

# **FaderMaster**

MIDI COMMAND CONTROLLER

Owners Manual

Fourth Edition

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JLCooper Electronics  
12500 Beatrice Street, Los Angeles, CA 90066, U.S.A.

**JL** COOPER ELECTRONICS

## Greetings

Thank you for purchasing JLCooper's FaderMaster, the MIDI Command Controller. You've probably noticed a trend in recent years for music manufacturers to remove knobs and sliders from their equipment to cut down costs. Ironically, this trend has paralleled the development of increasingly sophisticated products. Never before have we had access to products with so many features, but with so little control.

JLCooper reverses that trend by bringing you back into control. The FaderMaster provides quick, continuous remote control for various parameters of all kinds of MIDI devices.

Reverbs, delays, tone modules, virtually anything with a MIDI input can be remotely controlled with FaderMaster.

Used in conjunction with JLCooper's MixMaster, FaderMaster provides remote controlled volume mixing of vocals and guitars and other non-MIDI sources. Add a sequencer, and you can even automate the mix down of tape tracks.

FaderMaster's MIDI note and clock delay allows the addition of real-time "feel" to drum machines used in conjunction with sequencers.

All these features have been combined to put you back in control, and give you new opportunities for creative freedom, in the studio or on-stage.

With the optional FaderMaster Software, FaderMaster's setups may be displayed, created, and edited "off-line" on computer. The Software is presently available for the Apple Macintosh and the Atari ST computers.

Please fill out the enclosed warranty card and mail it in soon, so we can keep you informed of any software updates or related products as they become available.

*(FaderMaster™, MixMaster™, FaderMaster™ Pro, Nexus Plus, PPS-2, and the MSB Plus Rev 2 Trademarks are the property of JLCooper Electronics. All other Trademarks used in this manual are the property of their respective holders.)*

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## Chapter 1 Features

This chapter presents you with a comprehensive list of FaderMaster's features, to help you realize its potential uses. If you have an application already in mind, this may suggest alternative applications that you may not have considered.

### Memory

FaderMaster has a battery-backed memory. The memory is organized into three banks, called the User banks, the Factory banks, and Sysex bank. There are 9 programs in the User bank, 59 programs in the Factory bank (that is, 59 "presets"), and 1 Programmable System Exclusive bank.

### User Bank

In this bank, each fader may be individually assigned to send these MIDI Messages:

a) **Note ON/OFF**

Used on certain MIDI-controlled effects or amplifiers. Can also be used for firing a drum sound. Any Note number may be chosen.

b) **Continuous Controller**

Used for volume, modulation, etc. Any Controller number may be chosen.

c) **Program Change**

For remote patch selection.

d) **Channel After Touch**

For expression control.

e) **Pitch Bend**

For expression and transposition.

f) **Non-Registered Controllers**

Used for various purposes depending on receiving instrument.

In addition, each fader may be individually set to the following attributes:

a) **Grouping**

Any fader may be grouped to any other fader.

b) **Speed**

A fader may be scanned from 6 to 100 times/sec. The speed (or "scan rate") indicates how often the FaderMaster's internal computer "looks" at the fader to see if it has been moved. Generally speaking, the higher the speed, the more responsive the fader.

c) **Maximum Value**

The highest MIDI numerical value the fader will send.

d) **Minimum Value**

The lowest MIDI numerical value the fader will send. If this value is set to exceed Maximum value, fader will act in "reverse" by sending decreasing MIDI values as the fader is moved up.

e) **Merge Status** (for Note or Continuous Controller data)

Normally, MIDI data coming into FaderMaster goes right out of the output. Since the MIDI output of FaderMaster has a combination of both the data coming into FaderMaster, as well as the data generated by FaderMaster, the data is said to be "Merged".

Individual faders may be set to one of three different Merge modes to control when MIDI data is merged with, or replaced by data sent when a fader is moved. This function is useful for re-recording volume data on a sequencer.

f) **Delay**

Alternately, faders 1 thru 7 may be set to delay MIDI Note or Continuous Controller data passing through FaderMaster. Fader 8 can be set to delay MIDI Clock data. The delay time is controlled by the position of the fader over a range from 0 to 15 milliseconds. Varying the delay interval by sliding the faders in real time can impart a more "human feel" to an otherwise mechanistic percussion track.

### Null Feature

The Null feature operates on any fader in the User Bank assigned to send Note or Controller commands. Null allows "seamless" editing of volume information when MIDI mixing on a sequencer. Suppose that in the User bank a fader has been set for Note or Continuous Controller commands. FaderMaster can monitor incoming MIDI messages and display the difference between the position of a fader and the last Note or Controller value received for that fader. Combined with the Merge function, the NULL feature permits re-recording MIDI volume data from the middle of a sequence (i.e. "punching in") without any jumps in level.

## Factory Bank

The Factory Bank consists of fifty nine presets. These have been pre-programmed to allow FaderMaster to function as a remote controller for specific effects devices and instruments. (See the Preset Card for a list of the instruments). These presets are stored in FaderMaster's internal EPROM, and not user-changeable except that certain instruments allow you to select a channel number or device number. If you are controlling more than one of the same kind of device, you can predetermine which one will be controlled by the FaderMaster. These device numbers are saved in the battery-backed memory.

## Programmable Sysex Bank

By using either JLCoooper's optional FaderMaster Software, or a user-written program, it is possible to load a set of Sysex header data into this bank. Once this is done, the user may then program a "Parameter Number", Speed, Minimum and Maximum values, as with the User Bank above.

Two additional features operate on all three banks:

### Value

It is possible to view the MIDI value of the last fader moved, and to reposition a fader without sending out any data.

### Snapshot

FaderMaster can send out a "snapshot" burst of MIDI messages corresponding to the current position of all the faders, without having to actually move any of the faders. This may be used for setting up initial mix levels at beginning of sequence. Or, as another example, the faders could be set to eight different program change commands on different MIDI channels. Using the Snapshot function it would then be possible to send these program changes into your MIDI system to setup the sound of, say, a multi-timbrel tone generator.

## Chapter 2 Front Panel Controls

Each button has two functions, normal and shifted. The VAL (value) button doubles as a shift key. The labels below the buttons designate their normal function. While VAL is held down, the labels above the button apply.

When **VAL** is pressed by itself, you can move a fader without sending data, and view the value that would have been sent.

### BANK

When pressed, the program number is advanced by one. The LED display normally shows the present bank and program.

The progression is U1 through U9 (for the programs is the User Bank), then P1 (for the Programmable Sysex Bank), then F1 through F9 (for the Factory Presets Bank, and then 10 through 59 (the rest of the Factory presets.)

To *decrement* the bank/program number by one, hold CHAN and press BANK.

As a short cut, you can hold down the BANK button and move any fader to quickly go to a desired program. No data is sent while moving the fader.

### CHAN

When pressed, the MIDI Channel assignment for the last fader moved is shown in the LED display. The MIDI Channel will be a number from 1 to 16.

If any fader is moved while the CHAN button is down, that fader's MIDI Channel assignment will be changed and shown in the LED display. The channel shown when the button is released will be stored in memory for that specific fader and program.

### PARAM (Parameter)

The type of MIDI message that a fader is assigned to send is called a Parameter. When pressed, the Parameter assignment for the last fader moved is shown in the LED display. The Parameter assignments are:

<b>No</b>	=	Note ON/OFF pair
<b>Co</b>	=	Continuous Controller
<b>PG</b>	=	Program Change
<b>AF</b>	=	Channel After Touch
<b>Pb</b>	=	Pitch Bend
<b>NC</b>	=	Non Registered Controller

As with the CHAN button above, you may hold down the PARM button and move a fader to view and change that fader's Parameter assignment.

### MIN

When pressed, the Minimum value for the last fader moved is shown in the LED display. This will be a value from 00 to 127. (Values above 99 will be shown flashing, with a "1" alternating with the lowest two digits.)

As above, you may hold down the MIN button and move a fader to view and change that fader's Minimum value.

### GROUP

When pressed, the Group assignment for the last fader moved may be displayed and changed.

***Shifted Functions: Press VAL first, holding it down while selecting the shifted function.***

### NULL

If VAL and BANK are pressed, the NULL function is called into operation. The number shown in the display will equal the difference between position of a fader and last Note or Controller data received for that fader.

### SPEED

If VAL and CHAN are pressed, the SPEED of a fader may be displayed and changed. The number "01" indicates the fastest scan rate (100 per second), while the number "16" indicates the slowest rate (6.25 per second.)

