Lexicon® | **MX400** | Dual Stereo/Surround Reverb Effects Processor

MX400
User
Guide

IMPORTANT SAFETY INSTRUCTIONS

C A U T I O N
RISK OF ELECTRIC SHOCK
DO NOT OPEN

ATTENTION: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE
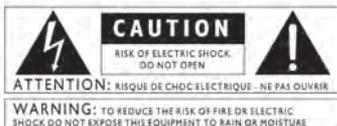
The symbols shown above are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash with arrowpoint in an equilateral triangle means that there are dangerous voltages present within the unit. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the owner's manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

SAFETY INSTRUCTIONS

NOTICE FOR CUSTOMERS IF YOUR UNIT IS EQUIPPED WITH A POWER CORD.

WARNING: THIS APPLIANCE MUST BE EARTHED.

The cores in the mains lead are coloured in accordance with the following code:

GREEN and YELLOW - Earth   BLUE - Neutral   BROWN - Live

As colours of the cores in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The core which is coloured green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or coloured green, or green and yellow.
- The core which is coloured blue must be connected to the terminal marked N or coloured black.
- The core which is coloured brown must be connected to the terminal marked L or coloured red.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the units chassis.

CONDUCTOR		WIRE COLOR	
		Normal	Alt.
L	LIVE	BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E	EARTH GND	GREEN/YEL	GREEN

WARNING: If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously.

WARNING FOR YOUR PROTECTION
READ THESE INSTRUCTIONS:

KEEP THESE INSTRUCTIONS

HEED ALL WARNINGS

FOLLOW ALL INSTRUCTIONS

THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING LIQUID AND NO OBJECT FILLED WITH LIQUID, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

CLEAN ONLY WITH A DRY CLOTH.

DO NOT BLOCK ANY OF THE VENTILATION OPENINGS. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

DO NOT INSTALL NEAR ANY HEAT SOURCES SUCH AS RADIATORS, HEAT REGISTERS, STOVES, OR OTHER APPARATUS (INCLUDING AMPLIFIERS) THAT PRODUCE HEAT.

ONLY USE ATTACHMENTS/ACCESSORIES SPECIFIED BY THE MANUFACTURER.

UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME.

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

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

Use only with the cart stand, tripod bracket, or table specified by the manufacture, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

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

POWER ON/OFF SWITCH: For products provided with a power switch, the power switch DOES NOT break the connection from the mains.

MAINS DISCONNECT: The plug shall remain readily operable. For rackmount or installation where plug is not accessible, an all-pole mains switch with a contact separation of at least 3 mm in each pole shall be incorporated into the electrical installation of the rack or building.

FOR UNITS EQUIPPED WITH EXTERNALLY ACCESSIBLE FUSE RECEPTACLE: Replace fuse with same type and rating only.

MULTIPLE-INPUT VOLTAGE: This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. Connect this equipment only to the power source indicated on the equipment rear panel. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel or equivalent.

This Equipment is intended for rack mount use only.

IMPORTANT SAFETY INSTRUCTIONS

DECLARATION OF CONFORMITY

Manufacturer's Name: Lexicon
Manufacturer's Address: 8760 S. Sandy Parkway
Sandy, Utah 84070, USA

declares that the product:

Product name: MX400 and MX400XL
Note: Product name may be suffixed by the letters-EU.

Product option: None

conforms to the following Product Specifications:

Safety: IEC 60065 (7th ed. 2001)

EMC: EN 55013 (2001+A1)
EN 55020 (2002+A1)

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC as amended by Directive 93/68/EEC.

Vice-President of Engineering-MI
8760 S. Sandy Parkway
Sandy, Utah 84070, USA
Date: May 15, 2006

European Contact: Your local Lexicon Sales and Service Office or

Harman Music Group
8760 South Sandy Parkway
Sandy, Utah
84070 USA
Ph: (801) 566-8800
Fax: (801) 566-7005

U.K. MAINS PLUG WARNING

A molded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable disposal facility. NEVER UNDER ANY CIRCUMSTANCES SHOULD YOU INSERT A DAMAGED OR CUT MAINS PLUG INTO A 13 AMP POWER SOCKET. Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amps and MUST be ASTA approved to BS1362.

ELECTROMAGNETIC COMPATIBILITY

This unit conforms to the Product Specifications noted on the **Declaration of Conformity**. Operation is subject to the following two conditions:

• this device may not cause harmful interference, and
• this device must accept any interference received, including interference that may cause undesired operation.

Operation of this unit within significant electromagnetic fields should be avoided.

• use only shielded interconnecting cables.

Warranty

This warranty is valid only for the original purchaser and only in the United States.

1. The warranty registration card that accompanies this product must be mailed within 30 days after purchase date to validate this warranty. Proof-of-purchase is considered to be the burden of the consumer.

2. Lexicon Professional warrants this product, when bought and used solely within the U.S., to be free from defects in materials and workmanship under normal use and service.

3. Lexicon Professional's liability under this warranty is limited to repairing or, at our discretion, replacing defective materials that show evidence of defect, provided the product is returned to Lexicon professional WITH RETURN AUTHORIZATION from the factory, where all parts and labor will be covered up to a period of 1 year. A Return Authorization number must be obtained from Lexicon Professional by telephone. The company shall not be liable for any consequential damage as a result of the product's use in any circuit or assembly.

4. Lexicon Professional reserves the right to make changes in design or make additions to or improvements upon this product without incurring any obligation to install the same additions or improvements on products previously manufactured.

5. The foregoing is in lieu of all other warranties, expressed or implied, and Lexicon Professional neither assumes nor authorizes any person to assume on its behalf any obligation or liability in connection with the sale of this product. In no event shall Lexicon Professional or its dealers be liable for special or consequential damages or from any delay in the performance of this warranty due to causes beyond its control.

TABLE OF CONTENTS

INTRODUCTION

Congratulations and thank you for purchasing the MX400 Dual Stereo/Surround Reverb Processor! The MX400 provides you with the legendary Lexicon reverbs and effects powered by four processors, for a wide variety of configurations and blends, all in a single rack unit. Use the MX400 live or in the studio, connect and control it via your PC or Mac, or use it as a hardware plug-in. The possibilities are virtually endless!

INCLUDED ITEMS

• MX400 Dual Stereo/Surround Reverb Processor
• This owner's manual
• MX Edit/USB driver CD
• Power Cord
• Lexicon Warranty Card

QUICK START

Ideally, you should read this entire manual before using the MX400. But, if you just can't wait to get started, this section explains how to set up a simple parallel connection (using the MX400 with a mixer) and select a program.

STANDARD PARALLEL CONNECTION

1. Connect the mixer's Post Fader Aux Send outputs to the MX400's **Left** and **Right (Front)** inputs.
2. Connect the MX400 **Left** and **Right (Front)** outputs to a stereo Aux Return input on the mixer (or a stereo line input, or two adjacent line inputs if you like).

Aux Return 1   Aux Return 2   Aux Send 1   Aux Send 2
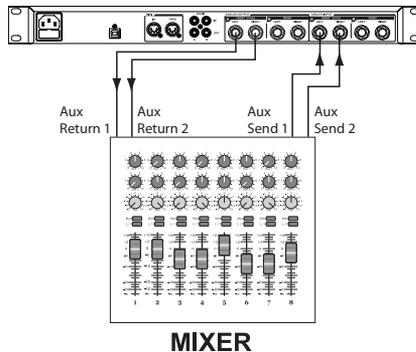
MIXER

POWERING THE UNIT

1. Plug the included power cord into an A/C outlet.
2. Connect the power cord to the **Power Jack** connection on the MX400's back panel and turn on the MX400's power.

Power

SET AUDIO LEVELS

1. Set the gain on the mixer's input channel appropriate to the source (vocal mic, guitar, keyboard, etc.).
2. Set the Aux Master level (if provided on your console) to the 12 o'clock position.
3. Set the **Input A** level on the MX400 to the 12 o'clock position.
4. Provide source signal (by speaking or singing into the mic, playing guitar, keyboard, etc.) on the selected mixer channel.
5. Turn up the Aux Send levels on the channel corresponding to the Post-fader send (Aux 1 and Aux 2 in this example) that the MX400 is connected to until the red input LEDs light only occasionally. If the red Input LEDs stay lit, too much signal is being sent to the MX400; reduce the Aux Master or Aux Send on the mixer.
6. Turn up the Aux Return 1 and 2 to the 12 o'clock position, or stereo line input faders to the 0dB position, if you used that connection.
7. To increase or decrease the amount of effect on the signal, adjust the Aux Send level on the channel that you want affected.

SELECT AND LOAD A PROGRAM

Turn the **Program/Load** knob to choose a program. The **Program Number Display** flashes the number of the program to be loaded. Press the knob to load the program.

Program/Load knob

Program Number Display
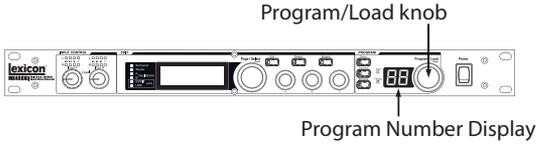
Note that the MX400 comes with 99 Factory programs and 99 User programs. Factory and User LED's to the left of the **Program Number Display** window indicate whether the displayed program is a Factory or User program. For more information about editing programs, see page 13.

