not have to move a control to select it so there is no danger of disturbing a parameter on the MIDI device you are controlling. Programming a control: 49- and 61-note versions: < < < Select the physical controller for programming using method 1 or 2 above. Press the Ctrl Assign button. The LCD display will show the currently assigned MIDI controller number The physical controller you are programming is displayed in the bottom left hand corner of the LCD display for clarity. Use the numeric keypad or the -/+ buttons to enter the MIDI controller number 0-131 as defined in Appendix C. < 12 English Axiom Line User Guide 25-note version: < < < < Select the physical controller for programming using method 1 or 2 above. Press the Advanced button. Press the Ctrl Assign key on the keyboard. The LCD display will show the currently assigned MIDI controller number The physical controller you are programming is displayed in the bottom left hand corner of the LCD display for clarity.

Use the numeric data entry keys or the -/+ buttons to enter the MIDI controller 0-131 as defined in Appendix C. Press the Enter key to confirm and return to performance mode. < < The settings for your controllers can be saved to any of the 20 memory locations on your Axiom. This process is explained in detail in section 3.2. Note: By default, the LCD display shows transmitted real time controller values between 0 and 127 as a physical control like an encoder or fader is being moved. Alternatively, the LCD can be configured to only show the assigned controller number of the currently used physical controller (e.g. controller number 7 for Volume). The LCD display mode can be changed as follows: < < < Press the Zone Range and Zone/Group buttons together. The LCD will display OFF. Simultaneously press the Zone Range and Zone/Group buttons again to change the LCD back to its default mode. The LCD will display ON. 2.4.

3 Panic At times you may find that the sound on your sound module or virtual instrument does not seem correct, or that notes get "stuck" and sound continuously. When this happens, press the button combination for Panic which will send ̀reset all controllers' and ̀all notes off' commands. This will release stuck notes and reset controller values back to normal. The messages are sent on all 16 MIDI channels. The LCD will show "Panic" while these messages are transmitted.

49- and 61-note versions: < Press Data 1 and Data 2 together. 25-note version: < Press Mute and Null together. 2.4.4 Reset It is possible to completely reset your keyboard at any time. To do this, turn the Axiom off and then press and hold down both of the -/+ buttons as you power up the keyboard. Important Note:When you perform this reset, all of the factory presets are lost. To restore the factory presets, please use the Enigma software, available as a free download at www.m-audio.com.

13 English Axiom Line User Guide Section 3: Advanced Features In section 2 we saw how to use the keyboard, send program and bank changes, and assign MIDI controllers to the various controls on your Axiom. These basic skills allow you to perform with many software applications, sound modules and synthesizers.

However, the Axiom has some more advanced features that allow you to take your performances even further. In this section we look at these features and how you can make use of them. (If you have not done so already, please familiarize yourself with the various functions used when programming your Axiom. Details of these functions are given in section 2) 3.1 MIDI Controllers Appendix C lists all the standard MIDI controller messages and some additional common messages all of which can be assigned to the controls on your Axiom. Here we introduce an expanded list of MIDI controllers and also different ways that the controls on the Axiom are able to function. Since these extra controller numbers are specific to different types of controls on the Axiom, please consult the appendices: Axiom Control Sliders (Axiom 49/61 only) Aftertouch strip Expression pedal Pitch Bend wheel Modulation wheel Sustain pedal Transport buttons Assignable buttons (Axiom 49/61 only) Rotary encoders Pressure Pads Controller Definition Table Appendix D Appendix D Appendix D Appendix D Appendix D Appendix E Appendix E Appendix E Appendix F Appendix G Each MIDI controller has either two or three extra data parameters associated with it, as shown in the appendices listed above. The function of these extra data parameters depends on what MIDI controller number is assigned to the selected Axiom control.

The appendices above show the details of what this functionality may be. The extra data parameters for a controller are accessed using the Data 1, Data 2 and Data 3 buttons on the 49- and 61-note versions, and the Advanced button, followed by the Data 1, Data 2 or Data 3 keys on the 25-note version. The useful programming examples given below describe some of the uses for these extra data parameters. 3.1.

1 Limiting the Range of Controllers It is possible to limit the range of the sliders, aftertouch strip, expression pedal or encoders on your Axiom. This is achieved using the extra data parameters for the controller as follows: 49- and 61-note versions: < < < Set the physical controller to transmit a MIDI controller message as described in section 2.4.2. Press Data 2 and enter the minimum value for the controller's range.

Press Data 3 and enter the maximum value for the controller's range. 25-note version: < < < < < < < Set the physical controller to transmit a MIDI controller message as described in section 2.4.2. Press the Advanced button. Press the Data 2 key and enter the minimum value for the controller's range. Press Enter to confirm the change for the minimum value. Press the Advanced button. Press the Data 3 key and enter the maximum value for the controller's range. Press Enter to confirm the change for the maximum value.