### PARM#

If VAL and PARM are pressed, the PARM# (Parameter Number) may be selected for the last fader moved. This will be a MIDI Note Number, Continuous Controller Number, or a Non Registered Controller Number, depending on the parameter assignment for that fader. PARM# does not apply to faders setup to send Program Change, After Touch, or Pitch Bend commands.

Values above 99 will be shown flashing, with a "1" alternating with the lowest two digits.

When in P1, this button allows an individual Parameter Number to be reset for each fader.

### MAX

If VAL and MIN are pressed, the Maximum value for the last fader moved is shown in the LED display. This will be a value from 00 to 127. (Values above 99 will be shown flashing, with a "1" alternating with the lowest two digits.)

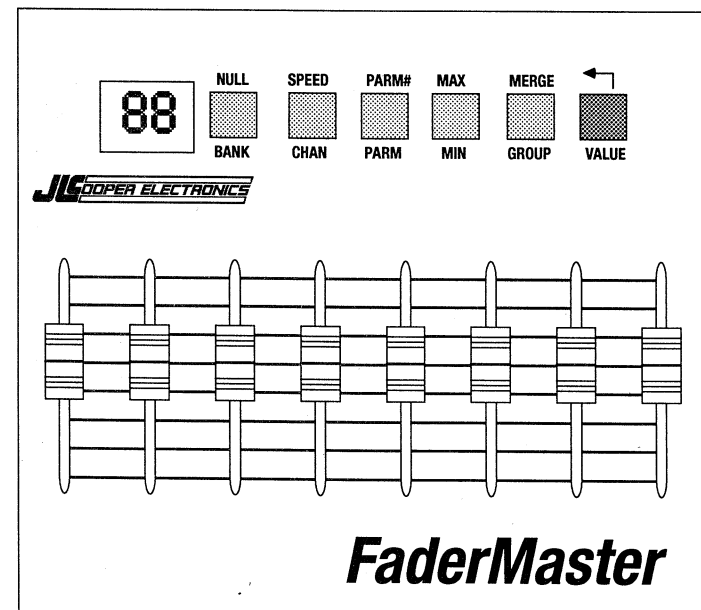
As usual, you may hold down the MAX button and move a fader to view and change that fader's Maximum value.

When the Maximum value is set to a number less than the Minimum value, the fader will operate reversed. (By combining this with the Group function, a cross fade function is achieved. This will be discussed in Chapter 4.)

### MERGE

If VAL and GROUP are pressed, the Merge Status may be displayed and changed for any fader assigned to send Note or Continuous Controller commands. MERGE is also used to select a Delay Mode.

- oN** = Merge on
- oF** = Merge off
- Co** = Merge conditional.
- dL** = Delay Mode



## **SNAPSHOT**

If MIN, GROUP, and VAL are simultaneously depressed, FaderMaster will send out a burst of MIDI messages corresponding to the current values of each fader.

## **INITIALIZE**

If BANK, CHAN, and PARM are simultaneously depressed while turning the unit on, all User Banks will be cleared and reloaded with the following default setting: Faders 1 through 8 are set to send MIDI Continuous Controller commands. In U1, faders are assigned to controller numbers 0 through 7. In U2, faders are assigned to controller numbers 8 through 15, etc.

All faders set to MIDI channel 1, with maximum scan speed, full range, merge on, and no grouping. Programmable Sysex Bank (P1) is loaded with data to control the ART MultiVerb™.

## **Chapter 3 Hookup Diagrams**

As you might expect, your application for FaderMaster will determine how you hook up your MIDI cables. Refer to the illustrations.

### **(1) Universal remote controller:**

Simply hook up a MIDI cable from the output of FaderMaster to the input of the device you wish to control. This will typically be an audio effects device or a tone module.

### **(2) Expression controller:**

To allow FaderMaster to “inject” additional MIDI messages into the data stream from your keyboard controller, hook up a MIDI cable from the output of your keyboard controller to the input of FaderMaster. The output of FaderMaster then goes to either a tone module, or else into a sequencer to record the “enhanced” keyboard data.

### **(3) Human feel:**

Generally, there are two ways to use a drum machine with a sequencer. One is to use the drum machine as a slave tone module. The actual drum tracks in this case reside on the sequencer. Each of the first seven faders on FaderMaster can be set to delay drum notes in real time.

Alternately, the drum machine is set to slave to external MIDI clocks coming from a sequencer or synchronizer. The drum tracks in this case reside in the drum machine, as a series of patterns chained into a “song”. Fader number eight on FaderMaster can be set to delay MIDI clocks in real time.

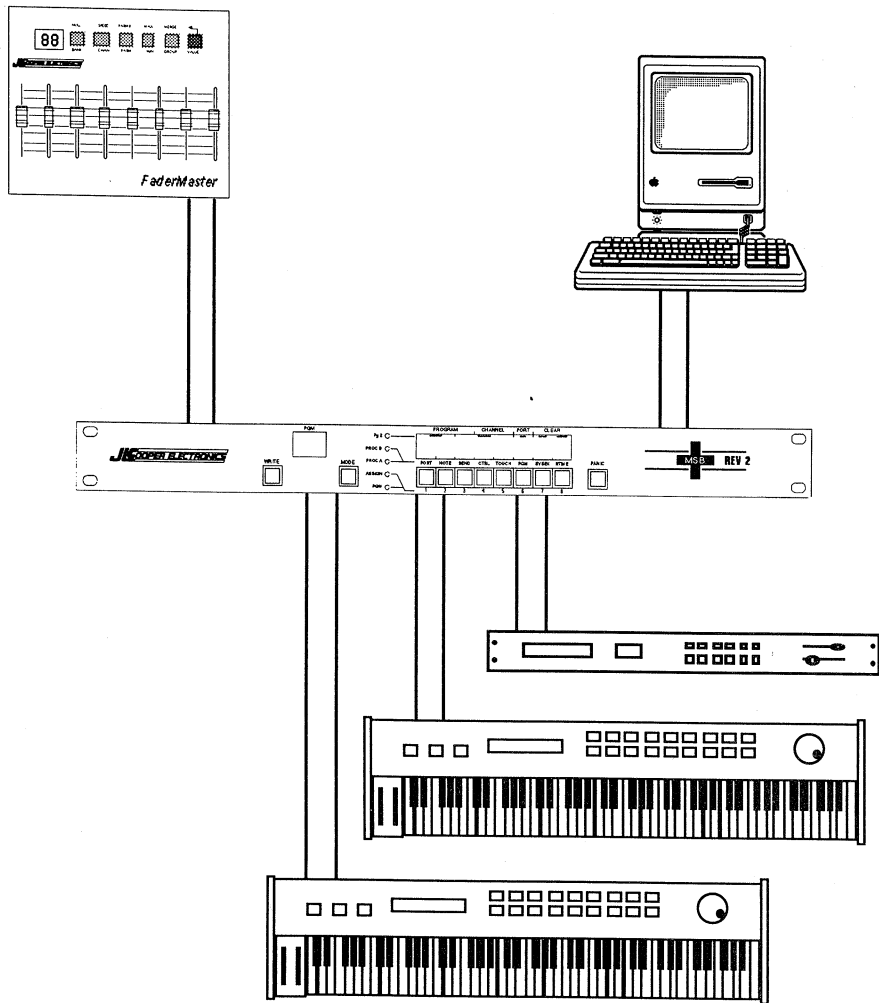
In either case, FaderMaster is placed in the MIDI data stream between the sequencer (or synchronizer) and the drum machine. Hook up a MIDI cable from the output of the sequencer (or synchronizer) to the input of FaderMaster. Hook up a MIDI cable from the output of FaderMaster to the input of the drum machine.

### **(4) Remote Level Control:**

Send MIDI Volume commands from FaderMaster via a MIDI Switch Box or Thru Box to all keyboards or tone modules that can receive volume change commands.

### **(5) Sequencer Mixing and Full Studio Control**

The most powerful way to incorporate FaderMaster into your MIDI system is to patch it in and out of a MIDI switch box, such as the JLCooper MSB Plus. This allows you to have instant access to all FaderMaster applications without having to move any MIDI cables.



(5) Full Studio Control

## Chapter 4 User Bank

This bank is typically used for sequencer mixing, timing applications, and remote control for any device not included in the factory preset bank. If you intend to use FaderMaster to facilitate sequencer mixing, be sure that you are thoroughly familiar with the operation of your sequencer first.