THE FRONT PANEL
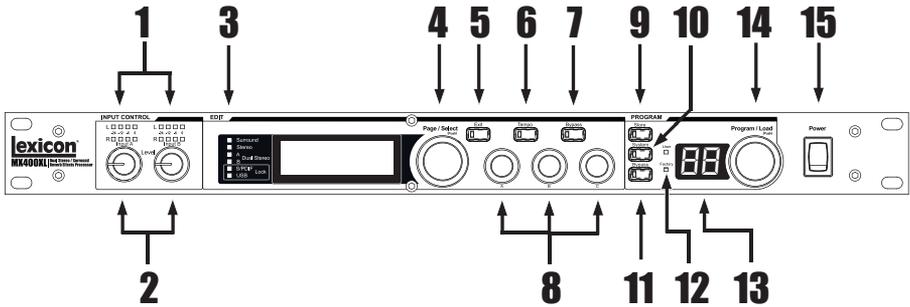
1. Gain LEDs

Each pair of Gain LEDs indicate input signal strength of each of the MX400's input pairs. Range is from -24dB, -12dB, -6dB, and 0dB.

2. Input Knobs A & B

Each Input Knob controls input gain of one stereo input pair.

3. Main Display

The Main Display features six LEDs and an LCD. The LEDs indicate which Configuration the MX400 is currently using, when the S/PDIF I/O has sync lock, and USB connectivity. The LCD shows program and parameter editing information and System Menu settings.

4. Page / Select Knob

Used to navigate the MX400 effects, parameters, and System menus.

5. Exit

Pressing this button will back you out one level of editing.

6. Tempo

Sets the delay time of delay effects.

7. Effect Bypass

Pressing this button bypasses or mutes the selected effects.

8. Edit Knobs A, B, C

These knobs modify the associated parameters in the Main Display when editing programs or change the settings in the System Menu.

9. Store

Used to store or copy programs to the same or different user memory locations.

10. System
Accesses the System global setup menus.

11. Bypass
Used to bypass or mute the currently selected program.

12. User and Factory LEDs
Indicate whether the selected program is User or Factory.

13. Program Number Display
Displays the number of the selected program.

14. Program / Load
Selects factory and user programs. Pressing this knob loads the program manually if program Auto Load is disabled.

15. Power Switch
Turns the MX400 on and off.

THE REAR PANEL
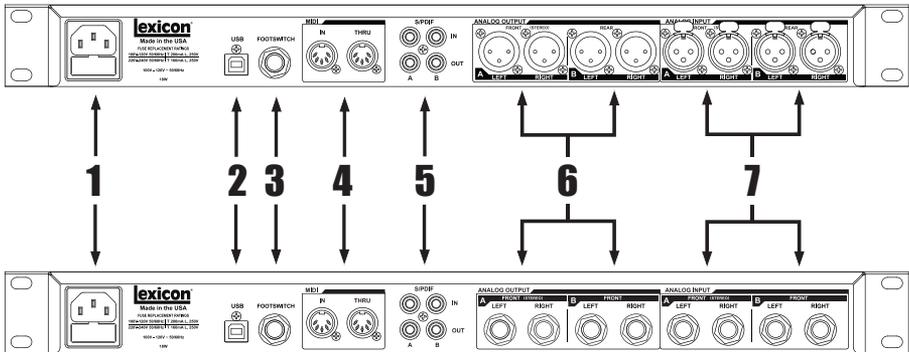
1. Power Jack
Attach the power cord here.

2. USB Port
Provides communication with a computer for use with MX-Edit™ Editor/Librarian software and MX400 plug-in window using a standard USB cable. When the MX400 is connected to a computer via USB, the blue USB LED next to the main display will light.

3. Footswitch Input
The optional Lexicon® LEX-DFS 2-button footswitch can be plugged into this TRS jack for remote control of the MX400 (see page 34 for more information).

4. MIDI In, MIDI Thru
Provides MIDI operation capabilities. Two 5-pin MIDI DIN connectors are available for MIDI IN and MIDI THRU. (See page 50 for MIDI Implementation charts.)

5. S/PDIF Digital In/Out
Digital input accepts 44.1kHz / 48kHz signals. When the S/PDIF digital input is selected and active, the **S/PDIF** LED on the front panel lights.

Important: It is recommended that you do not connect any digital device to the MX400's S/PDIF inputs that transmits at sample rates other than 44.1 kHz or 48 kHz (such as 96kHz). Doing so can cause unpredictable performance. Make sure the device you are connecting to the MX400's **S/PDIF In** is set as the Clock Master (if that option is available) and transmitting at a sample rate of 44.1kHz or 48kHz only. As with any other connection, if you need to unplug the S/PDIF cable, it is recommended that you switch to the analog inputs (see **Input Source** in the System menus) or bypass both processors before disconnecting the cable.

6. Balanced Analog Line Output Pairs

Dual RF-filtered 1/4" balanced/unbalanced TRS or balanced XLR line outputs are servo-balanced, so no signal loss is incurred when using unbalanced connections (1/4" inputs only). If only a single plug is connected to the **Left** output, both **Left** and **Right** signals can be summed to mono by selecting **Mono Left** for analog output A or B in the System Menu. Pairs are grouped and labeled as A - Front (Stereo) and B - Rear.

7. Balanced Analog Line Input Pairs

Left and **Right** active analog 1/4" TRS or XLR balanced line inputs. If only a single plug is connected to the **Left** input, the signal can be split and sent to both the **Left** and **Right** input paths by selecting **Analog Mono L** for input source A or B in the System Menu. Pairs are grouped and labeled as A - Front (Stereo) and B - Rear.

ABOUT THE MX400

The MX400 is an extremely versatile effects processor; in fact it can operate like three different processors. When using the MX400, it is recommended that you decide what type of processor you need it to operate as (Surround, Stereo, or Dual Stereo processor), make the proper cable connections, and select the Configuration that coincides with your setup. Each Configuration has its own bank of factory and user programs that are designed to work best with the recommended audio connections for each Configuration (see Connecting the MX400). Since the MX400 offers multiple processor configurations, the following section is a guide to help select which Configuration is best for your needs.

CONNECTING THE MX400

The MX400 has four inputs and four outputs grouped in pairs A - Front (Stereo) and B - Rear. There are also two S/PDIF input/output connectors (A and B) that are the digital equivalent of these analog input and output pairs.

SURROUND CONFIGURATION CONNECTIONS

The MX400 is the first processor in its class to provide true surround reverb processing. The surround reverb algorithm always uses both output pairs A and B (analog and S/PDIF) and can accept stereo input signals via Input Pair A (analog or S/PDIF) or true 4-channel input sources via input pair A and B (analog or S/PDIF). Input/output pair A is for use with the front stereo speakers in your surround system, while input/output pair B is for use with the rear left and right speakers. The S/PDIF outputs A and B always mirror analog outputs A and B but input pairs A and B can only be analog or digital (selectable in the MX400's System menu)

Connection Diagram: Stereo In/Surround Out

MIXER
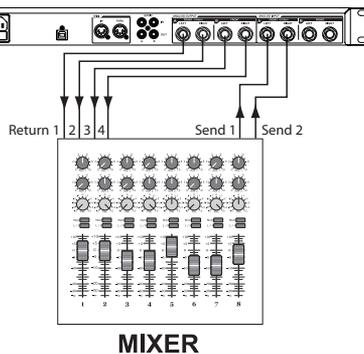
Connection Diagram: Surround In/Out

Return 1 2 3 4   Send 1 2 3 4

MIXER
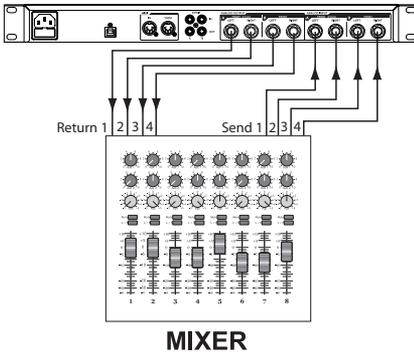
STEREO CONFIGURATION CONNECTIONS

Stereo Mode configures the MX400 as a single stereo input/output processor utilizing input/output pair A only (analog and S/PDIF). Input/output pair B is disabled when the Stereo configuration is selected. S/PDIF output A mirrors analog output pair A but input pair A can only be analog or digital (selectable in the MX400's System menu).

Connection Diagram: Dual Mono In/Dual Mono Out, Dual Mono In/Stereo Out, Stereo In/Stereo Out

Return 1   Return 2   Send 1   Send 2

MIXER
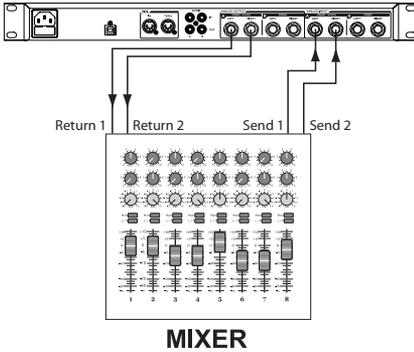
DUAL STEREO CONFIGURATION CONNECTIONS

The MX400's Dual Stereo configuration shows off the MX400's true power by providing two independent stereo processors, with each processor running independent programs from the other. These processors are labeled A and B and utilize their respective analog and digital inputs and outputs (A and B) on the rear panel. The S/PDIF outputs A and B always mirror analog outputs A and B but input pairs A and B can only be analog or digital (selectable in the MX400's System menu).