14 English Axiom Line User Guide 3.1.2 Drawbar Mode Drawbar mode is a quick method of reversing the direction of the nine sliders on your Axiom 49 or 61. If you are controlling an instrument that makes use of drawbars rather than faders--the MB-3 electric organ on Key Rig for example--then you should use drawbar mode. The Drawbar function is not available on the 25-note version. Press Data 3 and Chan Assign together to enable Drawbar mode. When Drawbar mode is active, this will be indicated by the Drawbar symbol in the LCD display. The status of Drawbar mode can be saved in any of the 20 memory locations. It will also be saved when you power down your Axiom. NOTE: It is possible to reverse the direction of any control on your Axiom 25, 49 or 61, by switching the minimum and maximum limits for the controller (for example: min=127 and max=0; refer to the previous section for details on how to do this). 3.1.3 Turning Controls OFF Stop a control from transmitting MIDI data by turning that control OFF. This is done as follows: 49- and 61-note versions: < < < < Select the controller as described in section 2.4.

2. Press the Ctrl Assign button and enter "000" on the numeric keypad. While the LCD is still flashing, press the data minus () button. The LCD will now display OFF. 25-note version: < < < < < < < < Select the controller using the method described in section 2.

4.2. Press the Advanced button. Press the Ctrl Assign key, and enter ´000' using the numeric data entry keys. Press Enter to confirm. Press the Advanced button, followed by the Ctrl Assign key again. Press the data minus (-) button The LCD will now display OFF. Press Enter to confirm. 3.2 Recollection and Storage of Your Control Setups Once you have programmed the controls of your Axiom, you can store your setup into one of the 20 memory locations the Axiom offers.

The 20 locations are accessed using the Store and Recall buttons. Use the Store button to write your control setups to a memory location. Use the Recall button to get your control setups back. To store all of the current control settings on your Axiom: 49- and 61-note versions: < < Press the Store button. Enter the number of the memory location (1 to 20) using the numeric keypad. 25-note version: < < < < Press the Advanced button. Press the Store key. Enter the number of the memory location (1 to 20) using the numeric data entry keys, or the -/+ buttons. Press the Enter key to confirm and overwrite this preset location. 15 English Axiom Line User Guide To recall any memory you have stored: 49- and 61-note versions: < < Press the Recall button. Enter the number of the memory location (1 to 20) using the numeric keypad. 25-note version: < < < < Press the Advanced button. Press the Recall button. Enter the number of the memory location (1 to 20) using the numeric data entry keys. Press the Enter key to confirm.

or < < Press the Recall button. Use the -/+ buttons to increment, decrement the currently selected memory. 3.2.1 Control Groups The controls on your Axiom are separated into four groups (three on the 25-note version), labeled A, B, C and D (or A, B and C on the 25-note version).

It is possible to recall or store each group individually. The controls are grouped as follows: Group A: Keyboard Pitch Bend wheel Modulation wheel Expression pedal Aftertouch strip Sustain pedal Zone settings* Global Channel setting MIDI Out from USB setting Program, Bank LSB, MSB settings Group B: Eight encoders Six transport controls Group C: Eight trigger pads Group D (49 note and 61 note versions only): Nine sliders Nine assignable buttons Drawbar mode setting * For more details on Zone settings, please see section 3.6. The active groups during store and recall of memories are indicated on the LCD display. The Zone/Group button is used to select which groups are active. If Zone/Group is active, the LED will light inside the Zone/Group button. On the 49- and 61-note versions, when Zone/Group is active, the group buttons A, B, C and D (located below faders D13 through D16) are used to activate/deactivate Groups A-D, as the LCD screen shows.

On the 25-note version, when Zone/Group is active, the STOP, PLAY and REC buttons are used to activate/deactivate Groups A-C, as the LCD display shows. You can switch Zones and Groups on and off by pressing the Zone/Group button followed by the chosen Zone or Group buttons. When you enable a single group, the other two (or three) groups are automatically disabled.

To enable multiple groups, press the respective group buttons at the same time. Whenever you engage the Recall or Store functions, you will notice that Zone/Group select becomes active automatically. If you press the Store button, all groups will be active by default to prevent any risk of some of the controllers you have set up getting missed. However, if you do not wish to store all controller groups together, you can activate the desired combination of controller groups by simultaneously pressing their respective group buttons immediately after pressing Store. 16 English Axiom Line User Guide For example, if you want to store the settings for the trigger pads only: 49- and 61-note versions: < < < < Press the Store button. Press group button C to activate group C only. The LCD display will now only flash the Group C symbol. Use the numeric keypad to enter the memory location to store the Pad settings. 25-note version: < < < < < < Press Advanced. Press the Store key.

