

GROUND CONTROL *SYSTEM*

SYSTEM MIX

Owner's Manual

DIGITAL MUSIC CORPORATION

Please visit our web site at:

www.voodoolab.com

Copyright ©1996 by Digital Music Corporation.

This publication is protected by copyright and all rights are reserved. No part of it may be reproduced or transmitted by any means or in any form without the express prior consent in writing from Digital Music Corporation.

Ground Control, System Mix, GCX, and Ground Link are trademarks of Digital Music Corp.

Table of Contents

1. Introduction	2
1.1 Overview	
1.2 Unpacking	
2. Operation	3
2.1 Front Panel	
2.2 Rear Panel	
3. Mixer	4
3.1 Mix 1	
3.2 Mix 2	
3.3 Setting Levels	
4. Putting Your System Together	7
4.1 Two Typical Systems	
4.2 Using With a Switching System	
Appendix A	12
Technical Specifications	
Warranty Information	13

1. Introduction

1.1 Overview

System Mix is a dual stereo line level audio mixer designed specifically for electric guitar systems. With System Mix, you can combine the line level outputs of your rack effects with the pure tone of your amp or preamp. This results in lower noise and better tone.

System Mix can be used in three different ways:

- A one- or two-stage parallel effects system
- Two independent 3-channel stereo mixers
- A 5-channel stereo mixer

Its flexibility and compact size also make it ideal for small keyboard systems and anywhere a small mixer is needed.

1.2 Unpacking

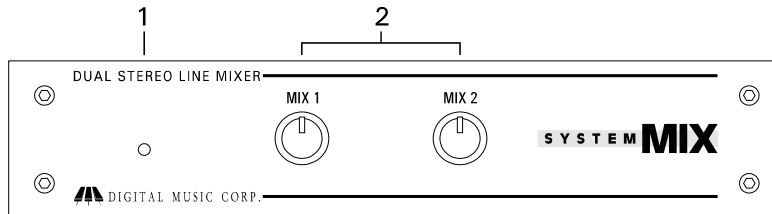
Your factory carton should contain:

1. This manual
2. System Mix
3. Power supply
4. Warranty card

Please fill out the enclosed warranty card and return it to Digital Music Corp. By registering, you enable us to send you important information about related products, updates and accessories.

2. Operation

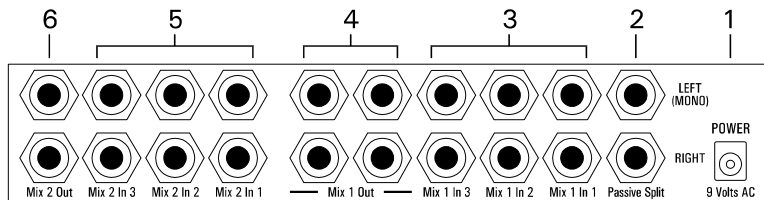
2.1 Front Panel



1. **Power LED:** Lights when power is supplied to System Mix.
2. **MIX LEVEL CONTROLS:** Stereo output volume for MIX 1 and MIX 2. Unity gain is set with the knob at 12 o'clock.

2.2 Rear Panel

[**Note:** All of the 1/4 inch jacks on the rear panel are for mono plugs. The top row is for the Left channel of your stereo signal and the bottom is for the Right. Any mono signals should be plugged into the Left inputs (except for Mix 2 In 1). They will automatically feed both the Left and Right channels.]



1. **POWER:** Requires 9 VAC 600 mA.
2. **Passive Split:** These outputs carry the same signals coming in the "Mix 1 In 1" inputs. Enables you to feed these signals somewhere else without having to use Y-cables.
3. **Mix 1 Inputs:** Three stereo line level inputs to Mix 1.
4. **Mix 1 Out:** Two identical sets of Left and Right line level outputs from Mix 1.
5. **Mix 2 Inputs:** Three stereo, line level inputs to Mix 2.
Note: Mix 2 In 1 controls the internal connection (normal) from Mix 1 to Mix 2. If nothing is plugged in to these inputs, the outputs from Mix 1 feed through to Mix 2. If something is plugged in to these inputs, the internal Mix 1/Mix 2 connection is broken.
6. **Mix 2 Out:** Left and Right line level outputs from Mix 2.