For sources that will run through Program A (this is the program shown in the top half of the Program Display which uses Effect 1 and Effect 2), connect to the A Left/Right (Front) input and output pair. Sources running through Program B (this is the program shown in the bottom half of the Program Display which uses Effect 3 and Effect 4), connect to the B Left/Right (Rear) input and output pair.

Connection Diagram: Dual Mono In/Dual Mono Out, Dual Mono In/Stereo Out, Stereo In/Stereo Out (x2)

MIXER
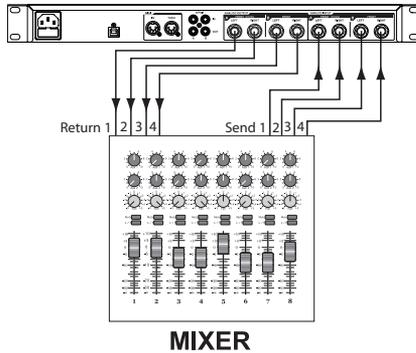
Once you have your connections made, you should refer to the **Effect/Mix Routing** section of the manual for understanding how the signal sources can be routed through each configuration's programs and effects.

THE MX400 AND DIGITAL I/O

The MX400 is equipped with two digital inputs and outputs (S/PDIF A and B). Each S/PDIF pair is the digital equivalent of analog input/output pairs A and B. The digital outputs on the MX400 are always active and will always mirror their analog output counterparts. This allows you to plug in an analog input source and have it be output as a digital stream.

The MX400 has three options for input sources which are configurable in the System Menu: **Analog Mono Left**, **Analog Stereo** and **Digital**. (Press the **System** button to access the System Menu; turn the **Page/Select** knob to scroll up and down the menu.)

Each input pair (A and B) can have different audio sources selected depending on your needs. While in the System Menu, use **Knobs A**, **B**, and **C** to change values. As with all equipment that receives digital audio streams, when setting either Input Source A or B to Digital, the MX400 can no longer use its own internal clock source for the audio

stream, and it is necessary to change the clock source from the MX400's internal clock to Digital.

Furthermore, the MX400 only receives external clock sync on the **S/PDIF A** input. This means when using both Digital inputs (A and B), the devices that are connected must be synced to a common clock source to work properly with the MX400.
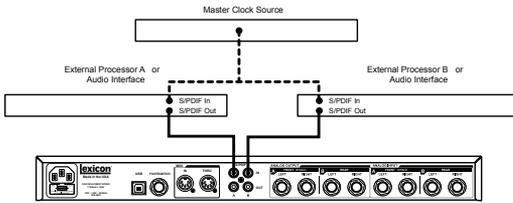
If only **S/PDIF B** input is to be used, the MX400 still needs the external clock source to be connected to **S/PDIF A**.
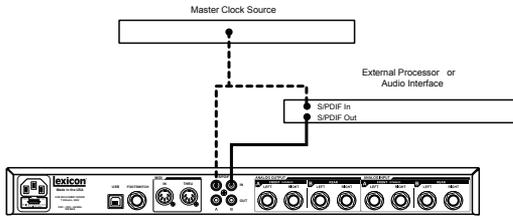
If the Clock Source isn't changed to Digital when digital input sources are selected, there will be synchronization problems between the incoming digital audio stream and the MX400's processing, and the System Input Source menu will display **DIG NO LOCK**. When the MX400 is properly synchronized with the incoming digital audio, the System's Input Source menu will display **DIGITAL**.

The MX400 only runs at 44.1 kHz or 48 kHz sample rate (using internal or external clock sources). Do not connect external digital outputs to the MX400 that run at higher sample rates (88.2 - 192 kHz) as the MX400 cannot accept them.

USING THE MX400

SELECTING AND LOADING PROGRAMS (SURROUND, STEREO CONFIGURATIONS)

1. Choose a program by rotating the **Program/Load** knob. The selected program number flashes in the **Program Display** until loaded. The name of the program also appears in the MX400's **Main Display**. The **Factory** or **User** LED next to the **Program Display** lights to indicate whether a Factory or User program is selected.

2. Press the **Program/Load** knob to load the program. If you would like the programs to be loaded automatically as they are selected with the **Program/Load** knob, you can enable the Auto Load function in the MX400's System menu.

SELECTING AND LOADING PROGRAMS (DUAL STEREO CONFIGURATION)

When using the MX400's Dual Stereo Configuration, the **Main Display** shows two program names simultaneously at the top level of operation. Next to one of the program names will be a focus arrow. This arrow determines which program will be changed when the **Program/Load** knob is rotated. To change which program the focus arrow points to, rotate the **Page/Select** knob until one of the effects in the **Main Display** is highlighted in the program you want to change.

(**Example**: If either effect 1 or effect 2 is highlighted, turning the **Program/Load** knob will change the program shown in the top half of the **Main Display (Program A)**. If effect 3 or effect 4 is highlighted, turning the **Program/Load** knob will change the program shown in the bottom half of the **Main Display** (**Program B**)).

1. Choose a program by rotating the **Program/Load** knob. The selected program number will begin flashing in the **Program Display** until it is loaded. The name of the program will also appear in the MX400's **Main Display (Program B)**. The **Factory** or **User** LED next to the **Program Display** will light to indicate whether a **Factory** or **User** program is selected.

2. Press the **Program/Load** knob to load the program. If you would like the programs to be loaded automatically as they are selected with the **Program/Load** knob, you can enable the Auto Load function in the MX400's System menu.

STORING/COPYING PROGRAMS

1. Press the **Store** button once. You will now be on the program naming screen.
2. Turn the **Page/Select** knob to move the cursor to the character you want to change. Turn **Edit Knob A** to change the character. Turn **Edit Knob B** to change the letter case. Press the **Page/Select** knob to clear a character from the name.

3. When naming is complete, press the **Store** button again. Turn the **Page/Select** or **Program/Load** knob to select the new user program memory location to store to.

4. Press the **Store** button again to complete the store procedure.

```
Name Program to Store
 BIG POP VOCAL
<PAGE>-CHOOSE POSITION
<SELECT>-MODIFY CHARACTER
```

```
Location to Store Over
BIG POP VOCAL
1 STUD DLY    2 VOC HALL
<PAGE>-CHOOSE LOCATION
```

EDITING A PROGRAM

Once a program has been loaded, you may find you want to make adjustments to it for your particular application. Editing of programs is done using the **Page/Select** and three **Edit Knobs** (**A**, **B**, and **C**) to the right of the **Main Display**. Each effect can be edited independently by selecting it with the **Page/Select** knob. As the effect is selected, its name is highlighted in the **Main Display** and three parameters become visible for the effect at the bottom of the **Main Display**. The **Edit Knobs** can then modify these three top level parameters.

```
Program Name
1 TAPE DLY    2 DRM PLATE
  TEMPO    DELAY TIME FEEDBACK
120.0 BPM  500ms ♩    30
```

(Fig. A)

Note: Dual Stereo programs feature a slightly different program screen which displays both program names. When **Edit Knobs A**, **B**, and **C** are turned, the three parameters of the selected effect will be displayed momentarily for editing purposes and then the name of the second program will reappear. (Fig. B shows Tape Delay as the selected effect in a Dual Stereo Configuration program).

```
Program Name
1 TAPE DLY    2 DRM PLATE
Program Name
3 COMPRESS    4 TAPE DLY
```

(Fig. B)

Edit Knobs A, **B**, and **C** will modify the Tape Delay effect's Tempo, Delay Time, and Feedback parameters respectively. In addition, Surround and Stereo Configuration program effects have several other parameters that can be modified from the **Edit Effect** menus.

Editing From the Program Display

1. While on the program screen, turn the **Page/Select** knob to highlight the effect you want to edit.

2.   Turn **Edit Knob A**, **B**, or **C Edit** to modify a parameter setting.

```
Program Name        ⌐1⌐
1 TAPE DLY  2 DRM PLATE
   TEMPO    DELAY TIME FEEDBACK
120.0 BPM   500ms ♩      30
```

When finished, store the changes to the program if you would like them to be recalled.