Press the REC button to activate group C. The LCD display will now only flash the Group C symbol. Use the numeric data entry keys to enter the memory location. Press Enter to overwrite the selected memory location. Note: When recalling a preset, only the groups currently active at that time are recalled. 3.2.2 Storing Your Presets on a Computer It is possible to store the entire memory contents of your Axiom on a Mac, PC or a hardware sequencer. This is done using the Memory Dump feature which sends a MIDI SysEx dump to the connected device. You can record the SysEx data to a MIDI track on a sequencer, or we recommend using M-Audio's Enigma software to store and manage you Axiom controller presets.

To send the entire memory contents of your Axiom to a computer: 49- and 61-note versions: < < < Press Store and Recall together to initiate the Memory Dump feature. The LCD display will flash SYS while the Axiom is transmitting its Memory content. Do not touch your Axiom until the SysEx dump has completed and the LCD display has returned to normal. 25-note version: < < < < Press the Advanced button. Press the Mem Dump key. The LCD display will flash SYS while the Axiom is transmitting its Memory content. Do not touch your Axiom until the SysEx dump has completed and the LCD display has returned to normal. By sending an externally stored SysEx dump back through the MIDI IN or the USB port on your Axiom, it is possible to reprogram the memory just as it was saved. Note: The SysEx data will program the 20 memory locations on your Axiom. It does NOT affect the current control settings on your Axiom.

All current settings and assignments remain unchanged until you recall one of the 20 memory locations. 3.2.3 Device ID On the 49- and 61-note versions, you can define the device ID of your specific Axiom keyboard when sending a SysEx memory dump. The device ID is used to distinguish between any number of connected Axiom keyboards, if you own more than one. The 25-note version does not have a device ID feature and so the device ID remains hard coded at 127. (127 is also the default device ID for the 49- and 61-note versions.) With the device ID set to 127, your Axiom responds to any SysEx memory dump that it reads at the MIDI IN or USB port even if the received memory dump specifies a different device ID. If you change the device ID to any number other than 127, the device will only respond to SysEx memory dumps which were originally recorded on the same device ID number. To change the default device ID on Axiom 49 or 61, simultaneously press the Ctrl Assign and Store buttons, then enter the desired device ID using the numeric keypad or the -/+ buttons. 17 English Axiom Line User Guide 3.3 How To Avoid Jumping Parameters A common problem with MIDI controllers occurs when you move a physical controller and the receiving parameter on your external MIDI gear or software jumps from its present setting to the position of the knob or fader that you are using. The result can be a volume spike, a vibrato effect suddenly engaging or a pan position jumping from one side to another. The Axiom is well equipped to avoid this situation. 3.

3.1 Mute The Mute button on your Axiom will turn off the MIDI data output from all controls. This allows you to re-position the knob or faders that you are using to a setting that matches the current value of the parameter you are addressing. When the controls are all muted, the LCD displays the MUTE symbol. The controls are un-muted by pressing the Mute button a second time.

Note that Mute does not affect the assignable buttons, sustain pedal or the keyboard. This is because these controls send one-shot MIDI controllers, so there is never a need to match them to the parameter they are controlling. So, Mute mode is disengaged when you play the keyboard, or if you press an assignable button or the sustain pedal. 3.3.2 Null The Null button engages Null mode which is used to temporarily deactivate the controls on your Axiom when you call up a new memory location. Null mode blocks the controls from outputting MIDI data until they reach the same position at which you left them the last time you used the memory location. When Null mode is active, there is never a worry that a control on your Axiom will cause a parameter to jump. Turn Null mode on and off at any time simply by pressing the Null button. When Null mode is active, the LED in the Null button will be lit.

When you recall a preset, if Null mode is active moving a control on the Axiom engages a comparison between the current position of the control and its position when you last used this preset. If the control is at a different position than where you last left it before changing presets, the NULL symbol on the LCD display is shown and the numerical value displayed indicates how far away you are from the original position. A negative number indicates that the current value is lower than where you had left it, and a positive number indicates a higher value. As you move the control nearer to its original value, you see the numbers on the LCD display tend towards 0. When 0 is reached, the NULL symbol turns off, and the control starts to output MIDI data again. The current positions of every control are remembered each time you leave a memory to recall a new one, regardless of whether Null mode is active or not. The status of Null mode is stored on powering down your Axiom. 3.3.3 Snapshot The Snapshot function sends out the current values of the sliders, Expression pedal, Modulation wheel, Pitch Bend wheel and rotary encoders. This will adjust your software or external MIDI gear to the control positions on your Axiom.