*Please Note: The **Factory Bank** may also be used for certain level control applications. The first four presets have been designed for this purpose to save you programming time and "free up" some programs in the User Bank. After reading this chapter, you may want to also read the next chapter, to see if you can make use of these presets.*

### Selecting User Bank

The nine programs in the user bank are designated U1 through U9. FaderMaster normally powers up in U1. Pressing the BANK button advances the program number by one. (Holding CHAN and pressing BANK decrements the program number by one.) While holding the BANK button you may rapidly go to the desired program by moving any fader.

### Assigning Faders

Creating your own programs in the User Bank is a simple process. First select a function button, then slide the fader you wish to assign. Stop moving the fader when the desired function or value is shown in the display. These fader assignments are automatically saved in memory to the presently selected User bank.

#### **Example:** Basic Sequencer Mixing or Remote Level Control

Most synthesizers (but not all) respond to MIDI Volume commands. In the MIDI Spec, this command is also called "Continuous Controller #7".

You will need to assign all eight faders to controller number 7, and then assign each to a different MIDI channel.

The MIDI channel number corresponds to the receiving channel of the instrument to be controlled. The MIDI output of FaderMaster will be sent to either a sequencer (for recording volume commands) or to several keyboards and tone generators (for remote level control).

First select the User bank number that you want these assignments saved in. (U1 through U9.)

Then assign all faders to send the MIDI command Continuous Controller by holding **PARM** and moving each fader (one at a time) until **Co** shows in the display.

Then assign all faders to controller number seven by holding **VAL** and **PARM#** and moving each fader (one at a time) until **07** shows in the display. (This requires a bit more care than entering PARM because there are many more possible values, therefore a slight change in fader position results in a large change in the value displayed.)

Then assign each fader to a different MIDI channel by holding **CHAN** and moving each fader until the desired MIDI channel is displayed.

**Example:** Expression Controller

You may own a keyboard that cannot send MIDI After Touch or Volume messages, but your rack-mount MIDI tone modules can respond to these commands. You could set the first two faders on FaderMaster to send After Touch and Volume commands on MIDI channel 1 (or any other channel). The next two faders could then be set to send the same commands on a different MIDI channel. Assigning all eight faders in this manner would then give you independent expression control over four different slaves. Place FaderMaster next to (or on top of) your keyboard for easy access, and hook up according to the diagrams. First select the User bank number that you want these assignments saved in. (U1 through U9.)

Then assign faders 1, 3, 5, and 7 to send the MIDI command After Touch by holding **PARM** and moving those faders (one at a time) until **AF** shows in the display.

Then assign faders 2, 4, 6, and 8 to send the MIDI command Continuous Controller by holding **PARM** and moving those faders (one at a time) until **Co** shows in the display.

Then assign faders 2, 4, 6, and 8 to controller number seven by holding **VAL** and **PARM#** and moving those faders (one at a time) until **07** shows in the display.

Then assign the first fader to MIDI channel 1 by holding **CHAN** and moving the fader until **01** is displayed. Assign the second fader to the same MIDI channel in a similar manner.

Assign the next two faders to channel 2, and then continue to assign the faders in pairs until you have selected the channel numbers for all eight faders.

**Please Note**

Keep in mind that the FaderMaster does not process keyboard data passing through it. The FaderMaster does not change the MIDI channel of a keyboard.

The FaderMaster only adds additional MIDI commands, in this case, Volume and Aftertouch information.

If each tone module is set to a different MIDI channel, then you can independently control each tone module. But if the keyboard is only sending on one channel, then you can only play one of the tone modules.

Therefore, this type of arrangement works best when you have a keyboard controller capable of sending MIDI data on more than one channel at a time. This is usually accomplished with a keyboard controller with a split or zone feature.

If your keyboard controller cannot do splits, then you may consider the addition of a MIDI processor. A JLCooper Nexus Plus, for example, can permit a keyboard controller to send on three channels simultaneously.

 A JLCooper Synapse can make a keyboard controller send on 12 channels at the same time.

Alternately, a sophisticated Macintosh MIDI Interface, such as a MIDI Time Piece from Mark of the Unicorn, can accomplish this.

**Example:** Remote control of a signal processing device.

First check the list of FaderMaster's factory presets to see if your signal processor is already included in the Factory Bank. (This would save you the time of defining your own custom setup.) If it is not, then read your signal processor's manual thoroughly to determine just what parameters can be controlled via MIDI. For this example, we will consider the Alesis QuadraVerb™.

First familiarize yourself with pages 37-39, 66-69, and page 81 of the QuadraVerb™ instruction manual. You will find that about 50 parameters can be remotely controlled via MIDI commands, including E.Q. settings, Delay Time, Lezlie Speed, Feedback, Decay Times, etc.

You will first assign all eight faders to the same MIDI channel, and then assign all eight faders to send Continuous Controller commands, each with a different Controller (Parameter) number.



First select the User bank number that you want these assignments saved in.

Then assign FaderMaster's MIDI channel by holding CHAN and moving each fader one at a time. Set all eight faders for the same channel.

Then select the MIDI channel for the QuadraVerb™ by pressing its MIDI and VALUE buttons.

Then assign all faders to send the MIDI command Continuous Controller by holding **PARM** and moving each fader (one at a time) until **Co** shows in the display.

Then assign the faders to sequential controller numbers by holding **VAL** and **PARM#** and moving each fader (one at a time). Move the first fader until **01** is displayed, the second **02**, the third **03**, etc. (This choice of controller numbers is convenient although somewhat arbitrary.)

On the signal processor, you must define what Alesis calls MOD SOURCES and MOD TARGETS. To select the first MOD SOURCE, press MOD, and then press VALUE until "CONTROLLER 000" is displayed.

Select 001, and then press the PAGE button to define the MOD TARGET. This will be the parameter inside the QuadraVerb™ that will be affected by moving FaderMaster's fader number 1.

Pressing the VALUE button on the QuadraVerb™ allows you to select the target parameter. The selections available will depend on whether you are in "QuadraMode", "Lezlie", "Graphic", or "5 Band" configurations.

After selecting MOD Source and Target, select MOD Amplitude by pressing the PAGE up button. Hold the VALUE button (on the QuadraVerb™) and set to the maximum amplitude.

In a similar manner, continue to define sources, targets, and amplitudes for faders 2 through 8.

**Remember that you can set the faders for different MIDI channels to control the parameters of more than one signal processing device.**

For example, faders one through four could send on MIDI channel 1, while faders five through eight could send on MIDI channel 2. The "MIDI Thru" of the signal processor would be hooked up to the MIDI In of the second signal processor.

**Remember that FaderMaster not only provides "real-time" access to your signal processor's internal parameters, but also that this data can be loaded into a MIDI sequencer for automated effects control.**

In that case, the "MIDI Thru" of the signal processor would then be hooked up to the MIDI In of the sequencer. Alternately, the MIDI Out of FaderMaster can be hooked up to the MIDI In of the sequencer, and the MIDI Out of the sequencer to the MIDI In of the signal processor. In that case, the "echo thru" function of the sequencer should be enabled.

### Setting Fader Attributes

Each fader may be assigned a unique set of attributes in User banks U1 through U9. The range, speed, and grouping are adjustable.

#### Minimum and Maximum

FaderMaster sends out MIDI numerical values ranging from 0 to 127. It is sometimes desirable to limit the numerical range of a fader.

For example, say that you are controlling a MIDI device with 32 presets. If a fader has been assigned to send program change commands, you may want to limit the maximum value of the fader to 32, instead of 127. That way the whole fader "throw" will be useful. Otherwise the upper half of the fader's travel will send MIDI commands that your tone module or signal processor may ignore.

As another example, say that you are sending After Touch commands to a tone generator. You may discover that for a given patch the After Touch message has no significant effect on the sound until the fader is more than halfway up. In this case, setting the minimum value for the fader at 63 instead of zero will give you greater control over the effective range.

To set the minimum value for a fader, press and hold **MIN** and move the fader until the desired value is displayed.

To set the maximum value for a fader, press and hold **VAL** and **MAX** and then move the fader until the desired value is displayed.

Values above 99 will be shown flashing, with a "1" alternating with the lowest two digits.

You may press **MIN** or **MAX** at any time to view the settings for the last fader moved.

Minimum and Maximum values may be set for each individual fader, and those settings are stored in the currently selected program in the User bank. That is, these settings may be different for each program in the User bank.