From the Program Edit Menus

1.   While on the Program Screen, turn the **Page/Select** knob to highlight the effect you want to edit.
2.   Press the **Page/Select** knob. This will enter the Program Edit menus.
3.   Once in the Program Edit menu, there can be two effects to edit, Effect 1 and Effect 2. Turn the **Page/Select** knob until the effect you want to edit is highlighted (Edit Effect 1 menu is highlighted in our example).
4.   Press the **Page/Select** knob to enter the Edit Effect menu.
5.   Turn the **Page/Select** knob until the parameter(s) you want to edit appear in the **Main Display**. Each parameter has either an A, B, or C labeled to the left of its name indicating which **Edit Knob** will modify its value.
6.   Turn **Edit Knob A**, **B**, or **C** associated with the parameter you would like to edit to change its setting.

```
1 TAPE DLY   2 DRM PLATE  ⌐1⌐
 EDIT EFFECT 1          ▶
 CHANGE EFFECT 1        ▶
 KNOBS ASSIGN 1         ▶
```

```
Edit 1 TAPE DELAY
 A   TEMPO    [▬▬▬   ]120.0 BPM
 B DELAY TIME [▬▬▬   ] 500ms ♩
 C FEEDBACK   [▬▬    ]     30
```

When finished, store the changes to the program if you would like them to be recalled.

CHANGING AN EFFECT

Each program offers a library of effects that can be used in the available effect modules. This allows you to customize a preset with the effects you need for your particular application.

1.   While on the Program Screen, press the **Page/Select** knob. This will enter the Program Edit menus.
2.   Turn the **Page/Select** knob until the Change Effect menu is highlighted. Change Effect 2 is selected in our example.
3.   Press the **Page/Select** knob to enter the Change Effect 2 menu.
4.   Once in the change effect menu, turn the **Page/Select** knob to move through the library of effects until you find the one you want to use. If you choose not to select a new effect, press the **Exit** button to abort changing effects.
5.   Press the **Page/Select** knob to load the newly selected effect into the effect location. You will be able to hear the new effect in place in the effect routing at this time.

```
┌──────────────────────────────┐
│ 1 TAPE DLY   2 DRM PLATE  [icon]│
│   EDIT EFFECT 2          ▸    │
│ ■ CHANGE EFFECT 2        ▸    │
│   KNOBS ASSIGN 2         ▸    │
└──────────────────────────────┘
```

```
┌──────────────────────────────┐
│ Change Effect 2   [icon]      │
│   DRUM PLATE                  │
│   ARENA        <SELECT> - LOAD│
│   GATED REVERB <EXIT> - ABORT │
└──────────────────────────────┘
```

When finished, store the changes to the program if you would like them to be recalled.

CHANGING KNOB ASSIGNMENTS

The three parameters that appear for editing from the Program Screen in Surround and Stereo Configuration programs are user selectable. From the factory, these parameters were selected in each program by their importance to the effect. If you would like to access other parameters for each effect from the Program screen, you can select these in the Knobs Assign menu. These assignments are individual to each program so you can customize specific parameters for each effect depending on the program.

1. While on the Program Screen, press the **Page/Select** knob. This will enter the Program Edit menus.
2. Turn the **Page/Select** knob until the Knobs Assign menu is highlighted. Edit/Mix Routing is selected in our example.
3. Press the **Page/Select** knob to enter the Knobs Assign menu.
4. Turn either the **A**, **B**, or **C** knobs to select which parameter you want available for editing from the Program Screen.

```
┌──────────────────────────────┐
│ 1 TAPE DLY   2 DRM PLATE  [icon]│
│   EDIT EFFECT 2          ▸    │
│ ■ CHANGE EFFECT 2        ▸    │
│   KNOBS ASSIGN 2         ▸    │
└──────────────────────────────┘
```

```
┌──────────────────────────────┐
│ Assign 2 DRUM PLATE           │
│  A KNOB A - PREDELAY          │
│  B KNOB B - MID RT            │
│  C KNOB C - SIZE              │
└──────────────────────────────┘
```

When finished, store the changes to the program if you would like them to be recalled.

EFFECT MIX/ROUTING

Each of the MX400 programs offers programmable effect routing and a wet/dry mix parameter for each effect. These different routings and mix controls give you many options for your effect signal path and precise control over balance between the two effects. In Dual Stereo Configuration programs, Effects 1 and 2 are used by Program A (the program shown in the top half of the Program Display), while Effects 3 and 4 are used by Program B (the program shown in the bottom half of the Program Display). Routings for all configurations are as follows:

STEREO AND DUAL STEREO CONFIGURATIONS

1. Dual Mono

L → Effect 1/3 → L

R → Effect 2/4 → R

2. Cascade

L → R → Effect 1/3 → Effect 2/4 → L → R

3. Parallel

L → Effect 1/3 → L

R → Effect 2/4 → R

4. Mono Split

L → Effect 1/3 → L

R → Effect 2/4 → R

5. Stereo

L → R → Effect 1/3 → L → R
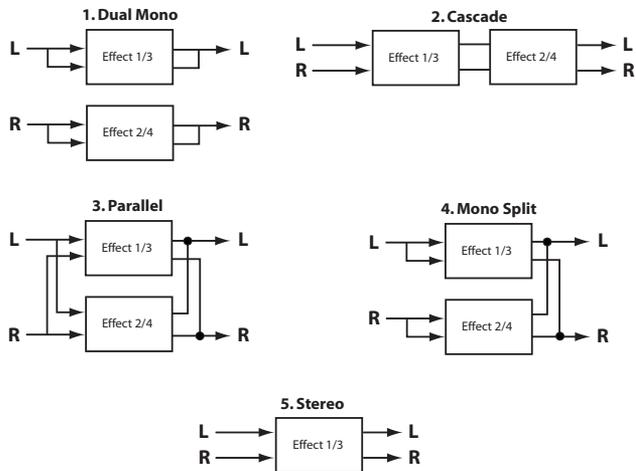
1. Dual Mono
This routing option sends the Left and Right input signals through Effect 1/3 and Effect 2/4 respectively. Each signal is then routed to its respective output, completely independent from the other.

2. Cascade
Left and Right input signals are sent first through Effect 1/3, then through Effect 2/4, then routed as a stereo signal to their respective outputs.

3. Parallel (Dual Stereo)
Left and Right input signals are sent through both effects independently. The output signals of both Effects are then mixed together, and routed to both the outputs as a single stereo signal.

4. Mono Split
Left input signal is sent through Effect 1/3, while the Right input signal is sent through Effect 2/4. The output signals of both Effects are then mixed together, and routed to both the outputs as a single stereo signal.

5. Stereo
Routing 5 provides a single stereo effect path for Left and Right signals. In the Dual Stereo configuration, this routing utilizes all the DSP horsepower allocated to the program, thus letting you use the expanded effects library used by the Stereo Configuration programs. In Stereo programs, this routing removes one of the effect modules allowing for users requiring a streamlined signal path with only a single effect for their needs.

SURROUND CONFIGURATION

1. Stereo In/Surround Out

(Front) **L** → Surround Reverb → **L** **R** (Front)
R →   → **L** **R** (Rear)

2. Surround In/Out

(Front) **L** → Surround Reverb → **L** **R** (Front)
R →
(Rear) **L** →   → **L** **R** (Rear)
R →
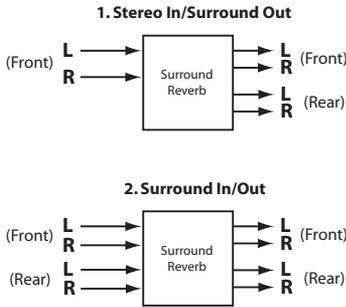
1. Stereo In/ Surround Out

This routing option takes a stereo source connected to the Left 1 and Right 1 (Front) inputs, processes them through the Surround reverb, and sends it to all four outputs. **Note**: Only a single mix control for the Left/Right front outputs is available with this routing. The Left/Right rear outputs are always 100% wet processed.

2. Surround In/Out

This routing option takes a surround input source connected to all of the MX400 inputs, processes through the Surround reverb, and sends it to all four outputs.

EDITING EFFECT MIX/ROUTING

1. While on the Program Screen, press the **Page/Select** knob. This will enter the **Program Edit** menus.
2. Turn the **Page/Select** knob until the Edit Mix/Routing menu is highlighted.
3. Press the **Page/Select** knob to enter the Edit Mix/Routing menu.
4. Turn **Knob A** to select different effect routings for the program. Use **Knob B** and **Knob C** (when available) to adjust the wet/dry mix for each effect.

Note: In Surround Configuration programs using the Stereo In/Surround Out routing (1) and in Stereo and Dual Stereo Configuration programs using the stereo routing (5), there is only one effect available so Effect 2 Mix will not be available.

```
1 TAPE DLY  2 DRM PLATE
  CHANGE EFFECT 2      ▶
  KNOBS ASSIGN 2       ▶
  EDIT MIX/ROUTING     ▶
```

```
Edit Mix/Routing
A PARALLEL
B EFFECT 1 MIX - D[        ] W 20
C EFFECT 2 MIX - D[        ] W 99
```

When finished, store the changes to the program if you would like them to be recalled.

TEMPO BUTTON

The **Tempo** button is used for setting the tempo parameter in delay effects. In some cases there may be two delays set up in a program using two effects. The **Tempo** button will flash at the rate of the delay which is highlighted in the **Main Display**. To set the tempo of the second delay, turn the **Page/Select** knob until the second delay is highlighted in the **Main Display**. The **Tempo** button can now set the delay time for this delay. Although the **Store** button doesn't light when changing tempo settings with the **Tempo** button, changes to tempo must be saved to the program if the changes are to be recalled later.