Press the - and + buttons together to use the Snapshot function. Snapshot can be used in conjunction with the Mute function (section 3.3.1) in order to perform a function not available on most hardware synths.

Use the Mute function to reposition the controls of your Axiom as you like, and then use the Snapshot function to send all of the new positions at the same time. 3.4 The Rotary Encoders As mentioned in section 2 it is possible to assign the rotary encoders to any MIDI controller message listed in Appendix C. When the encoders are assigned to MIDI controllers, they work in the same way as the sliders on the Axiom 49 and 61--when the minimum or maximum limit is reached, no more data is sent until you turn the dial the other way. It is possible to program the encoders to increment or decrement the current value in the software, rather than sending an actual value.

This means that there is never a risk of causing your software parameters to jump if they do not match the position of the control you're moving. Please note that not all software supports the use of rotary encoders. Also, those applications that do support them can differ in the way that encoder support is implemented. The Axiom therefore supports several different types of increment/decrement MIDI messages. You should check your software's manual to see what message type is supported and how to engage endless dial support. To help with this we have listed the names commonly used for each of the relative data methods. We have also provided the data values used to represent data increment and data decrement. Where a range of values is specified for an increment or decrement, the range is in the form "slow movement" to "fast movement". The Program change increment/decrement will send out program changes with each step. 18 English Axiom Line User Guide In order to program one of these methods to the rotary encoders on your Axiom, you should assign the MIDI controllers given below: MIDI CC 145 146 147 148 149 150 151 152 Endless Data Method Program Change Increment/Decrement 2's Complement from 64 / Relative (Binary Offset) 2's Complement from 0 / Relative (2's Complement) Sign Magnitude / Relative (Signed Bit) Sign Magnitude / Relative (Signed Bit 2) Single Value Increment/Decrement RPN Increment/Decrement Message NRPN Increment/Decrement Message Increment -- 065 to 127 001 to 64 065 to 127 001 to 063 096 096 then 000 to 127 096 then 000 to 127 Decrement -- 063 to 000 127 to 065 001 to 063 065 to 127 097 097 then 000 to 127 097 then 000 to 127 To Assign the Rotary Encoders: 49- and 61-note versions: < < < Select the rotary encoder as explained in section 2.

Press the Ctrl Assign button. The LCD shows the encoder's current controller assignment. Decide which endless data method you want from the table above, and enter its MIDI CC number using the numeric keypad. Press Data 2. The LCD display flashes the encoder's current data parameter. Enter the MIDI controller number from Appendix C that you want. (Note that the range in this case is 0-127, not 0-131.) The encoder will now transmit increment/decrement messages on the MIDI controller you have set. < < < 25-note version: < < < < Select the rotary encoder as explained in section 2. Press the Advanced button.

Press the Ctrl Assign key. The LCD will show the encoder's current controller assignment. Decide which endless data method you require from the table above, and enter its MIDI CC number using the numeric data entry keys. Press the Enter key to confirm. Press the Advanced button again.

Press the Data 2 key. The LCD display will show the encoder's current data parameter.. Enter the MIDI controller number from Appendix C that you want. (Note that the range in this case is 0-127, not 0-131.

) Press the Enter key to confirm. The encoder will now transmit increment/decrement messages on the MIDI controller you have set. < < < < < < 19 English Axiom Line User Guide 3.4.1 Acceleration Curves There are three acceleration curves (C1-3) which define the relationship between how fast you turn the endless encoder and the value increment/decrement that is sent out. It is also possible to turn the acceleration curve OFF so that regardless of how quickly or slowly you turn the dial, the value will only increment/decrement by 1 per step. Turning the acceleration curve off is useful if you are performing adjustments that require fine tuning. To turn the acceleration curve off, set the curve to 0. Curve settings 1-3 get progressively more sensitive to movements of the dial. So, if you are going to be performing a lot of large, fast controller sweeps, you should select acceleration curve 3.

The curve selected by default is 2 which we advise for general use, in performing both large and small sweeps. To select the acceleration curve: 49- and 61-note versions: < < < Press Mute and Program together to access the Accel Curve setting. The LCD display will show the currently assigned acceleration curve. Use the numeric keypad or the -/+ buttons to select an acceleration curve in the range 0 to 3. The 0 setting will turn the curve off. 25-note version: < < < Press the Advanced button. Press the Curve key 3 times. The LCD display will show "En" on the small 2-digit display to indicate that you have selected to edit the endless dial's acceleration curve. The currently assigned acceleration curve will show on the larger, 3-digit display Use the numeric data entry keys, or the -/+ buttons to select an acceleration curve in the range 0 to 3. The 0 setting will turn the curve off.