When the Maximum value is set to a number less than the Minimum value, the fader will operate reversed, sending out its highest value when moved all the way down.

### Speed

The computer inside FaderMaster is constantly scanning the faders to see if they have been moved. An individual fader may be scanned from 6 to 100 times in a second. Generally speaking, the higher the scan speed, the more responsive the fader behaves.

For example, a fader assigned to send program change commands should ideally be set to the slowest scan speed. This allows FaderMaster to send only one MIDI message when a fader is moved very slightly, rather than just spewing out 30 program change commands.

As another example, a fader may have been assigned to send Pitch Bend commands with a restricted range (using Min and Max). A slow scan rate would allow the introduction of a fixed amount of key transposition, rather than a smooth bend. For the smoothest volume changes, use a higher rate. A slow rate would result in a sudden jump in level, which may be desirable in limited applications.

To set the speed for a fader, press and hold **VAL** and **SPEED** and move the fader until the desired value is displayed. The number "01" indicates the fastest scan rate (100 per second), while the number "16" indicates the slowest rate (6.25 per second.)

You may select **SPEED** at any time to view the setting of the last fader moved.

The speed may be set differently for each individual fader, and those settings are stored in the currently selected program in the User bank. That is, these settings may be different for each program in the User bank.

### Grouping

Any fader may be "grouped" to be controlled by any other fader. For example, one or two faders may be assigned to be "group masters" for effecting simultaneous level control of several instruments. Alternately, certain special effects may be achieved such that moving one fader will cause simultaneous transmission of Volume, Pitch Bend, After Touch, and Modulation (Controller) commands (on different MIDI channels, if desired.)

When a fader has had its range reversed (using Max and Min), another fader grouped to it will create a cross fade function. For example, sliding up a fader could bring up Modulation while bringing down After Touch. Or, more likely, a MIDI Volume cross fade could be recorded onto a sequencer.

Press **Group** to view the group assignment for the last fader moved. When "0" is displayed, that fader is not assigned to any other fader. When a "1" through "8" is shown, it means that the fader is grouped to the fader number displayed.

For example, suppose fader number two is the last fader moved. Then **GROUP** is pressed and a "1" is displayed. That means that fader 2 is grouped to fader 1, so moving *Fader 1* will send out data for both faders.

To change group assignments, move the fader while holding **GROUP** until the desired fader number is displayed. A fader may not be assigned to itself.

The individual faders' Minimum and Maximum settings would still be in effect. However, when grouping faders together the Speed of the master fader will be the speed for any slaves.

### Example: Grouping Level Control

In a previous example it was shown how to assign the faders to send out volume commands on different MIDI channels. Suppose that now you want fader number 8 to be a group master.

Hold **GROUP** and then assign all faders to fader number 8 by moving each fader (one at a time) until 08 shows in the display.

Now when you move fader number eight, volume data will be sent out just as if you had moved faders one through eight simultaneously.

### Sequencer mixing: SNAPSHOT function

Suppose that you are recording Controller data (like volume and modulation) onto a sequencer. You may want to record some initial MIDI Controller commands on the first beat of the song. But it would be inconvenient to start the sequencer and then try to very quickly move each fader a little to record the data. FaderMaster can send out a "snapshot" burst of MIDI messages corresponding to the current position of all the faders, without having to actually move any of the faders.

To use this SNAPSHOT function, first set your faders at the desired levels. Then start your sequencer in record and simultaneously press **MIN**, **GROUP**, and **VAL**. FaderMaster will then send out a burst of MIDI messages corresponding to the current values of each fader.

### Sequencer Mix Editing: MERGE function

After you have recorded volume related data on your sequencer, you may want to edit that data. FaderMaster's special MERGE modes are designed to simplify the editing of both Continuous Controller and Note data. (Recall that Continuous Controller data is used for volume and modulation and such, whereas Note data is used to drive certain MIDI-controlled audio attenuators. Note data is also recognized by certain digital signal processors.)

The procedure will be to play the previously recorded data from the sequencer into FaderMaster, while re-recording the corrected data coming out of FaderMaster onto a new sequencer track. This is a fairly fail-safe method, in that you need not erase the old volume track until the new track has been proven to give audibly pleasing results.

All this assumes, of course, that your sequencer has the ability to easily select which tracks are in playback and which are in record status. (That may be difficult on certain hardware sequencers.)

FaderMaster has three Merge Modes, and these can be independently set for each individual fader assigned to send Continuous Controller or Note commands.

### Merge Modes Defined:

#### Merge Unconditionally On

Normally, MIDI data received by FaderMaster is "unconditionally merged" with fader commands. That is, any data that comes into FaderMaster goes right back out the MIDI output, merged with the data produced by moving a fader.

#### Merge Unconditionally Off

This mode is used for completely replacing a track of Controller data. For example, say you have used FaderMaster to record some volume tracks on a sequencer. You may want to completely redo several of those tracks while leaving the others intact.

Data coming into FaderMaster is first examined by the internal microprocessor. If Note or Continuous Controller comes into FaderMaster with the same Parameter Number and MIDI channel number that a fader is set for, that data is not passed through. The data may then be replaced by new data when a fader is moved. It is this new data that is recorded onto a new sequencer track.

#### Conditional Merge

This mode is used for replacing sections of a track of Controller data. For example, say you have used FaderMaster to record some volume tracks on a sequencer. You may want to redo certain parts of those tracks while leaving the rest intact.

Data coming into FaderMaster is first examined by the internal microprocessor. If Note or Continuous Controller comes into FaderMaster with the same Parameter Number and MIDI channel number that a fader is set for, that data is passed through *until a fader is moved*. Then the volume data will be *replaced* by new data from the fader being moved. It is this new data that is recorded onto a new sequencer track.

Momentarily pressing either **CHAN**, **PARM**, **MIN**, or **GROUP** will once again allow data to pass through for that fader (i.e. effect a punch out), until the fader is moved again.

In other words, this mode allows the momentary interruption of the flow of MIDI Note or Continuous Controller data through FaderMaster. During that interruption, new data may be inserted.

## Assigning Merge Modes

To view or change the merge assignment for a given fader, Hold VAL and then press MERGE. The display will show one of the following:

**oN** = Merge unconditionally ON. All data is passed through FaderMaster and merged with fader data.

**oF** = Merge unconditionally OFF. Data coming into FaderMaster is examined. If the fader is set to Merge Off, and if Note or Continuous Controller comes into FaderMaster with the same Parameter Number and MIDI channel number that the fader is set for, that data is not passed through.

**Co** = Conditional Merge. The data coming into FaderMaster is examined as above. A merge will take place until the corresponding fader is moved. At that point the data coming in is not passed through, but is replaced by fader data. A momentary push of the CHAN, PARM, MIN, or GROUP button allows MIDI data to be merged again.

### Example: Sequencer mix editing #1

Suppose that you have recorded eight tracks of volume data on your sequencer. The MIDI data is Continuous Controller #7, and each track is on a different MIDI channel. You have just played back your sequence while monitoring the audio output of your tone generators. The instrument on MIDI channel four is poorly mixed, and the instrument on MIDI channel 5 is OK until the end of the song. Thus you need to completely replace the data on track 4 (corresponding to fader 4), and replace just the tail end of the data on track 5 (corresponding to fader 5).

Set up your sequencer to play the volume tracks while recording eight new tracks of data. How you do this will depend on the "architecture" of your sequencer, and will probably be much easier on a software sequencer than a hardware sequencer. A hardware sequencer may have all the volume data residing on one track. This should not pose any difficulty. In this case, set up the hardware sequencer to play out that one track while recording a new track.

Hook up your MIDI cables via a switch box or thru box so that the output of FaderMaster gets routed to the input of the sequencer and to the input of the tone generators. The output of the sequencer goes to the input of FaderMaster.

The MIDI data that goes into FaderMaster should consist of controllers only, with no notes. This can be accomplished by using a MIDI Patch Bay / Processor to filter out notes. Or, set the sequencer filter out everything except controllers, so that only controller commands will be recorded.

→ The reason for filtering notes is to prevent the entire sequence from looping through FaderMaster and being re-recorded onto one track of the sequencer.

Again, this will be easier to do on a software-based sequencer than on a hardware sequencer. Ideally, you want the notes to go only to the synthesizers and tone modules, so you can hear them, and the controllers looping through the FaderMaster so you can re-record them.