BYPASS BUTTONS

The MX400 is equipped with two bypass buttons: **Effect Bypass** (located near the **Page/Select** knob and **Program Bypass** (located near the **Program/Load** knob). **Effect Bypass** only bypasses the selected effect in the **Main Display**. This lets you bypass effects individually in programs. **Effect Bypass** can also be saved with the program. **Program Bypass** is a global bypass control for MX400. All effects in all configurations are bypassed when **Program Bypass** is engaged.

There are four different options Bypass can be set to function as:
1. **Dry** - Bypasses dry signal around an effect or program.
2. **Mute** - Mutes all input and output audio.
3. **Input Dry** - Outputs signal with no processing or effects.
4. **In Mute** - Mutes the input only.

The Bypass options can be selected in the System Menu and will affect both **Effect Bypass** and **Program Bypass**.

EFFECTS DESCRIPTIONS

PARALLEL VS. SERIAL

The MX400 can be used as both a Parallel and Serial (in-line) effects processor. Typically, reverbs and delays are used in parallel, compressors and de-essers in serial, and modulated effects can be used in either configuration, depending on the desired application.

A *Parallel Processor* is connected by sending a copy of a signal (such as from an Aux Send of a mixer channel) to an effects device (such as the MX400), and the effected (or wet) signal is returned to the mixer or amp. It is then blended together with the original unaffected (dry) signal. This blend is called the Wet/Dry mix. This connection is most often used for reverbs, delays, and some modulated effects (such as chorus).

A *Serial Processor* is connected by sending the entire signal through the effects device and then to an amplifier or mixer, and is not blended with the unaffected (dry) signal. This is the type of connection most often used for a compressor, de-esser, equalizer, and many modulated effects (such as tremolo, vibrato, and rotary).

Stereo

Mono (Wet only)

Mono In/Stereo Out

Stereo (Wet only)

* Mix 1 and Mix 2 act as level controls for these effects
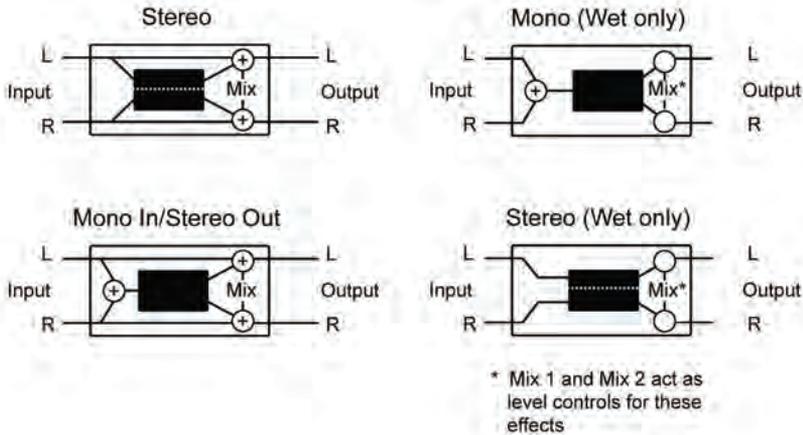
REVERBS

Reverberation (or "reverb" for short) is the complex effect created by the way we perceive sound in an enclosed space. When sound waves encounter an object or boundary, they don't just stop. Some of the sound is absorbed by the object, but most of the sound is reflected or is diffused. In an enclosed space, reverb is dependent on many features of that space, including the size, shape and the type of materials that line the walls. Even with closed eyes, a listener can easily tell the difference between a closet, a locker room and a large auditorium. Reverb is a natural component of the acoustic experience, and most people feel that something is missing without it.

Hall Reverbs - *Stereo*
SMALL HALL, LARGE HALL, VOCAL HALL, DRUM HALL, SURROUND HALL

A **Hall** reverb is designed to emulate the acoustics of a concert hall – a space large enough to contain an orchestra and an audience. Because of the size and characteristics, Halls are the most natural-sounding reverbs, designed to remain "behind" the direct sound – adding ambience and space, but leaving the source unchanged. This effect has a relatively low initial echo density which builds up gradually over time. **Vocal Hall** and **Drum Hall** reverbs are specifically tailored for those uses. **Vocal Hall** has as lower overall diffusion which works well with program material that has softer initial transients like a voice. **Drum Hall** has a higher diffusion setting which is necessary to smooth out faster transient signals found in drums and percussion instruments. In addition to general instrumental and vocal applications, the Hall program is a good choice for giving separately recorded tracks the sense of belonging to the same performance.

The MX400 proudly offers a true **Surround Hall** reverb, the first in its class. The Surround Hall uses all of the MX400's DSP horsepower to provide an immensely lush, enveloping reverb that offers two routing options: stereo in/surround out and surround in/surround out. The stereo in/surround out routing is for use with stereo input sources. Both stereo output pairs are used with the front (output pair A) providing a wet/dry mix

control. The surround in/surround out routing is for use with a true 4-channel input source and both front and rear output pairs each have their own wet/dry mix control for precise control of dry audio and reverb adjustments in the surround field.

Plate Reverbs - *Stereo*
SMALL PLATE, LARGE PLATE, VOCAL PLATE, DRUM PLATE

A **Plate** reverb is a large, thin sheet of metal suspended upright under tension on springs. Transducers attached to the plate transmit a signal that makes the plate vibrate, causing sounds to appear to be occurring in a large, open space. The Plates in the MX400 model the sound of metal plates with high initial diffusion and a relatively bright, colored sound. **Plate** reverbs are designed to be heard as part of the music, mellowing and thickening the initial sound. **Plate** reverbs are often used to enhance popular music, particularly percussion.

Room Reverb - *Stereo*

Room produces an excellent simulation of a very small room which is useful for dialog and voiceover applications. **Room** is also practical when used judiciously for fattening up high energy signals like electric guitar amp recordings.

Chamber Reverb - *Stereo*

Historically, recording studio chambers were oddly shaped rooms with a loudspeaker and set of microphones to collect ambience in various parts of the room. **Chamber** programs produce even, relatively dimensionless reverberation with little color change as sound decays. The initial diffusion is similar to the **Hall** programs. However, the sense of size and space is much less obvious. This characteristic, coupled with the low color of the decay tail, makes these programs useful on a wide range of material - especially the spoken voice, to which **Chamber** programs add a noticeable increase in loudness with low color.

Gated Reverb - *Mono In/Stereo Out*

Gated reverb is created by feeding a reverb, such as a metal plate, through a gate device. Decay Time is set to instant, while Hold Time varies duration and sound. The **Gated** reverb provides a fairly constant sound with no decay until the reverb is cut off abruptly. This program works well on percussion — particularly on snare and toms; be sure to experiment with other sound sources as well.

Reverse Reverb - *Mono In/Stereo Out*

Reverse reverb works in the opposite fashion from normal reverb. Whereas a normal reverb has the loudest series of reflections heard first that then become quieter over time, the **Reverse** reverb has the softest reflections (essentially the tail of the reverb) heard first, and then grows louder over time until they abruptly cut off.

Ambience Reverb - *Stereo*

Ambience is used to simulate the effect of a small or medium sized room without noticeable decay. It is often used for voice, guitar or percussion.

Studio Reverb - *Stereo*

Much like **Room** reverb, **Studio** produces an excellent simulation of smaller, well-controlled acoustic spaces, characteristic of the main performance areas in recording studios. **Studio** is also useful with dialog and voiceover applications as well as individual instrument and electric guitar tracks.

Arena Reverb - *Stereo*

Arena reverb emulates a huge physical space such as an indoor sports venue or stadium. The characteristics of **Arena** reverb are long secondary reflection times and a reduced amount of high frequency content. **Arena** is a mostly mid- and low-frequency dominant reverb, and is an ideal selection for "special effect" type applications that require extremely long reverb times. It is not a good choice for a very busy mix, since it can reduce intelligibility.

Spring Reverb - *Mono In/Stereo Out*

A **Spring** reverb is created by a pair of piezoelectric crystals—one acting as a speaker and the other acting as a microphone—connected by a simple set of springs. The characteristic 'boing' of a spring is an important component of many classic rock and rockabilly guitar sounds.

Reverb Controls
Pre Delay

Creates an additional time delay between the source signal and the onset of reverberation. This control is not intended to precisely mimic the time delays in natural spaces, as the build-up of reverberation is gradual, and the initial time gap is usually relatively short. For the most natural effect, the **Pre Delay** values should be set in the range of 10-25 milliseconds. However, if a mix is very busy or overly cluttered, increasing the **Pre Delay** time may help clarify it, and set each instrument apart from each other.

Mid RT and Decay

Controls the amount of time the reverb can be heard. Higher settings increase reverberation times which are usually associated with larger acoustical environments, but can decrease intelligibility. Lower settings shorten reverb times and should be used when a smaller apparent space or a more subtle effect is desired.

Diffusion

Controls the initial echo density. High settings of Diffusion result in high initial echo density, and low settings cause low initial density. In a real-world situation, irregular walls cause high diffusion, while large flat walls cause low diffusion. For drums and percussion, try using higher Diffusion settings.