Press the Enter key to confirm. < < 3.5 Pressure Pads The eight pressure pads on your Axiom are unique controls. As you apply more pressure to a pad, a higher value of effect is transmitted. The pads can also be used as triggers for composing drum patterns, or triggering samples and loops.

When in this mode, the harder you hit a pad the higher the transmitted value of effect. You can program the pads to any of the controllers listed in Appendix G. If you program a controller number from 0 to 144, the pad sends a value according to the pressure you apply. If you program a controller number from 145 up to 156, the pad works as a trigger, sending a single value when you press the pad, and another value when you release it. Some useful settings for these pads are: 3.

5.1 Sample/Loop Triggers With MIDI Notes Setting a pad to controller 147 sets the pad to send a MIDI Note On message when you press it, and a MIDI Note Off message when you release it. This is useful when triggering samples on your external MIDI gear or software. When you program a pad to controller 148, the MIDI Note Off message is not sent until you press the pad a second time (toggle effect). This can be useful if you want to keep a loop playing continuously. To program the pads to send a MIDI note on/off message: 49- and 61-note versions: < < < < < < < Select the pad as described in section 2.

Press the Ctrl Assign button. The LCD display will show the controller number currently assigned to the pad. Enter 147 for Note on/off (press/release), or 148 for Note on/off toggle Press the Data 1 button. The LCD display will show the currently assigned note for the pad.

Enter the note number you want the pad to transmit using the numeric keypad. The Data 2 and Data 3 buttons can be used to specify the note off velocity, and note on velocity respectively. 20 English Axiom Line User Guide 25-note version: < < < < < < < < < < < < < Select the pad as described in section 2. Press the Advanced button. Press the Ctrl Assign key. The LCD display will flash the currently assigned controller for the pad. Enter 147 for Note on/off (press/release), or 148 for note on/off toggle Press the Enter key to confirm. Press the Advanced button again. Press the Data 1 key. The LCD display will flash the currently assigned note for the pad.

Enter the note number you want the pad to transmit using the numeric keypad. Press the Enter key to confirm. Press the Advanced button again. The Data 2 and Data 3 keys can be used to specify the note off velocity, and note on velocity respectively. 3.

5.2 Drum Pattern Composition When you first turn your Axiom on, you will find that the pressure pads are set up as drum triggers for composing drum patterns in MIDI sequencers. To set up the drum triggers, you need to program the pads to send specific MIDI note numbers (see previous section). The note numbers you assign depend on the drums that you want to control. Please refer to Appendix B to see which drums are mapped to which MIDI note numbers. Then, using the Data 1 parameter for each pad on your Axiom, assign that note number to the pad, as described above. 21 English Axiom Line User Guide 3.5.3 Sample/Loop Triggers with MIDI Controller Messages In some cases,you may wish to send standard MIDI controller messages to trigger samples or loops. To make this work, you need to first assign a MIDI controller to the pad and then set the pad to send just ON and OFF values. This is done as follows: 49- and 61-note versions: < < < < < Select the pad as described in section 2. Press the Ctrl Assign button. The LCD display will flash the currently assigned controller for the pad. Enter 146, which sets the pad to send an ON value when pressed, and OFF value when released. Press the Data 1 button and enter the controller number from Appendix C that you want the pad to send.

The range of values here is 0-127. Press the Data 3 button and enter the ON value (this should be 127 in most cases). Press the Data 2 button and enter the OFF value (this should be 0 in most cases). < < 25-note version: < < < < < < < < Select the pad as described in section 2. Press the Advanced button. Press the Ctrl Assign key. The LCD display will flash the currently assigned controller for the pad. Enter 146 to set the pad to send an ON value when pressed, and OFF value when released. Press the Enter key to confirm. Press the Advanced button again.

Press the Data 1 button and enter the controller number from Appendix C that you want the pad to send. The range of values here is 0-127. Press the Enter key to confirm. Press the Advanced button again. The Data 2 and Data 3 keys can be used in the same fashion to specify the ON value (this should be 127 in most cases) and the OFF value (this should be 0 in most cases).

< < < 22 English Axiom Line User Guide 3.5.4 Pressure Control Using the pressure control, the pads give you a different type of performance option on your Axiom. @@The pressure pads can be used to make some very interesting effects. @@@@@@@@Press the Ctrl Assign button. @@@@@@@@Press the Advanced button. Press the Ctrl Assign key. @@Press the Enter key to confirm. @@Press the Enter key to confirm. If you want to specify a maximum value limit, press the Advanced button, followed by the Data 3 key and enter the maximum value. @@@@@The LCD will show the currently selected pad curve. @@@@Press the Curve key twice. @@@@@@@@@@@You can assign a different Lock velocity to each pad individually. To turn Vel. @@@@The display will show "Loc" if you turn Vel Lock on.