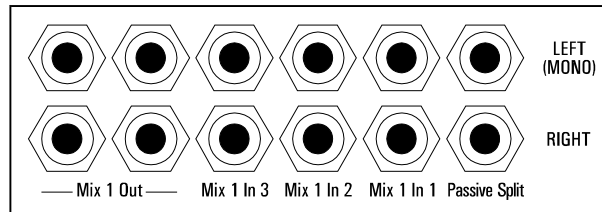
3. Mixer

3.1 Mix 1



IMPORTANT:

Do not connect speaker outputs of an amplifier to the System Mix. Doing so may cause serious damage to your mixer and your amplifier. The System Mix inputs are intended for line level signals only.



General

Mix 1 consists of three pairs of Left and Right inputs, two Passive Split outputs, and two pairs of MIX 1 outs. All of these jacks are for mono plugs, and are intended for line level signals.

For mono signals, use only the Left input and the signal will feed into both the Left and Right channels.

After the three inputs are combined, their overall volume is controlled by the MIX 1 knob on the front panel, and the resulting signal is passed to the two sets of Mix 1 Out jacks, and to Mix 2 (see below).

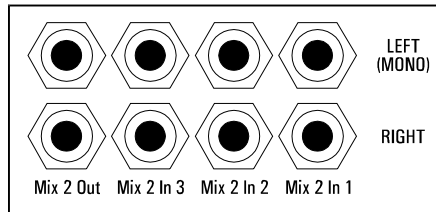
Mix 1 In 1 and the Passive Split

You will blend the outputs of your effects with the pure tone of your preamp. In most cases, the output of your preamp (or your amp's effect send) will be connected to Mix 1 In 1. The Passive Split outputs are copies of the signal coming in Mix 1 In 1. These outputs are used to drive the inputs of your effects devices.

Mix 1 Outputs

There are two identical stereo pairs of outputs for Mix 1. Mix 1 is also internally connected to Mix 2. These outputs can be used to drive the inputs of more stereo effects devices for a second "stage" of processing. The outputs of these effects can then be connected to Mix 2 inputs. In this way you can have two stages of parallel effects, one cascading into another. In Section 4 you will see how it all comes together in a system.

3.2 Mix 2



General

Mix 2 consists of three pairs of Left and Right inputs, and one pair of MIX 2 outs. After the three inputs are combined, their overall volume is controlled by the MIX 2 knob on the front panel, and the resulting signal is passed to the Mix 2 Out jacks.

Mix 2 In 1

If the Mix 2 In 1 jacks are empty, the stereo output of Mix 1 will be fed into Mix 2. Inserting a plug into them will break this normal connection between the two mixers.

Mix 2 Outputs

The Mix 2 Outs carry the sum of all the Mix 2 inputs. This is the output to connect to your power amp, or to your amp's effect return jacks.

3.3 Setting Levels

[**Note:** This section assumes you have already connected your system together properly. You may want to come back to this section later if you are not ready to set levels now.]

The System Mix inputs are set to unity gain. The relative levels of all of your inputs are therefore determined by the output levels of your devices. Setting levels is a critical part of your guitar system. Proper levels allow you to minimize noise, maximize your tone, and control the overall effect balance.

1. Setting up

- Set both Mix Level knobs at unity gain (12 o'clock).
- Turn the input and output levels of your effects all the way OFF.
- Set each effects device to 100% effects, by turning the wet/dry mix to wet or the "direct" signal off.

2. Amp signal

Play the guitar and adjust the preamp output level or the amp's effect send level to the level recommended by the manufacturer. A higher level will maximize tone and minimize noise. Listen carefully, however, to avoid clipping.