Put fader 4 into Merge Off Mode by holding VAL and MERGE and moving fader 4 until **oF** is displayed. Put fader 5 into Conditional Merge Mode by holding VAL and MERGE and moving fader 5 until **Co** is displayed.

Start the sequencer and redo fader 4's moves. The old volume data will go into FaderMaster, and will come out with fader 4's data replaced with the new data. When you approach the end of the sequence, start moving fader 5 to correct the old volume data. From the time that you first move fader 5, that channel of data will be intercepted and replaced. Let the sequence run to the end. Momentarily push either of the CHAN, PARM, MIN, or GROUP buttons to restore merging on fader 5. Play back the sequence to audit the results.

## **Sequencer Mix Editing: Null function (Conditional Merge Mode)**

You have seen that FaderMaster's Conditional Merge Mode allows the replacement of sections of Note or Continuous Controller data. When combined with the NULL function, it is possible to seamlessly replace those sections without any jumps in level. To do this requires that your fader values at the beginning and end of the replacement must be equal to the values on the original volume track. The NULL function permits the monitoring of the difference between the value of the data coming in and the position of a fader. The fader is said to be "nulled" when the displayed difference equals 00.

At the beginning of the replacement (that is, "punch-in"), a fader may be moved into the "nulled" position before it actually sends any data. Towards the end of the replacement the fader may again be moved into a new "nulled" position, while still replacing the old data. Then the fader is "punched-out" so that the remainder of the volume track is left unchanged.

### ***This features only applies to faders assigned to Note or Continuous Controller data with Conditional Merge Mode Selected.***

Once again, the procedure will be to play the previously recorded data from the sequencer into FaderMaster, while re-recording the corrected data coming out of FaderMaster onto a new sequencer track.

When the sequence approaches the section of volume data that you wish to replace, null the fader by first holding VAL and pressing NULL.

If the fader position is too high, a positive number will be displayed, if the fader is too low, a negative number will be displayed.

Move the fader until the difference value shown in the display is equal to double zero (00). While you are holding down NULL, you may move the fader into position without data being sent out yet. Then release VAL and NULL, and as soon as you move the fader you will be replacing the old data.

(Recall that you are in Conditional Merge Mode, and data was passing through FaderMaster until you moved the corresponding fader.)

When the sequence approaches the end of the section of volume data that you wish to replace, once again null the fader by first holding VAL and pressing NULL. While you are holding down NULL, data is still being sent as you move the fader.

If the fader position is too high, a positive number will be displayed, if the fader is too low, a negative number will be displayed.

Move the fader until the difference value shown in the display is equal to 00. Then release VAL and NULL, and quickly press either CHAN, PARM, MIN, or GROUP. This will "punch-out" the faders.

(Recall that you are in Conditional Merge Mode, and the old data will once again begin to pass through FaderMaster when you hit either the CHAN, PARM, MIN, or GROUP buttons.)

### **Example: Sequencer Mix Editing #2**

Borrowing from the last example, let us suppose that fader number 5 is still in the Conditional Merge Mode. We want to replace the middle of track with new volume data, but we want the new data to be dropped in seamlessly.

Start the sequencer. Do not move fader 5 yet. When the sequence approaches the region you intend to edit, null fader 5 by holding VAL and NULL, and while holding VAL and NULL move fader 5 until the difference shown in the display is equal to 00. Then release VAL and NULL, and begin moving the fader to replace the old volume data.

Towards the end of the intended edit, null the fader again by holding VAL and NULL, and moving the fader until the difference displayed is equal to 00. Then release VAL and NULL, and quickly press either of the CHAN, PARM, MIN, or GROUP buttons to restore the normal flow of data through FaderMaster. Let the sequence run to the end. Then play it back to audit the results.

### **Non Registered Controllers**

Certain synthesizers (Ensoniq, for example) and signal processors can respond to Non Registered Controller commands.

When a fader assigned to NC is moved, a 7-byte long message is sent. This message contains both a "most significant byte" and a "least significant byte", followed by a value. The "most significant byte" number defaults to 0 on power up. The "least significant byte" is the parameter number (PARM#) for the fader. The value represents the position of the fader.

### Example: Ensoniq SQ-80

The Ensoniq SQ-80 will change its "pan position" in response to a Non Registered Controller command with the "least significant byte" set to 107 (that is, 6B hexadecimal). Use the standard fader assignment procedure of holding down a button and moving a fader until the desired value is displayed. Assign MIDI **CHAN** to agree with the MIDI channel of the SQ-80, set **PARM** to **NC**, then set **PARM#** to **107**.

It is also possible to change the "most significant byte" assignment on FaderMaster. To do this involves using two faders. The position of the second fader will set the value of the "most significant byte".

This second fader must be set to send Continuous Controller #99, and must also be set to the same MIDI channel as the NC fader. You should probably set the Minimum value to 0 and the Maximum value to 1 or 2 for this fader, unless you are sure you need a larger range.

(Since one fader selects the "most significant byte", and another fader sets the value of the "least significant byte", this provides over 16,000 possible Non Registered Controller numbers!)

### Example: Ensoniq SQ-80

The Ensoniq SQ-80 will change its Pitch Bend response range in response to a Non Registered Controller command with the "least significant byte" set to 07. The "most significant byte" must be set to 01. Use the standard fader assignment procedure of holding down a button and moving a fader until the desired value is displayed. First assign for one fader the **CHAN**, set **PARM** to **NC**, then set **PARM#** to **7**.

Now set a different fader to the same MIDI channel number, and set its **PARM** to **Co**. Set this fader's **PARM#** to **99**. Set the **MAX** for this fader to **01**. Move this fader all the way up to internally set the "most significant byte" number to 1. Now when you move the first fader (assigned to **NC**), FaderMaster will send the desired commands.

### Delay Mode:

#### MIDI Note and Continuous Controller Commands

Any of the first seven faders may be set to delay the transmission of MIDI Note or Continuous Controller commands. Faders set to Delay Mode do not send any data. Rather, the position of the fader determines how much Note or Controller commands passing through FaderMaster will be delayed. A fader will only delay data of the same Parameter, Channel, and Parameter Number. The range for this delay is from 0 to 15 Milliseconds.

Faders 1 through 7 may be put into Delay Mode by holding VAL and MERGE, and moving the fader **dL** is displayed.

Note On delay time will equal and Note Off delay time. (Also, the "release velocity" of a Note Off message is lost when delayed.)

#### Example: Drum Feel

Suppose that your drum tracks reside on your sequencer as MIDI Note commands. These MIDI Notes are all on the same channel. (Say, channel 16 for example.) You are using a drum machine or a tone generator to provide the percussion sounds.

To use FaderMaster to alter the "feel" of the drum tracks, first insert it into the MIDI data path between the sequencer and the drum machine. (See hookup diagrams.) Assign faders 1 through 7 to Note commands by holding **PARM** and moving each fader until No is displayed. Assign those faders to MIDI channel 16 by holding **CHAN** and moving each fader until **16** is displayed. Assign faders 1 through 7 to Delay Mode by holding VAL and MERGE and moving each fader until **dL** is displayed.

Next, refer to the instruction manual of your drum machine to determine which MIDI note numbers correspond to which sounds on your drum machine.

Then, while holding **VAL** and **PARM#**, move faders 1 through 7 one at a time until the desired note number is displayed for each.

Now start the sequencer and listen to the subtle timing effects achieved by moving the faders.

The delayed data coming out of FaderMaster can be re-recorded onto another sequencer track to incorporate these timing changes into the sequence. In that case, use a switch box or thru box to route the output of FaderMaster to both the sequencer and the drum machine.

### **Delay Mode: MIDI Clock**

Fader number 8 can be assigned to delay the transmission of MIDI timing clocks.

While holding VAL and MERGE, move fader 8 until dL is displayed. Fader 8 will now not send any data; the Parameter, Channel, and Parameter Number settings are ignored. Moving fader 8 gives a delay time ranging from 0 to 15 milliseconds.

## **Chapter 5 Sysex Bank**

This bank is used for gaining remote control over parameters within devices only accessible via MIDI System Exclusive messages and not included in the factory preset bank. The Sysex Bank may be programmed using with the optional FaderMaster Software.

If you are a software developer, and wish to write your own software to program the FaderMaster, refer to the System Exclusive documentation in Chapter 8.

The factory-loaded default settings will control the ART MultiVerb™.

Because parameter manipulation in the MultiVerb™ is a rather complicated process, it is dealt with in Appendix B.