Please note that the Vel. Lock feature only applies to pads set up as trigger pads. If a pad is assigned as a pressure pad, the Vel. Lock function has no affect. @@@@@@Press the Data 3 button. Enter the fixed ON velocity. Press the Data 2 button. @@@@Press the Advanced button Press the Data 3 key. Enter the fixed ON velocity. Press the Enter key to confirm.

Press Data 2 key. Enter the fixed OFF velocity. @@@@@@@@Dividing the keyboard and assigning different channels is done using the Zone feature. 3.6. 1 Zones The Zone feature on your Axiom is used to control several different sound devices at the same time. In doing so, you can create splits, layers, harmony effects and more. For example, you can split the keyboard on your Axiom so your left hand plays a bass sound and your right hand plays a piano sound. You can create a setting where you hear a chord by playing a single note, or you can set up a way to quickly switch between different instruments. The Zone feature on the Axiom allows you to do all of these things and more.

24 English Axiom Line User Guide 3.6.2 Activating/Deactivating Zones There are four zones assignable on the 49- and 61-note versions and three zones assignable on the 25-note version. To activate/ deactivate zones, first press the Zone/Group button which will light. To enable/disable any zone: < < Press the Zone/Group button. On 49- and 61-note versions use Zone buttons 1, 2, 3 and 4, located beneath faders D9 through D12 to activate/ deactivate Zones 1-4 respectively. On the 25-note version, press the LOOP, RW and FF buttons to activate/deactivate zones 1-3 respectively. Press the Zone/Group button again to exit. < < * When you enable a single zone, the other 2 (or 3) zones are automatically disabled. To enable multiple zones, press the respective zone activate/deactivate buttons at the same time.

The active zones will always be shown on the LCD display Zones have a number of parameters associated with them and editing these parameters affects all zones that are currently active simultaneously. Editing the various Zone parameters is described below. The active/inactive status of each zone can be stored to the 20 memory locations. You must ensure Group A is activated when storing this data since the Zone settings are stored within this group. Please see section 3.2.1 for more information on Groups. 3.6.3 Zone Channel If you want to use the Zone feature to control a number of different instruments, you need to set each of the zones to transmit on different channels.

To assign the channel of a zone: 49- and 61-note versions: < Press Glob Chan and Zone Range together to access the Zone Channel setting. The LED in the Zone/Group button lights to indicate that Zone/Group mode is automatically selected.

The LCD displays the current transmit channel for the automatically selected zone and flashes its symbol. Use Zone buttons 1 through 4 to select a different zone if necessary.While multiple zones can be active at the same time, only the zone with the flashing symbol will be affected by this change.

Enter the new channel number (00 to 16) using the numeric keypad. (Please note that assigning the zone to channel 00, will set the zone to transmit on the Global Channel (see section 2.2)). Once the channel edit is complete, Zone/Group mode exits automatically. Repeat to edit the channel settings of the remaining zones.

< < < < 25-note version: < < < Press the Advanced button. Press the Zone Chan key The LCD displays the current transmit channel for the automatically selected zone and flashes its symbol. Use Zone buttons 1, 2 or 3 to select a different zone if necessary. While multiple zones can be active at the same time, only the zone with the flashing symbol will be affected by this change. Enter the new channel number (00 to 16) using the numeric keypad. (Please note that assigning the zone to channel 00, will set the zone to transmit on the Global Channel (see section 2.2).) Press the Enter key to confirm. @@@@@@@@The Range symbol will also appear on the LCD display. @@Press a key on the keyboard to select the lower limit of the zone.

The note number is displayed in small digits on the LCD display. @@@@@@@@@@@@Select the zone(s) you want to edit using the zone activate/deactivate buttons as described in section 3.6.2. Use the Octave buttons to select the new octave/transpose value, as described in section 2.1.2 and 2.1.3. If Zone Range mode is not active when you make an octave/transpose change, the change is global, meaning all active zones will be affected.

If Zone Range mode is active when you make an octave/transpose change, only those zones currently active will be affected. The Octave and Transpose values for each independent zone, as well as the global octave and transpose values can be stored to the 20 memory locations. You must ensure Group A that is activated when storing this data since the Zone settings are stored within this group. Please see section 3.2.

1 for more information on Groups. Note: There are various creative possibilities for the usage of the Octave/Transpose settings in conjunction with individual zones. For example, assign three zones to the same section of the keyboard, transpose the second zone two half steps down and the third six half steps down. Make sure all three zones are active, then play a single key on the keyboard--a chord will sound. Experiment with the Octave/Transpose and Zone settings to discover the full potential of this feature.