3. Effects Inputs

One by one, raise the input level of each of your effects devices to the maximum level recommended by the manufacturer. If the preamp level is too low or too high for your effects, adjust it and start Step 3 over.

4. Effects Outputs

One by one, raise the output level of each of your effects devices until the desired effect level is reached.

5. Wet/Dry Balance

You may reduce the output level of the effects devices if you want less effects in your final mix. If you want still more effects, lower the output of your preamp or effect send, and repeat steps 3 and 4.

Tip: The wet/dry mix may also be altered by programming the preset output level in your effects device. You may want to mix the effects a little louder using the effects output control and adjust the preset levels -- to give yourself some headroom for more effects later.

6. Final Output Level

The Mix 2 knob typically acts as the master volume control for the entire system. The Mix 2 level control does provide up to 6 dB of gain, so be careful to avoid overloading the inputs to your power amp. Unity gain (straight up) or less is typical.

4. Putting Your System Together

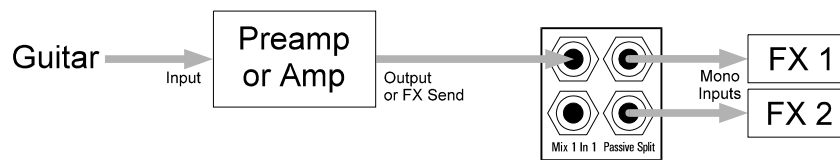
The System Mix is a very flexible and versatile mixer. It can be used in many different ways. The following examples demonstrate some typical systems. Your needs may require different connections. These systems are simply meant to be starting points. *Remember, all connections are intended for line level signals only, NOT speaker connections.*

4.1 Two Typical Systems

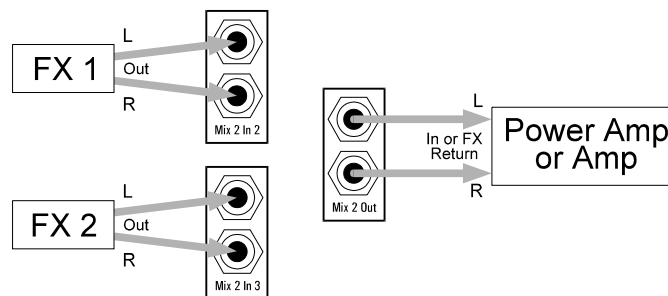
System #1

This is a system for a preamp (or amp effect loop) and one or two separate effects devices. It demonstrates a very basic system.

1. The guitar is connected to the amp or preamp input. The preamp output or amp effect send is connected to the Left input of Mix 1 In 1. The passive split sends copies of the preamp signal to the mono inputs of the effects devices.



2. The stereo outputs of the effects are brought back to the mixer to be blended with the original preamp tone. For this example, we will use Mix 2 In 2 and Mix 2 In 3 because Mix 2 In 1 is being used by the internal connection with Mix 1 (the preamp). Next, the Mix 2 Outputs are connected to the power amp input, or the amp effect return.

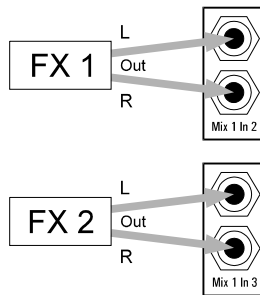
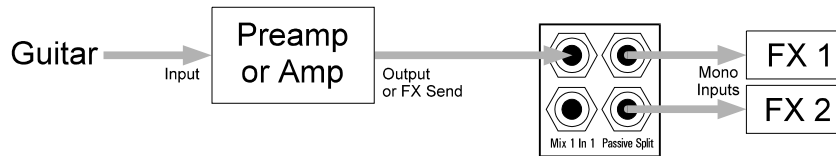


In this example, the Mix 1 knob controls the level of the preamp, and the Mix 2 knob controls the level of the entire mix. Please refer to Section 3.3 to correctly set levels.