Shape & Spread

In the Hall reverbs, Shape and Spread work together to control the overall ambience of the reverberation. Shape determines the contour of the reverberation envelope. With Shape all the way down, reverberation builds explosively, and decays quickly. As Shape is advanced, reverberation builds

up more slowly and sustains for the time set by Spread. With Shape in the middle, the build-up and sustain of the reverberation envelope emulates a large concert hall (assuming that Spread is at least halfway up, and that Size is 30 meters or larger). Low Spread settings result in a rapid onset of reverberation at the beginning of the envelope, with little or no sustain. Higher settings spread out both the buildup and sustain.

Size
Size sets the build-up rate of diffusion after the initial period (which is controlled by Diffusion). The Size control changes reverb sound from very large to very small. Generally, set this control to the approximate size of the acoustic space being created, before adjusting anything else. The size in meters is roughly equal to the longest dimension of the space. Audio is temporarily muted when Size is changed.

RT High Cut
Rt HC sets the frequency above which a 6dB/octave low-pass filter attenuates the reverberated signal. It does not attenuate the reflections. High frequencies are often rolled off with this parameter, resulting in more natural-sounding reverberation. Setting a low frequency for this parameter can actually shorten the reverb time, as it damps the audio as it recirculates.

Liveliness
Adjusts the amount of high frequency content in the reverberation tails. Higher settings increase high frequency response, creating brighter reverbs; lower settings create darker reverbs with more bass frequency emphasis.

Bass Boost
Bass Boost boosts or cuts frequencies below Crossover. The amount of boost or cut required is highly dependent on the material being processed.

Bass Boost Frequency
Sets the frequency at which the transition from Mid Rt to Low Rt takes place. This control should be set at least two octaves higher than the low frequency you want to boost. For example, to boost a signal at 100Hz, set Bass Boost Frequency to 400Hz. (This setting works well for classical music.) Crossover works best around 400Hz for boosting low frequencies, and around 1.5 kHz for cutting low frequencies.

ER Time
Adjusts the amount of time before reverb early reflections occur.

ER Level
Adjusts the level of early reflections within the reverb.

Feedback Delay
Changing this parameter changes the resonant frequencies of **Plate** reverb.

Feedback Level
Adjusts the **Plate** reverb's presence and prominence.

Boing

This is a unique parameter to the **Spring** reverb, designed to increase or decrease the amount of spring rattle that is a physical characteristic of spring tank reverbs.

DELAYS

Delays repeat a sound a short time after it first occurs. Delay becomes echo when the output is fed back into the input (feedback). This turns a single repeat into a series of repeats, each a little softer than the last.

Studio Delay - *Stereo*

The **Studio Delay** features up to 2.5 seconds of stereo delay and offers a built-in ducker that attenuates the delay output whenever signal is present at the input. This can be used to keep the original signal from being muddied up by delay repeats.

Digital Delay - *Mono In/Stereo Out*

The **Digital Delay** is the cleanest, most accurate of the delay programs, with up to 5 seconds of mono delay and the built-in ducking feature.

Tape Delay - *Mono In/Stereo Out*

In the days before digital, delays were created using a special tape recorder in which the magnetic recording tape was looped, with closely-spaced recording and playback heads. The delay effect was created by the tape moving in the space between the record and playback heads – while delay time was adjusted by changing the speed of the tape loop. Although very musical-sounding, wow and flutter combined with a significant loss of high frequencies, and to some extent also low frequencies, are all elements commonly associated with tape recordings. The **Tape Delay** offers up to 5 seconds of mono delay.

Pong Delay - *Mono In/Stereo Out*

This delay effect pans the delay repeats from left to right, while the input signal remains at its original (center) position. **Pong Delay** offers up to 5 seconds of mono delay time.

Modulated Delay - *Stereo*

The **Modulated Delay** is enhanced by an LFO (low frequency oscillator) that produces a chorusing effect on the delay repeats. This is a great delay for guitar and instrument passages that need that "special something." The **Modulated Delay** features up to 2.5 seconds of stereo modulated delay.

Reverse Delay - *Mono In/Stereo Out*

This delay effect emulates the old studio trick of flipping a tape over, playing it backwards through a tape delay, and recording the effect. The delays "build up" from softer to louder – creating the sensation that the delays come before the signal. Up to 2.5 seconds of mono delay time are available.

2-Tap Delay - *Stereo*

The **2-Tap Delay** is probably best described as an adjustable pong delay where each tap can be individually set in relation to the delay time. The 2 taps are a calculated percentage of the actual delay time from 1-100% (for example, if the delay time is 500ms and Tap 1 is set to 50% and Tap 2 is set to 100%, Tap 1 time would be 250ms and Tap 2 time would be 500ms). Narrow spacing of the tap percentages can widen the stereo image of the delay while wider tap spacing can create rhythmic delay lines.

Delay Controls
Tempo
The actual delay time as tapped in by the **Tempo** button or received via a MIDI clock source. This time can be expressed as actual time (milliseconds, seconds) or in BPM (beats per minute) values. Tempo works in conjunction with Delay Range to set the actual delay time that is heard.

Delay Time
Controls the length of the delay time relative to Tempo. At the middle of its range, delay repeats are synchronous with the **Tempo** button (represented by a Quarter Note in the display); lower values create faster repeats, while higher values increase the time between repeats.

Feedback
Controls the number of delay repeats by feeding the delay output signal back into the delay input. This creates a series of delay repeats, each slightly attenuated until they become inaudible. Higher settings create more repeats; lower settings reduce the number of repeats. When this knob is turned fully clockwise, it engages Repeat Hold – delay repeats play back in an infinite loop, but no further input signal is introduced into the delay effect. Repeat Hold is available only on **Studio**, **Digital** and **Pong Delay**.

High Pass Filter
Frequencies below this level are attenuated.

Low Pass Filter
Frequencies above this level are attenuated.

Ducker Level
Ducker Level is the level you want the delay to be heard at when signal is present. This provides attenuation (up to 18dB) of the delay signal while a performer is singing or playing to help provide intelligibility. As the performance pauses, the delay signal level returns to its normal setting.

Ducker Threshold
MX400's **Studio** and **Digital** delays offer a "ducking" feature, which causes the delay repeats to attenuate (or get softer) by –6dB when live (or input) signal is present. This allows the delay to remain as an effect, and not clash with the original signal. The higher this value is set, the louder an input signal must be for the ducking to take place.

Smear

This parameter controls the amount of "smear," or signal degradation and frequency loss. Particularly evident in the **Tape Delay**, the higher the setting, the more each delay repeat loses intelligibility compared to the original signal.

Tap 1 & 2

The Tap parameters provide independent control to the two delay taps in the 2-Tap Delay. Each tap can be set to a percentage of the delay tempo, creating interesting rhythmic delay lines not available in the other delays.

Level 1 & 2

Adjusts the output level of Tap 1 and Tap 2.

Pan 1 & 2

Adjusts the pan position in the stereo field of Tap 1 and Tap 2.

Mod Depth

This controls the intensity of modulation, or "depth" in the **Modulated Delay**. Lower settings produce a more subtle chorus effect, while higher values give a more lush chorusing of the delay repeats.

dbx® DYNAMICS

The MX400 offers two dynamics processing modules, De Esser and Compressor, that utilize dbx's legendary digital dynamics processing technology to produce professional-quality reverbs and effects.

De-Esser - *Stereo*

A **De-Esser** is a type of compressor used to tame excessive sibilance, or the "s" sounds in a vocal performance. Note that the De-esser does not pass dry audio.

Compressor - *Stereo*

A compressor is used to control the dynamic range of a signal. Typically used to tighten bass or drum tracks, or to control a vocal passage, a compressor is a very useful but often misunderstood tool. To better use the **Compressor** in the MX400, a bit of understanding about compression is helpful. Note that the Compressor does not pass dry audio.

When a signal level crosses the **Threshold** level, the compressor then reduces the amount of output level by an amount determined by the **Ratio**. For example, if the threshold is set to –12dB, and the ratio set to 4:1, then when signal exceeds –12dB, the signal level above that amount only increases by 1dB to every 4dB of signal level above –12dB. In this case, an incoming signal of –4dB (which is 8dB above the threshold) would result in an output signal of –10dB, or 2dB higher than the threshold level, since the 4:1 compression ratio only allowed 2dB more output, based on the 8dB increase above the –12dB threshold.
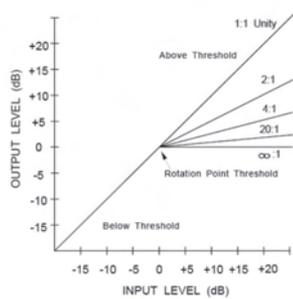
Because the resulting output is less than the original signal, a third control, **Makeup Gain** compensates for this loss of level, but with less dynamic range, or the difference between the softest and loudest parts of the signal.

Note: The De-Esser and Compressor effects are Mono In Dual Stereo configuration programs.

dbx Dynamics Controls
Ratio
Determines the amount of compression, from 1:1 (no effect) to Infinity:1 (complete limiting).

Frequency
Selects the frequency range of compression from 1600Hz to 10kHz (the most common frequencies in which excessive sibilance occurs).