### **Selecting Sysex Bank**

The Programmable Sysex Bank is designated P1. (While holding the BANK button you may rapidly go to P1 by moving any fader.)

When a fader is moved while in the Sysex Bank, a data stream of up to 14 bytes long is sent out.

### **Fader Attributes**

For each fader, you may enter Speed, Minimum, and Maximum values, as described in the last chapter, pages 19 and 20.

Refer to instructions in Appendix E to use the optional FaderMaster Software for loading the Sysex Bank P1.

## Chapter 7 Sysex Implementation

All FaderMaster Sysex messages have the general form:

**F0h, 15h, 11h, cc, xx, <data>, F7h** where cc = Command Code.

### **F0h, 15h, 11h, 00, F7h:**

This is a Dump Request. There are no data bytes; when FaderMaster receives this message, it will reply with a Sysex Dump of all "U" and "P" Banks.

### **F0h, 15h, 11h, 01, <data>, F7h:**

This is a Sysex Dump. There are 9 User banks of 80 bytes each, 1 Sysex bank of 64 bytes each, then 1 bank of Sysex bank header data (see below).

### **F0h, 15h, 11h, 02, xx, F7h: (xx = 0 to 10)**

This is a request for one bank's dump, with xx = 0 for bank U1 up to xx = 9 for P1.

### **F0h, 15h, 11h, 03, (xx), <data>, F7h:**

This is the Sysex Dump of one "U" or "P" bank. This dump will have either 80 or 64 bytes of data, depending on whether it is a "U" bank or "P" bank. The "xx" is not sent from the FaderMaster, but is required by the FaderMaster to specify where to store the data.

### **F0h, 15h, 11h, 04, F7h:**

This is a request of the Sysex Header data for the "P" bank.

### **F0h, 15h, 11h, 05, <data>, F7h:**

This is the Sysex Dump of the "P" bank's Sysex Header data.

**User Bank Dump:** 80 bytes each, with 10 bytes for each of 8 Faders. Fader 1 is sent first. All data only occupies low 4 bits. Each fader's data looks like:

Byte 0 = Midi Channel Number.

Byte 1 = Parm Type

(9 = Note, 11 = Controller, 12 = Program Change, 13 = After touch, 14 = Pitch Bend, 15 = Non-Registered Controller.)

Byte 2 = Low nibble of Minimum value.

Byte 3 = High nibble of Minimum value. Bit 3 = Mode bit 0 (see below).

Byte 4 = Low nibble of Maximum value.

Byte 5 = High nibble of Maximum value. Bit 3 = Mode bit 1.

Byte 6 = Speed. 0 = 100 scans/sec, 15 = 6 scans/sec.

Byte 7 = Group. 0 = no assignment, 1 thru 8 = assign to that fader #.

Byte 8 = Low nibble of Parameter Number.

Byte 9 = High nibble of Parameter Number.

Mode bit 0	Mode bit 1	Function
0	0	Merge ON
1	0	Merge OFF
0	1	Merge Conditional
1	1	Delay Function

"P" Bank Dump: 64 bytes, with 8 bytes for each of 8 faders. Fader 1 is sent first. All data occupies low 4 bits of byte. Each fader's data looks like:

Byte 0 = Low nibble of Minimum

Byte 1 = High nibble of Minimum

Byte 2 = Low nibble of Maximum

Byte 3 = High nibble of Maximum

Byte 4 = Speed. As above.

Byte 5 = Always = 00

Byte 6 = Low nibble of Parameter Number.

Byte 7 = High nibble of Parameter Number.

"P" Bank Header Dump: This is the global data that is sent for each fader's movement. Up to 13 bytes of Sysex header data may be specified for the header.

This header data is nibblized and preceded by a "count" nibble which indicates the number of bytes of header being nibblized which are in the dump. The SOX (F0h) and EOX (F7h) are understood, and not sent as part of this dump.

There are some "special" codes that may be imbedded in this string (nibblized, or course.) These specify where in the string the Parameter Number and fader value get inserted by FaderMaster when a fader is moved. They also specify where, if at all, a check-sum gets inserted. These special codes are not actually sent by FaderMaster when the fader is move: they are used internally as cues.

The special codes are:

F1h- "Insert Fader Value Here"

F3h- "Clear Checksum" See the sysex implementation for your unit to see if a checksum is used. You may have to contact the manufacturer to find out where the calculation of the checksum starts. This F3h is used to indicate the starting point.



F4h- "Send Roland Checksum Here". The Roland Checksum will be inserted at this point in the sysex string.

F5h- "Send Checksum Here". This will send the "other" kind of checksum.

F6h- "Send Parameter Number Here". The individual fader's user-programmable Parameter Number will be sent at this point in the sysex string.

Example of "P" Bank Header Dump:

If we desire to send: F0h, 45h, 18h, 2, mm, vv, cs, F7h where mm is the fader's Parameter Number, vv is its value, and cs is a checksum that covers from just after the 18h, we would send a "P" Bank Header Dump of:

F0h, 15h, 11h, 05, 6, 5, 4, 8, 1, 3, Fh, 2, 0, 6, Fh, 1, Fh, 5, Fh, F7h

The first "6" indicates that 6 bytes of data follow in nibblized form. The 5 is the low nibble of the "45h" etc. The F3h, F6h, F1h, and F5 are the special codes.

**F0h, 15h, 11h, 06, F7h:**

This is a request to the FaderMaster of the current values for all eight faders.

## Chapter 8 Troubleshooting and Service

### Fader Response

If a fader doesn't appear to do anything, check the following first:

- (1) Is it set to Delay Mode? A fader will not send any data in Delay Mode. Move the fader, and then hold VAL and press Merge to observe status.
- (2) Is the range reasonable? A fader will not send any data if its MIN value is equal to its MAX value. The fader will not do too much if the MAX value is set very close to the MIN value.
- (3) Is the MIDI Channel number in agreement with the device you are trying to control?
- (4) Is the slave device set up to respond to the type of command that you are sending it?

If a fader is doing "too much", check your group assignments, one fader at a time. You may have accidentally grouped several commands on one fader. Perhaps the fader's Speed has been set too high for the application.

### Clearing Memory

If you've accidentally programmed FaderMaster with completely confusing settings, or if the memory has been scrambled by an AC power surge, you may want to initialize FaderMaster's memory.

If BANK, CHAN, and PARM are simultaneously depressed while turning the unit on, **all User Banks will be cleared** and reloaded with the following default setting: Faders 1 through 8 are set to send MIDI Continuous Controller commands. In U1, faders are assigned to controller numbers 0 through 7. In U2, faders are assigned to controller numbers 8 through 15, etc. All faders set to MIDI channel 1, with maximum scan speed, full range, merge on, and no grouping. The Programmable Sysex Bank (P1) is reloaded with data to control the ART MultiVerb™.

### Zipper Noise

While using FaderMaster to control levels or signal processors, you may happen to notice a soft tearing or stepping sound coming from the audio output of the slave. It is called "zipper noise" and **has nothing to do with FaderMaster**. It is entirely related to the design of the MIDI controlled device. The tone module or signal processor may not be capable of responding smoothly to MIDI commands. In fact, the noise may appear while varying certain parameters in an instrument and not appear on other parameters within the same instrument.

### **Program Changes**

If using FaderMaster to send Program Change Commands, you should know that some instruments interpret a "0" as Program #1. This varies with different manufacturers and the only way to tell is to experiment.

### **Service**

If you experience any operational difficulties, please allow us to first reassure you that every unit is 100% factory tested. It worked when it left the factory, otherwise it wouldn't have been shipped.

The most common cause of problems is a "noisy" AC outlet. We recommend the use of an AC line filter with all computer related equipment. These can be purchased at any computer or hardware store, and most music stores also now carry them. Be sure that it has both surge suppression and line filtering.

There are no "user-serviceable" parts inside FaderMaster. For warranty service in the U.S.A. in the event of a malfunction, call the factory to obtain a Return Authorization before sending the unit back.

## Appendix A

### P1 Sysex Bank Default Assignments

#### ART MultiVerb™

As shipped from the factory, the Sysex Bank **P1** is set to control the ART MultiVerb™. Should you reprogram this bank and at some later time want to restore the MultiVerb™ settings, use the **INITIALIZE** function. Hold BANK, CHAN, and PARM buttons while turning the unit on.  
**WARNING: This clears all programs in the User Bank!**

Unfortunately, there are certain complications inherent to the sysex implementation of the MultiVerb™. Most notable is the fact that certain parameters (such as chorus speed or reverb level) do not have “fixed” parameter numbers. The numbers change around from program to program. That is, a given parameter number (and thus a given fader) will have a different effect depending on the currently selected MultiVerb™ program. Also, certain combinations of effects are internally grouped together in the MultiVerb™. Although it is essential to know how they are grouped to determine parameter settings, the front panel of the MultiVerb™ won't give you this information, it must be “deduced”!