System #2

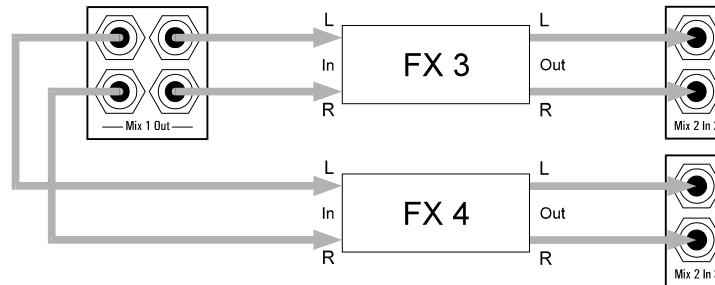
This is a system that demonstrates a two stage effects system. This allows certain effects to affect other ones. Traditionally, the final effects are delays or reverbs that you want to affect the entire signal.

1. The guitar is connected to the amp or preamp input. The preamp output or amp effect send is connected to the Left input of Mix 1 In 1. The passive split sends copies of the preamp signal to the mono inputs of the effects devices.

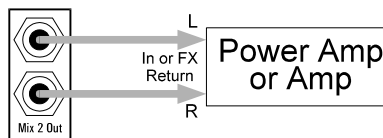


2. The stereo outputs of the effects are brought back to the mixer to be blended with the original preamp tone. For FX 1 and 2, we will use In 2 and In 3 of Mix 1. Remember, Mix 2 In 1 is being used by the internal connection with Mix 1. These effects will be blended in parallel with the original preamp tone.

3. Next, the two stereo Mix 1 Outs are used to drive the second stage effects. FX 3 and 4 will be affecting all of Mix 1 (the preamp signal *and* the outputs of FX 1 and 2). Remember, the Mix 1 signal is also sent to Mix 2 via the internal connection. The stereo outputs of FX 3 and 4 are brought back to the mixer (In 2 and In 3 of Mix 2) to be blended with the original Mix 1 signal.



4. Mix 2 Outs are connected to the power amp input, or the amp effect return.



In this example, the Mix 1 knob controls the level of the preamp and FX 1 and 2. The Mix 2 knob controls the level of the entire mix. Please refer to Section 3.3 to correctly set levels.

4.2 Using With a Switching System

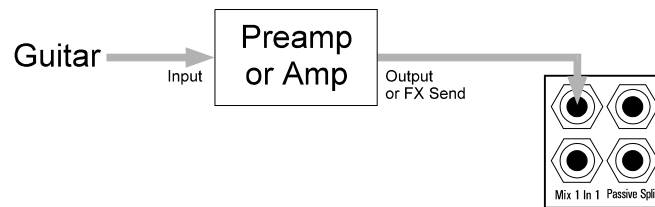
Switching systems, such as the Digital Music GCX Guitar Audio Switcher, can be used to connect/disconnect the amp signal from the input of the effects. By muting the *input* of the effect, not the *output*, effects like delays and reverbs will trail off gradually. This means the last delayed notes of your solo can linger on as you start to play rhythm again. There are many benefits and uses of this type of smooth transition.

The following examples show how to use the GCX with the System Mix. For simplicity's sake, they show how the GCX would be added to the same systems described above.

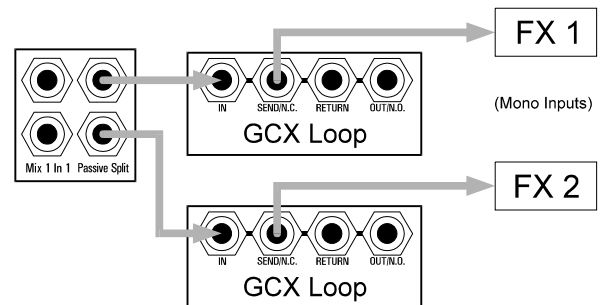
System #1 + GCX Loops

This example uses two GCX loops to switch the inputs of the two effects devices.