Bandwidth
Controls the bandwidth or "Quality" (Q) of frequency range. The higher the selected value, the tighter the bandwidth, and less apparent the de-essing effect is.

Threshold
Determines the threshold above which compression begins, incrementally between −70dB and 0dB.

Gain
Increases the output level to compensate for signal attenuation during compression. Incremental between 0dB (no gain) to +12dB.

Attack
Attack adjusts the attack time constant, determining how quickly the compressor responds to increasing input level. This should normally be set quite low to allow the compressor to react to sharp transients.

Release

Release allows adjustment of the release time constant, determining how quickly the compressor responds to decreasing input level. This should normally be set long. Short release times may cause an effect similar to "pumping" in an analog compressor.

Knee

In Hard Knee mode, the threshold of compression is defined as that point above which the output level no longer changes on a 1:1 basis with changes in the input level. See Figure 1.

In Soft Knee mode, the threshold of compression is defined as the middle of the threshold region, that is, "half-way" into compression, as shown in Figure 2.
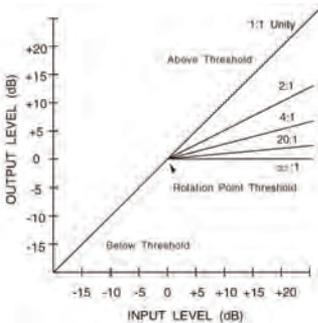
Figure 1: Hard Knee Compression Curve
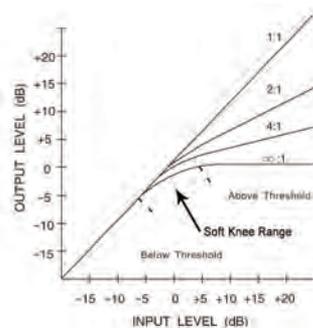
Figure 2: Soft Knee Compression Curve

MODULATED EFFECTS

Chorus - *Stereo*

Chorus creates a lush, full sound by combining two or more signals together where one is unaffected and the other signals vary in pitch very slightly over time. **Chorus** is commonly used to fatten up tracks and to add body to guitars without coloring the original tone. **Chorus** can also be used with discretion to thicken a vocal track.

Flanger - *Stereo*

This effect was originally created by simultaneously recording and playing back two identical programs on two tape recorders, then using hand pressure against the flange of the tape reels to slow down first one machine, then the other. The result was a series of changing phase cancellations and reinforcements, with characteristic swishing, tunneling, and fading sounds.

Phaser - *Stereo*

The **Phaser** automatically moves frequency notches up and down the spectrum of the signal by means of a low frequency oscillator (LFO), creating an oscillating "comb-filter" type effect. This effect is very useful on keyboards (especially pad presets) and guitars.

Tremolo/Pan - *Stereo (Wet Only)*
Tremolo and **Panner** create rhythmic changes in signal amplitude. **Tremolo** affects both channel's amplitude simultaneously, while the **Panner** affects the amplitude of each channel in an alternating manner.

Rotary - *Mono In/Stereo Out (Wet Only)*
Rotary speaker cabinets were designed to provide a majestic vibrato/choir effect for electronic theater and church organs. The most well known rotary speaker is the Leslie™ Model 122, which has two counter-rotating elements: a high-frequency horn and a low-frequency rotor with slow and fast speeds. The sound generated as the spinning elements change speed is truly magical. The swirling, spacious effect is difficult to describe – but clearly recognizable.

The **Rotary** effect is modeled after a Leslie-style cabinet. The input signal is split into high and low-frequency bands. The rotation effect is created by a synchronized combination of pitch shifting, tremolo, and panning. Like the physical cabinet, the high (horn) and low (rotor) frequencies are "spun" in opposite directions. Horn and rotor speeds are independent, and designed with acceleration and deceleration characteristics to simulate the inertia of the original mechanical elements.

A virtual requirement for organ music, **Rotary** also sounds remarkable with guitar and electric piano rhythm parts. In fact, these programs are great alternatives to the **Chorus** and **Tremolo** effects for any sound source.

Vibrato - *Stereo (Wet Only)*
Vibrato is obtained by smoothly varying the pitch of the signal just sharp and flat of the original at a determined rate.

Pitch Shift - *Stereo*
This effect shifts the frequency spectrum of the input signal. Altering the pitch of a sound produces a wide range effects - from subtle detunes to full interval shifts up or down a two octave range. The MX400's **Pitch Shift** effect is a chromatic shifter, meaning all notes of the scale are shifted by the same interval. **Pitch Shift** is very useful with guitar tracks, monophonic synth lines, or where special vocal effects are needed.

Detune - *Stereo*
Detune adds a slightly pitch-shifted version of the original source, thickening the sound. This creates a particularly effective simulation of "double-tracking." This effect is also a great alternative to the **Chorus** effect, adding the richness of a chorus without the audible sweep caused by the chorus rate.

Modulated Effect Controls
Speed
Sets the speed at which the modulated effect cycles.

Depth
Scales the intensity of the effect. This control affects the output of the LFO only. It has no effect on the outputs of the individual waveforms.

Voices
Controls the number of additional Chorus voices.

Regen
Controls the amount of modulated signal being fed back into the input, creating feedback. Higher amounts add more resonance to the signal.

Diffusion
Creates a time-smoothing effect similar to diffusion in reverb. Diffusion can be a subtle effect to add a little warmth to the chorus.

PreDelay
Determines the amount of offset between the two signals that create the flange effect. Lower values create a tighter effect, higher values result in a more extreme "whooshing" sound.

Waveform
Selects the wave pattern used by the modulated effect.

Phase
Controls whether amplitude or depth change occurs in both left and right outputs simultaneously or alternates between left and right outputs.

Phase Stages
Selects between a 4, 8, or 12 state phase shifter.

Stereo Spread
Increases or decreases the stereo imaging of the Rotary effect.

Drive
Provides overdrive gain to the preamp section of the rotary speaker effect.

Minimum Speed
Sets the minimum speed at which the effect will oscillate.

Maximum Speed
Sets the maximum speed at which the effect will oscillate.

Doppler
Increases or decreases the Doppler pitch effect that is created by the physics of a rotating speaker.

Shift 1 & 2

Determines the amount of pitch shift or detune shift from the original signal source. Works best with individual notes.

Delay 1 & 2

Sets the delay time before the pitch shift or detune effect is heard in the Pitch Shift and Detune effects.

Feedback 1 & 2

Adjusts how much of the shifted signal is sent back through the delay line in Pitch Shift and Detune for creating cascading arpeggio type effects.

Pan 1 & 2

Sets the pan position in the stereo field for each tap in the 2-Tap Delay.

MX400 SYSTEM MENUS

SYSTEM MENUS

The MX400 System menus are where global settings are configured. These include Surround, Stereo, or Dual Stereo Configuration, Program Auto Load, Output Level, and Factory Restore. Changes made to these settings affect all programs in all Configurations. Press the **System** button to access these menus. Turn the **Page/Select** knob to scroll up and down through the available menus. Press the **Exit** button to exit the System Menus.

```
System Menu
 ▒ A CONFIGURATION    DUAL STEREO
   B CONTRAST              8
 ▒ C PROGRAM LOAD       MANUAL
```

Configuration

This menu is where you select what kind of processor you want the MX400 to run as (Surround, Stereo, or as a Dual Stereo processor). Use **Knob A** to change the MX400's configuration. See page 8 ("About the MX400") for more information on configurations.

Contrast

This utility adjusts the contrast of the **Main Display** to make it more visible at different viewing angles. Use **Knob B** to adjust the display's viewing angle to your liking.

Program Load

MX400 programs can be loaded manually or automatically as each program is selected. The default setting is Manual. Use **Knob C** to select which method of program loading you need.

```
System Menu
 A INPUT SOURCE A    ANLG STEREO
 B INPUT SOURCE B    ANLG STEREO
 C CLOCK SOURCE      INT 48KHZ
```

Input Source A

The MX400 has both analog and digital inputs that can be connected to. Depending on which inputs you will be using, you need to select between analog or digital sources. The MX400 offers three different input sources to select from: Analog Mono L, Analog Stereo, and Digital. Input Source A refers to whether you will be using analog A - Front (Stereo) inputs or digital input A. When only a single analog input is to be used, select **Analog Mono L** and connect to the A - Front (Stereo) Left input only. All inputs (analog and digital) can remain connected simultaneously in the event you find yourself switching between using both. Use **Knob A** to select the appropriate Input Source you will be using.

Input Source B

Input Source B is identical to Input Source A (explained above) except it refers to analog and digital Input Pair B only. Use **Knob B** to select the appropriate Input Source you will be using.