3.6.6 More About Program, Bank LSB And Bank MSB We saw in section 2.3 how Program and Bank messages can be sent from your Axiom to select different sounds on a connected device(s). When you send these messages, they apply to whichever zones are active at that time. If two zones are selected and set to transmit on different channels, the Program or Bank message will be sent on BOTH channels. Note: New Program and Bank messages always override previously sent Program and Bank messages. It is important to ensure that ONLY those zones that you want to send these messages on are active, or you could call up new sounds on a device you don't intend to. The last sent Program, Bank LSB and Bank MSB message for each zone is saved when the unit is powered down, and can be stored in each of the 20 memory locations. You must ensure Group A is activated when storing this data since the Zone settings are stored within this group.

Please see section 3.2.1 for more information on Groups. 26 English Axiom Line User Guide 3.6.7 Individual Channel Assignments of Controls Every physical controller on your Axiom can be assigned to its own individual channel, allowing you to control several instruments at the same time. It is also possible to tie a physical controller to a zone or to the Global Channel. To assign the transmit channel for a control: 49- and 61-note versions: < < < Select the physical controller as described in section 2.4.2.

Press the Chan Assign button. The LCD display will show the currently assigned MIDI channel. Use the numeric keypad to enter the new MIDI channel in the range 00 to 20*. 25-note version: < < < Select the physical controller as described in section 2.4.

2. Press the Advanced button. Press the Chan Assign key. The LCD display will show the currently assigned MIDI channel. Use the numeric data entry keys to enter the new MIDI channel in the range 00 to 19*.

< Press the Enter key to confirm. The channel assignment of each physical controller is saved if the group to which that controller belongs is active when you save to any of the 20 memory locations. * Please see section 3.6.7.1 for an explanation of channels 17-20. 3.6.7.1 Tying Controls to Zones If you assign a physical controller to channel 17, 18, 19 or 20 the controller is tied to the transmit channel of Zone 1, Zone 2, Zone 3 or Zone 4 respectively (remember that the 49- and 61-note versions of the Axiom have four possible zones and the 25-note version has three).

Therefore, as you alter a zone's channel, you are also altering the physical controller's channel at the same time. Note that although a physical controller may be tied to a zone, if you want to save this assignment to any of the 20 memory locations, it is necessary to ensure you select the group to which the physical controller belongs. Group A does not cover this. 3.6.7.2 About SysEx Messages and Device ID System Exclusive (SysEx) messages are not channel specific so when transmitting SysEx messages, the individual physical controller channel number does not define a transmit channel, but a device ID instead. This is a difference that is indicated on the LCD display when it DOES NOT show a ˋcˊ for channel. Device ID values range from 00 - 127. In most cases, you should set the device ID to 127, which is a value that allows SysEx messages to be received by all connected devices.

Please note that the device ID assigned to a controller cannot be changed using the Dev ID button. This button is used for setting the global device ID of the Axiom. For more information on Device ID's and SysEx messages please see section 5.3. 3.

6.7.3 The Global Channel The Global Channel of the Axiom can be altered easily on the fly and any physical controller or zone that is assigned to channel 00 will transmit on whatever channel the Global Channel is set to. The Global Channel can be stored to any of the 20 memory locations, as long as Group A is selected. 27 English Axiom Line User Guide 3.

7 Group A Controls Note: For information on Group A memory recall, please review section 3.2.1. The term "Group A controls" refers to the pitch bend wheel, modulation wheel, aftertouch, sustain pedal and expression pedal. Each of these controls differs from other controls on your Axiom because these can be programmed to be active or inactive in each zone independently.

This means for instance, that you can set the sustain pedal to work on Zone 1 but not Zone 2, or the pitch-bend wheel to affect Zone 3 but not Zone 1. In order for the Group A control to transmit on all zones, the channel assignment must be set to 0. If a Group A control is assigned to any channel other than 0, it will behave in the same way as any other control on your Axiom. If a Group A control is selected, when you press Ctrl Assign, the MIDI controller message you assign to the Group A control will apply to all the zones that are active at that time. This means the MIDI controller you have assigned to the Group A control will be transmitted on all the channels the selected zones were assigned to.

In order to prevent the Group A control from transmitting on more than one active zone, you can simply assign the Group A control to the desired zone's channel. This will prevent the Group A control from having an affect on any of the other zones, as long as they are not assigned to the same channel. Alternatively, you can set the controller message to OFF if you do not want a Group A control to affect certain zones: 49- and 61-note versions: < < < < < Select the Group A control. Press the Ctrl Assign button. The LED in the Zone/Group button lights to confirm your move. Select the zones that you do NOT want the Group A control to affect. Use the numeric keypad to set the value to '000' as described in section 2.4.2. Press the minus (-) button to set the control to OFF.