To add to this difficulty, certain parameters have widely differing allowable maximum and minimum values.

To help you wade through this situation, we have prepared the following charts. We must assume a good level of understanding of the MultiVerb™ on your part.

Here is how to use the charts.

First select a program on the MultiVerb™. Find out which of the 19 internal effects are turned on. On the MultiVerb™, press DELETE EFFECT? several times to display the effects currently selected. Use the **Group Selection Chart** to find out the possible “Group Number” for that program. (There may be more than one.) For example, if the current program has Equalizer, Flanger, Panner, and Reverb 1, then its internal “Group Number” is either 22 or 23.

Next comes the harder part. To firmly establish the "Group Number", you must find out which additional effects can be turned on for that program. To determine which additional effects can be turned on, Press ADD EFFECT and note the display. If, for example, Regeneration Level is accessible, then you have established that the internal Group number is 22. Now look at the **Parameter Selection Chart**. Find your "Group Number" in the left column, and then read across to find the name of the internal parameter of the MultiVerb™ that you want to control.

The appropriate FaderMaster parameter number (**PARM#**) is then found at the top of the column.

For example, say that you want fader 1 to control Panner Speed. For group 22 you find that you will need to send parameter number 13 to the MultiVerb™, as part of the Sysex message. So, hold **VAL** and **PARM#**, and move fader 1 until 13 is displayed.

Lastly, look at the **Abbreviations and Limits** table, to find the effective range of values for the parameter.

For example, Panner Speed has a minimum of 0 and a maximum of 15. Set the range of fader 1 by setting **MIN** to 0 and **MAX** to 15.

MultiVerb Group Selection Chart

Group #	Equalizer	Flanger	Chorus	Pitch X6	Panner	MDDL S	MDDL L	Reverb 1	Reverb 2	Reverb 3	Gate 1	Gate 2	Gate 3	TapDDS	TapDDL	Regen S	Regen L	Stereo L	Stereo S	Stereo L	
0	Yes	Yes				Yes	Yes		Yes												
1	Yes	Yes				Yes	Yes														
2	Yes	Yes				Yes	Yes														
3	Yes	Yes	Yes			Yes	Yes					Yes									
4	Yes	Yes				Yes	Yes														
5	Yes	Yes				Yes	Yes				Yes										
6	Yes	Yes				Yes	Yes				Yes										
7	Yes	Yes	Yes			Yes	Yes				Yes										
8	Yes	Yes		Yes		Yes	Yes														
9	Yes	Yes		Yes		Yes	Yes														
10	Yes	Yes				Yes	Yes														
11	Yes	Yes				Yes	Yes						Yes								
12	Yes	Yes				Yes	Yes														
13	Yes	Yes			Yes	Yes	Yes														
14	Yes	Yes			Yes	Yes	Yes														
15	Yes	Yes			Yes	Yes	Yes														
16	Yes	Yes			Yes	Yes	Yes				Yes										
17	Yes	Yes			Yes	Yes	Yes				Yes										
18	Yes	Yes			Yes	Yes	Yes				Yes										
19	Yes	Yes			Yes	Yes	Yes				Yes										
20	Yes	Yes			Yes	Yes	Yes														
21	Yes	Yes			Yes	Yes	Yes														
22	Yes	Yes			Yes	Yes	Yes							Yes							
23	Yes	Yes			Yes	Yes	Yes														
24	Yes	Yes			Yes	Yes	Yes														
25	Yes	Yes			Yes	Yes	Yes														
26	Yes	Yes			Yes	Yes	Yes														
27	Yes	Yes			Yes	Yes	Yes				Yes										b
28	Yes	Yes			Yes	Yes	Yes				Yes										Yes
29	Yes	Yes	Yes		Yes	Yes	Yes														Yes
30	Yes	Yes			Yes	Yes	Yes														Yes
31	Yes	Yes			Yes	Yes	Yes														Yes

## Appendix C

### Registered Controller Numbers

The following list shows the standard Continuous Controller Functions, as defined in the MIDI 1.0 Detailed Specification.

You can use FaderMaster to send any of these commands, assuming of course that the instrument you are controlling can respond to these commands.

The fader would first be set to send Continuous Controller commands. The Parameter number is given in the table below.

0	Undefined
1	Modulation wheel or lever
2	Breath Controller
3	Undefined
4	Foot Controller
5	Portamento Time
6	Data entry, Most Significant Byte
7	Main Volume
8	Balance
9	Undefined
10	Pan
11	Expression Controller
12-15	Undefined
16-19	General Purpose Controllers
20-31	Undefined
32-63	Least Significant Byte for 0-31
64	Damper Pedal (Sustain)
65	Portamento
66	Sostenuto
67	Soft pedal
68	Undefined
69	Hold 2
70-79	Undefined
80-83	General Purpose Controllers
84-91	Undefined
92	Tremolo Depth
93	Chorus Depth
94	Celeste (Detune) Depth
95	Phaser Depth
96	Data increment
97	Data decrement
98	Non-Registered Parameter Number LSB
99	Non-Registered Parameter Number MSB
100	Registered Parameter Number LSB
101	Registered Parameter Number MSB
102-120	Undefined
121-127	Reserved for Channel Mode Messages

## **Appendix D**

### **FaderMaster Software**

The FaderMaster Software allows the User Bank programs (U1 through U9) and the Programmable Sysex Bank (P1) to be entered, edited, and stored on a computer.

Alternately, the contents of FaderMaster's User Bank and Sysex Bank can be uploaded into the computer for more convenient display and storage.

In most situations, this program can be run as a "desk accessory" at the same time as another program. That would allow you to access FaderMaster's memory without having to quit a sequencer, for example.

### **The Window**

The numbers one through eight along the top refer to faders one through eight. You may click on the line above the numbers and type in a name for your setup. Hit Return to lock it in. Each program (U1-U9 and P1) can have a different name.

Select the program number by clicking on the box below the word "Program" to increment the number. On the Mac, holding Option while clicking decrements the number. On the Atari, holding Alternate while clicking decrements the number.

To select the parameter for a given fader, simply click on the parameter's name under the fader number. Continue to click until the desired parameter is displayed.

Parameter numbers and Fader Attributes are simply selected and typed in. Hit Return to lock them in. To select Merge or Delay Status, click on the Merge box for the intended fader. Continue to click until the desired Merge or Delay status is displayed.

### **Programmable Sysex Bank**

The P1 bank permits MIDI System Exclusive messages to be sent by FaderMaster. The message may be up to 15 bytes long, and must be entered in Hexadecimal notation. The first and last bytes must be F0 and F7, respectively. (These have already been provided in the Sysex Header.) Somewhere in your data stream you must type in a vv. This will be the value that corresponds to the position of the fader. You may also insert a Parameter number into the Sysex Header, if you wish. The Parameter number can then be set for each fader. If the equipment that you are trying to control requires the insertion of "checksum" bytes, you must be sure to include two such bytes in the Sysex Header.