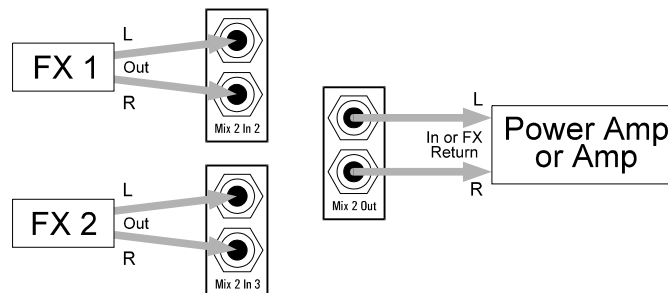
1. The guitar is connected to the amp or preamp input. The preamp output or amp effect send is connected to the Left input of Mix 1 In 1.



2. The passive split sends copies of the preamp signal to the inputs of two different GCX loops instead of going directly to the inputs of the effects devices. Next, the Send of each GCX loop is connected to effect inputs. When the loops are on, the signals pass through. When the loops are off, the sends to the effects are muted.



3. The stereo outputs of the effects are brought back to the mixer to be blended with the original preamp tone using In 2 and In 3 of Mix 2. Mix 2 In 1 is being used by the internal connection with Mix 1 (the preamp). Next, the Mix 2 Outputs are connected to the power amp input, or the amp effect return.

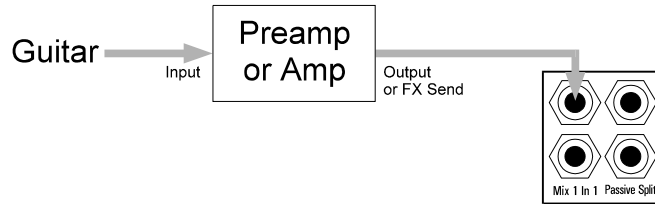


In this example, the Mix 1 knob controls the level of the preamp, and the Mix 2 knob controls the level of the entire mix. Please refer to Section 3.3 to correctly set levels.

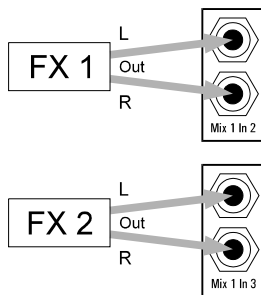
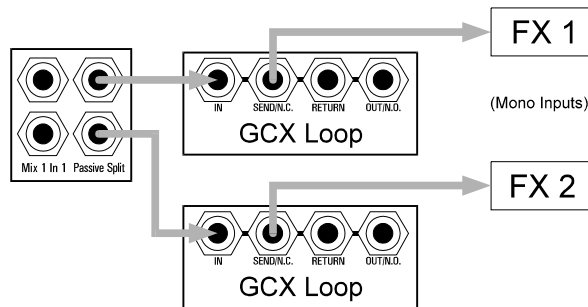
System #2 + GCX Loops

This example uses six loops to switch the inputs of the effects. It is important to note that although FX 1 and 2 are stereo, they begin with a mono signal and therefore need only one loop each to switch them. FX 3 and 4 are shown using two loops each for switching.

1. The guitar is connected to the amp or preamp input. The preamp output or amp effect send is connected to the Left volume control input.