25-note version: < < < < < < < < < Select the Group A control. Press the Advanced button. Press the Ctrl Assign key. The LED in the Zone/Group button lights to confirm your move. Select the zones that you do NOT want the Group A control to affect.

Enter the value "000" using the number keys as described in section 2.4.2. Press Enter to confirm Press the Advanced button again Press the Ctrl Assign key again Press the minus (-) button to set the control to OFF. Press Enter to confirm.

Note: If a zone is not enabled, the Group A controller will NOT transmit the data that is assigned to that Zone. 28 English Axiom Line User Guide 3.8 Example of Control Functionality 3.8.1 Setting Toggle Values for the Buttons The assignable buttons and the pedals can each be assigned to toggle between two MIDI controller message values. You may for example want to send out value 15 when you first press the button followed by value 74 when you press the button for a second time. Setting up a toggle effect: 49- and 61-note versions: < < < < Select the button or pedal to edit. Press the Data 2 button. Type in "015" using the numeric keypad. This sets the OFF position value.

Press the Data 3 button. Type in "074" using the numeric keypad. This sets ON position value. 25-note version: < < < < < < < < < Select the button or pedal to edit. Press the Advanced button. Press the Data 2 key. Type in "15" using the numeric data entry keys. Press the Enter key to confirm. This sets the OFF position value. Press the Advanced button again.

Press the Data 3 key Type in '074' using the numeric data entry keys. Press the Enter key to confirm. This sets ON position value. If you want the button to send the same value every time you press it, simply set the same value for both Data 2 and Data 3. The above method toggles the button each time you press it. It is also possible to set the button to send one value when you press it, and another value when you release it. Setting up an alternating value effect: 49- and 61-note versions: < < < Select the button or pedal to edit. Press the Ctrl Assign button. Type in "146" using the numeric keypad. This sets the button up for MIDI CC (On/Off) mode, as shown in Appendix E.

Assign the OFF and ON value using Data 2 (for off value) and Data 3 (for on value) respectively, as detailed in section 3.8.1. < 25-note version: < < < < < Select the button or pedal to edit. Press the Advanced button. Press the Ctrl Assign key. Type in "146" using the numeric data entry keys Press the Enter key to confirm. This sets the button up for MIDI CC (On/Off) mode, as shown in Appendix E. Assign the OFF and ON value using Data 2 (for off value) and Data 3 (for on value) respectively, as detailed in section 3.8.

1. 29 English Axiom Line User Guide 3.8.2 Assigning MMC Messages to a Button MIDI Machine Control messages are used by some devices and software to control transport functions such as Stop, Play and Record. The Transport controls on your Axiom keyboard can be setup to send MMC messages, however it is important to note, that not all MIDI devices or software applications respond to MMC messages. Even those that do support MMC often need to be set up manually to respond to these messages. Please consult the documentation relating to your device or software application to check this. The MMC message format is a SysEx message, using a single byte to define the message type. The table below lists the currently defined MMC messages: Number 01 02 03 04 05 06 07 08 09 10 11 12 13 MMC Command STOP PLAY DEFERRED PLAY FORWARD REWIND RECORD STROBE RECORD EXIT RECORD PAUSE PAUSE EJECT CHASE COMMAND ERROR RESET MMC RESET To assign the desired MMC message to an assignable button, pad or sustain pedal: 49- and 61-note versions: < < < Select the button to edit. Press the Ctrl Assign button.

Type in "149" using the numeric keypad. This is the number that corresponds to the MMC instruction (Appendix E). Press the Chan Assign button. Notice the Dev ID symbol on the LCD display flashes indicating you are entering a Device ID, not a channel value. Type in "127," using the numeric keypad. This sets the device ID for the SysEx message to 127. (Please see section 3.6.7.2 for more information on Device ID's.

) Press the Data 2 button. Enter a number from the table above to select the message type. < < < < 25-note version: < < < < < < < Select the button to edit. Press the Advanced button Press the Ctrl Assign key. Type in "149" using the numeric data entry keys. Press the Enter key to confirm. Press the Advanced button again. Press the Chan Assign key. Notice the Dev ID symbol on the LCD display flashes indicating you are entering a Device ID, not a channel value. Type in "127" using the numeric data entry keys.

Press the Enter key to confirm. This sets the device ID for the SysEx message to 127. (Please see section 3.6.7.2 for more information on Device IDs.) Press the Advanced button. Press the Data 2 key. Enter a number from the table above to select message type. Press the Enter key to confirm.

30 < < < < < English Axiom Line User Guide 3.8.3 Assigning RPN/NRPN Messages to a Fader or Encoder Many of today's synthesizers and music applications can receive and process RPN and NRPN MIDI messages to allow control of an array of useful settings and features.