# FaderMaster Factory Presets

**Bank F1 - General Midi Volume Chan 1-8**

- 1— Midi Vol Chan 1
- 2— Midi Vol Chan 2
- 3— Midi Vol Chan 3
- 4— Midi Vol Chan 4
- 5— Midi Vol Chan 5
- 6— Midi Vol Chan 6
- 7— Midi Vol Chan 7
- 8— Midi Vol Chan 8

**Bank F2 - General Midi Volume Chan 9-16**

- 1— Midi Vol Chan 9
- 2— Midi Vol Chan 10
- 3— Midi Vol Chan 11
- 4— Midi Vol Chan 12
- 5— Midi Vol Chan 13
- 6— Midi Vol Chan 14
- 7— Midi Vol Chan 15
- 8— Midi Vol Chan 16

**Bank F3 - General Midi Pan Chan 1-8**

- 1— Midi Pan Chan 1
- 2— Midi Pan Chan 2
- 3— Midi Pan Chan 3
- 4— Midi Pan Chan 4
- 5— Midi Pan Chan 5
- 6— Midi Pan Chan 6
- 7— Midi Pan Chan 7
- 8— Midi Pan Chan 8

**Bank F4 - General Midi Pan Chan 9-16**

- 1— Midi Pan Chan 9
- 2— Midi Pan Chan 10
- 3— Midi Pan Chan 11
- 4— Midi Pan Chan 12
- 5— Midi Pan Chan 13
- 6— Midi Pan Chan 14
- 7— Midi Pan Chan 15
- 8— Midi Pan Chan 16

**Bank F5 - Oberheim Matrix 6 and 1000**

- 1— VCF Frequency
- 2— Env 1 to VCF Amount
- 3— VCF Resonance
- 4— LFO1 Speed
- 5— LFO1 to DCO1 Amount
- 6— LFO1 to DCO2 Amnt.
- 7— DCO2 Detune
- 8— DCO2 Frequency

**Bank F6 - Oberheim Matrix 6 and 1000**

- 1— Env 1 Attack
- 2— Env 1 Decay
- 3— Env 1 Sustain
- 4— Env 1 Release
- 5— Env 2 Attack
- 6— Env 2 Decay
- 7— Env 2 Sustain
- 8— Env 2 Release

**Bank F7 - Kawai K1, K1M, K1R**

- 1— Volume 1
- 2— Volume 2
- 3— Volume 3
- 4— Volume 4
- 5— Detune 1
- 6— Detune 2
- 7— Detune 3
- 8— Detune 4

**Bank F8 - Kawai K1, K1M, K1R**

- 1— Attack 1
- 2— Release 1
- 3— Attack 2
- 4— Release 2
- 5— Attack 3
- 6— Release 3
- 7— Attack 4
- 8— Release 4

**Bank F9 - Yamaha DX/TX General Control**

- 1— Pgm Change
- 2— Midi Volume
- 3— Feedback
- 4— Transpose
- 5— Key Sync
- 6— OPS Select
- 7— LFO PMD
- 8— LFO Amount

**Bank F10 - Yamaha DX/TX Osc Control**

- 1— OP1 Coarse Frequency
- 2— OP2 Coarse Frequency
- 3— OP3 Coarse Frequency
- 4— OP4 Coarse Frequency
- 5— OP5 Coarse Frequency
- 6— OP6 Coarse Frequency
- 7— OP1 Fine Frequency
- 8— OP2 Fine Frequency

**Bank F11 - Yamaha DX/TX OP1 Envelope**

- 1— Rate 1
- 2— Rate 2
- 3— Rate 3
- 4— Rate 4
- 5— Level 1
- 6— Level 2
- 7— Level 3
- 8— Level 4

**Bank F12 - Yamaha DX/TX OP2 Envelope**

- 1— Rate 1
- 2— Rate 2
- 3— Rate 3
- 4— Rate 4
- 5— Level 1
- 6— Level 2
- 7— Level 3
- 8— Level 4

**Bank F13 - Yamaha DX/TX OP3 Envelope**

- 1— Rate 1
- 2— Rate 2
- 3— Rate 3
- 4— Rate 4
- 5— Level 1
- 6— Level 2
- 7— Level 3
- 8— Level 4

**Bank F14 - Yamaha DX/TX OP4 Envelope**

- 1— Rate 1
- 2— Rate 2
- 3— Rate 3
- 4— Rate 4
- 5— Level 1
- 6— Level 2
- 7— Level 3
- 8— Level 4

**Bank F15 - Yamaha DX/TX OP5 Envelope**

- 1— Rate 1
- 2— Rate 2
- 3— Rate 3
- 4— Rate 4
- 5— Level 1
- 6— Level 2
- 7— Level 3
- 8— Level 4

**Bank F16 - Yamaha DX/TX OP6 Envelope**

- 1— Rate 1
- 2— Rate 2
- 3— Rate 3
- 4— Rate 4
- 5— Level 1
- 6— Level 2
- 7— Level 3
- 8— Level 4

# FaderMaster Factory Presets

**Bank F17 - Roland D-10, D-20, D-110**

- 1— Program Change Chan 1
- 2— Program Change Chan 2
- 3— Program Change Chan 3
- 4— Program Change Chan 4
- 5— Program Change Chan 5
- 6— Program Change Chan 6
- 7— Program Change Chan 7
- 8— Program Change Chan 8

**Bank F18 - Roland D-20**

- 1— Master Volume
- 2— Fine Tune
- 3— Mod Depth
- 4— Mod Rate
- 5— Bend Range
- 6— Reverb Mode
- 7— Reverb Time
- 8— Reverb Level

**Bank F19 - Roland D-50, D-550**

- 1— Lower LF EQ Frequency
- 2— Lower LF EQ Gain
- 3— Lower HF EQ Frequency
- 4— Lower HF EQ Gain
- 5— Upper LF EQ Frequency
- 6— Upper LF EQ Gain
- 7— Upper HF EQ Frequency
- 8— Upper HF EQ Gain

**Bank F20 - Roland D-50, D-550**

- 1— Reverb Type
- 2— Reverb Balance
- 3— Chorus Lower Type
- 4— Chorus Lower Rate
- 5— Chorus Lower Depth
- 6— Chorus Upper Type
- 7— Chorus Upper Rate
- 8— Chorus Upper Depth

**Bank F21 - Korg M1, M1R Single Mode**

- 1— Osc 1 Multisound
- 2— VDF 1 Cutoff
- 3— VDF 1 EG Intensity
- 4— VDA 1 Attack Time
- 5— VDA 1 Attack Level
- 6— VDA 1 Breakpoint
- 7— VDA 1 Sustain Level
- 8— VDA 1 Release Time

**Bank F22 - Korg M1, M1R Single Mode**

- 1— Effect 1 Type
- 2— Effect 1 Dry/Eff Balance
- 3— Effect 1 Hi EQ
- 4— Effect 1 Lo EQ
- 5— Effect 2 Type
- 6— Effect 2 Dry/Eff Balance
- 7— Effect 2 Hi EQ
- 8— Effect 2 Lo EQ

**Bank F23 - Korg M1, M1R Double Mode**

- 1— Osc 1 Multisound
- 2— VDF 1 Cutoff
- 3— VDA 1 Release Time
- 4— Osc 2 Multisound
- 5— VDF 2 Cutoff
- 6— VDA 2 Release Time
- 7— Osc 1 Level
- 8— Osc 2 Level

**Bank F24 - Korg M1, M1R Double Mode**

- 1— Effect 1 Type
- 2— Effect 1 Dry/Eff Balance
- 3— Effect 1 Hi EQ
- 4— Effect 1 Lo EQ
- 5— Effect 2 Type
- 6— Effect 2 Dry/Eff Balance
- 7— Effect 2 Hi EQ
- 8— Effect 2 Lo EQ

**Bank F25 - Emu Proteus**

- 1— Primary Instrument
- 2— Primary Volume
- 3— Primary Tune
- 4— Primary Fine Tune
- 5— Secondary Instrument
- 6— Secondary Volume
- 7— Secondary Tune
- 8— Secondary Fine Tune

**Bank F26 - Emu Proteus**

- 1— Primary Alternate Attack
- 2— Primary Alternate Decay
- 3— Primary Alternate Sustain
- 4— Primary Alternate Release
- 5— Secondary Alternate Attack
- 6— Secondary Alternate Decay
- 7— Secondary Alternate Sustain
- 8— Secondary Alternate Release

**Bank F27 - Emu Proteus**

- 1— LFO1 Shape
- 2— LFO1 Frequency
- 3— LFO1 Variation
- 4— LFO1 Amount
- 5— LFO2 Shape
- 6— LFO2 Frequency
- 7— LFO2 Variation
- 8— LFO2 Amount

**Bank F28 - Ensoniq VFX Voice 1**

- 1— Release Time
- 2— Timbre
- 3— Pitch Fine
- 4— Filter Cutoff
- 5— LFO Depth
- 6— LFO Speed
- 7— FX1 Amount
- 8— FX2 Amount

**Bank F29 - Ensoniq VFX Voice 2**

- 1— Release Time
- 2— Timbre
- 3— Pitch Fine
- 4— Filter Cutoff
- 5— LFO Depth
- 6— LFO Speed
- 7— FX1 Amount
- 8— FX2 Amount

**Bank F30 - Ensoniq VFX Voice 3**

- 1— Release Time
- 2— Timbre
- 3— Pitch Fine
- 4— Filter Cutoff
- 5— LFO Depth
- 6— LFO Speed
- 7— FX1 Amount
- 8— FX2 Amount