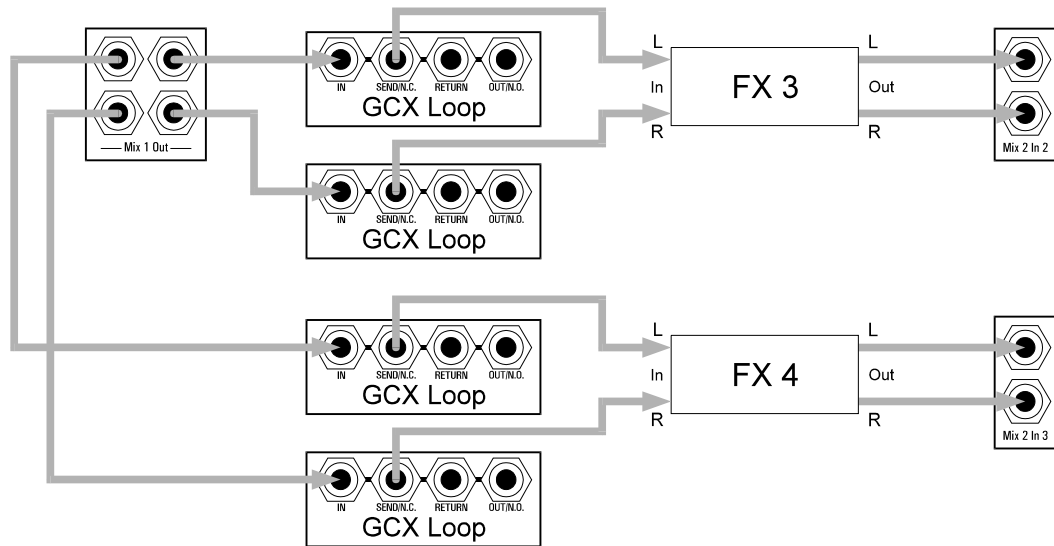
2. The passive split sends copies of the preamp signal to the inputs of two different GCX loops instead of going directly to the inputs of the effects devices. Next, the send of each GCX loop is connected to effect inputs. When the loops are on, the signals pass through. When the loops are off, the sends to the effects are muted.



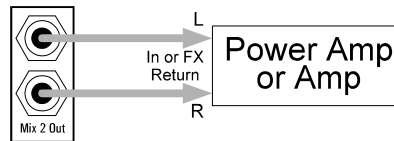
3. The stereo outputs of the effects are brought back to the mixer to be blended with the original preamp tone. For FX 1 and 2, we will use In 2 and In 3 of Mix 1. These effects will be blended in parallel with the original preamp tone.

4. Next, the two stereo Mix 1 Outs are used to drive four different GCX loops (Left and Right for two devices). The sends of the loops are connected to the appropriate inputs on FX 3 and 4, allowing them to be muted by the GCX. The Mix 1 signal is sent to Mix 2 via the internal

connection and the stereo outputs of FX 3 and 4 are brought back to the mixer (In 2 and In 3 of Mix 2) to be blended with it.



5. Mix 2 Outs are connected to the power amp input or the amp effect return.



In this example, the Mix 1 knob controls the level of the preamp and FX 1 and 2. The Mix 2 knob controls the level of the entire mix. The GCX loops allow muting of the signal sent to the effects devices. Please refer to Section 3.3 to correctly set levels.

Appendix A

Technical Specifications

Mix 1 and Mix 2

Input Impedance	
Left and Right channels	44k Ω
Left only, used as mono input	22k Ω
Maximum Input Level	7 V RMS or +19dBu
Maximum Voltage Gain	+6 dBu
Output Drive	7 V RMS across 5k Ω

Warranty Information

Digital Music Corp. warrants this product against any defects that are due to faulty material or workmanship for a period of five years from the date of original retail purchase. This warranty does not include damage to the product resulting from accident or misuse. This warranty is given to the original retail purchaser only and it is not assignable to any other person.

If the product should become defective within the warranty period, Digital Music will repair it or replace it free of charge, provided it is returned freight prepaid to Digital Music with a valid RMA (return material authorization) number.

This warranty shall not apply to any goods that have been repaired or altered by anyone other than the manufacturer. There are no warranties which extend beyond the terms described herein.

Should you experience any difficulty with this Digital Music product, contact us as described below. If it is determined that the product must be returned to the factory for repair, you will be issued an RMA and given shipping and packaging instructions.

How to Reach Us

You can reach us by the following:

Toll Free: 800 986 6696
Tel: 707 782 0600
Fax: 707 782 9777
Email: info@voodoolab.com
Mail: 1320-A Industrial Avenue
Petaluma CA 94952