Clock Source

This option allows manual selection of either the internal or external clock source for the MX400. When set to **44.1kHz**, the MX400 utilizes an internal clock with a 44.1kHz sample rate. When set to **48kHz**, the MX400 utilizes an internal clock with a 48kHz sample rate. When set to **Digital**, the unit utilizes the S/PDIF input clock source, even if an analog audio source is used. The MX400 only accepts external digital clock information on the Digital S/PDIF A input. Refer to **The MX400 and Digital I/O** section on page 10 for more information on using digital audio sources. Use **Knob C** to select the appropriate Clock Source you will be using.

```
System Menu
 A ANALOG OUT A     ANLG STEREO
 B ANALOG OUT B     ANLG STEREO
 C ANALOG OUT LEVEL    +4dBU
```

Analog Output A

The MX400 analog outputs can be configured to run in stereo or in mono. Each pair of outputs can be configured independently of the other. Analog Out A refers to only A - Front (Stereo). When only a single output cable is to be used, connect to the A - Front (Stereo) Left output only and set the Output mode to **Mono Left**. Output Mode only affects the analog outputs. Use **Knob A** to select between Mono Left and Stereo.

Analog Output B

Analog Out B is identical to Analog Out A description but refers to analog Output Pair B only. Use **Knob B** to select between Mono Left and Stereo B - Rear outputs.

Output Level

The MX400 outputs can be optimized to run with equipment requiring different output levels. High end audio systems run at +4dBu levels while many inexpensive system levels run at -10dBV levels. Consult the technical guides that came with the equipment you will be connecting the MX400 to so as determine which output level should be selected. Use **Knob C** to change between –10dBV or +4dBu.

```
System Menu
 A DIGITAL OUT A      PROCESSED
 B DIGITAL OUT B      PROCESSED
 C BYPASS SELECT           DRY
```

Digital Out A/B

The MX400 can send unprocessed digital audio out either of its **S/PDIF Digital Outputs** while monitoring processed audio through the analog outputs. This is useful when you want to record a dry performance digitally, but also hear effects processing while you are recording. To send unprocessed audio out the MX400 digital outputs, set the **Digital Out A** and **Digital Out B** options to **Dry**. Turn **Knob A** to change Digital Out A, and **Knob B** to change Digital Out B.

Note: This feature is only available for signals brought into the MX400 via the analog inputs. It has no effect on signals being received at the **S/PDIF In**. Digital in/out signals are processed normally regardless of whether the Digital Out A/B settings are set to Dry.

Bypass Select

There are four different bypass options for effects and programs (turn **Knob C** to select):

> **Dry** – the inputs and outputs of the effects are muted but dry signal is passed around them.
> **Mute** – The inputs, outputs and dry signal paths are all muted leaving no signal at the outputs.
> **Input Dry** – The inputs to the effects are muted but reverb decay and delay tails will still finish. Dry signal will also be passed around the effects.
> **Input Mute** – The inputs and dry paths around the effects are muted but reverb decay and delay tails will still finish.

```
System Menu
  A MIDI CHANNEL A        1
  B MIDI CHANNEL B        1
  C MIDI CLOCK SYNC     SYNC
```

MIDI Channel A

The MX400 is equipped with two MIDI receive channels, Channel A
and Channel B. MIDI channel A is the channel used by all MX400
Configurations: Surround, Stereo, and Dual Stereo. Any program change or
CC messages sent to the MX400 on MIDI Channel A will be processed by the
active program. Channels can be set from **1-16**, **All** channels, or **Off**. Use
Knob A to change MIDI Channel A settings.

Note: In Dual Stereo, there are always two programs active. The program
shown at the top half of the **Main Display** on the program screen is the
program that will respond to MIDI Channel A messages.

MIDI Channel B

The MX400's MIDI Channel B channel is a separate channel utilized when
the **Dual Stereo Configuration** is selected. MIDI messages received
on this channel control the program shown in the bottom half of the **Main
Display** of the program screen. Channels can be set from **1-16**, **All**
channels, or **Off**. Use **Knob B** to change MIDI Channel B settings.

MIDI Clock Sync

The MX400's MIDI input is able to receive and synchronize delay times via
MIDI clock messages. When set to On, Tap Tempo is changed by incoming
MIDI messages. (The **Tempo** button on the front panel will be disabled
while these messages are being received.) When set to Off, the unit ignores
MIDI Clock messages. Use the **Knob C** to change **MIDI Receive**
options.

```
System Menu
  A MIDI PRGM RECEIVE    ON
  B MIDI CC RECEIVE      ON
  C TEMPO DISPLAY       BPM
```

MIDI Program Receive

The MIDI Program receive option lets you enable or disable the MX400
from receiving MIDI program change messages. When MIDI Program
Receive is set to off, it filters all program change messages so that the
MX400 will not respondt to them in any configuration (Surround, Stereo,
or Dual Stereo). MIDI CC messages are still received even when this option
is disabled. Use **Knob A** to change this option.

MIDI CC Receive

The MIDI CC receive option lets you enable or disable the MX400 from receiving MIDI CC messages. When MIDI Program Receive is set to off, it filters all MIDI CC messages so that the MX400 will not respond them in any configuration (Surround, Stereo, or Dual Stereo). MIDI program change messages are still received even when this option is disabled. Use **Knob B** to change this option.

Tempo Display

MX400 programs can display delay time in two types of units, ms (milliseconds) and BPM (beats per minute). Use **Knob C** to select which units you want all programs to display delay times in.

Footswitch R/T

The MX400 features a footswitch input jack on the rear panel. The lets you connect the optional Lex-DFS 2-button footswitch for remote control of some of the MX400's functions. These global footswitch functions are as follows:

Bypass	Tempo 1	Program A Up
Bypass 1	Tempo 2	Program A Down
Bypass 2	Tempo 3	Program B Up
Bypass 3	Tempo 4	Program B Down
Bypass 4	Program Up	
Tempo	Program Down	

```
System Menu
A FOOTSWITCH <R>    BYPASS
B FOOTSWITCH <T>    TEMPO
C FACTORY RESTORE    NO
```

Adjust **Knob A** and **B** to change the footswitch functions for footswitches **R** and **T** respectively.

Factory Restore

The Factory Restore function erases all user settings and programs to their factory state. To restore the MX400 to this condition, follow these steps:

1. From the Factory Restore screen, turn **Knob C** until the **HOLD <STORE>** screen appears. Press the **Exit** button to abort the Factory Restore procedure.

```
System Menu
A FOOTSWITCH <R>    BYPASS
B FOOTSWITCH <T>    TEMPO
C FACTORY RESTORE  HOLD <STORE>
```

2. Press and hold the **Store** button until the white progress bar has completely disappeared. This will complete the restore procedure and the MX400 will be returned to its factory state.

```
Factory Restore
HOLD DOWN <STORE> BUTTON
    TO RESET THE MX400
    ▭▭▭▭▭    ▭▭▭
```

THE MX-EDIT™ EDITOR/LIBRARIAN - WINDOWS® AND MAC®

The included MX-Edit Editor/Librarian software lets you create, edit, compare, save and load reverb and effects programs for use with your MX400 on your Windows or Mac computer. While the MX400 has a finite number of User program locations, you can create and save as many programs as you like on your computer, and load them into your MX400 via a USB or MIDI connection at any time.

The Mac and Windows versions of the MX-Edit Editor/Librarian are almost identical in functionality. One noticable difference is the Editor window's position; it's fixed in the Windows version, and free-floating in the Mac version. For additional differences and features in the Mac version, refer to the readme.txt file on the CD.

INSTALLING THE MX-EDIT EDITOR/LIBRARIAN SOFTWARE - WINDOWS

MINIMUM SYSTEM REQUIREMENTS - WINDOWS

Before installing the MX-Edit Editor/Librarian software, make sure that your computer meets the following minimum requirements:

• Pentium-III, 500MHz or better.
• Windows XP, Service Pack 2 or higher.

To install the included MX-Edit Editor/Librarian software in Windows XP, insert the provided disc into your computer's CD-ROM drive. You will be guided through the installation process – just follow the on-screen instructions and prompts. Note that you will be prompted to connect the MX400 via the USB port during the installation process. In order for your computer to recognize the MX400 connection, it is necessary to have the MX400 powered on and connected via a standard USB cable.

Important: If you plug your MX400 into a USB port other than the one used during the installation of MX-Edit software and drivers, you may need to run the USB driver installer again. For your convenience, a shortcut to the USB driver installer is added to the Start menu during the MX-Edit software installation. If you need to reinstall the drivers, click Start->Program Files->Lexicon->MX-Edit->Reinstall Drivers, and follow the installation prompts.

INSTALLING THE MX-EDIT EDITOR/LIBRARIAN - MAC

MINIMUM SYSTEM REQUIREMENTS - MAC

Before installing the MX-Edit Editor/Librarian software, make sure that your computer meets the following minimum requirements:

OSX 10.4 or higher

To install the MX-Edit, VST™ and Audio Units software for Macintosh® computers, insert the provided disc into the CD-ROM drive and double-click on the disc icon when it appears. Double-click on the **MX400.dmg.hqx** file to extract and run the installer. Follow the on-screen prompts to install the software.

The installer sets up the standalone **MX-Edit Editor/Librarian** application in the Applications folder, the **MX-Edit Audio Unit** in the Components folder, and the **MX-Edit VST** in the VST folder.

QUICK START

When you first open MX-Edit, you will see the MX-Edit Library on the left side of the MX-Edit window, with the MX400 icon at the top of the Library. An editor panel for the current program is also open.
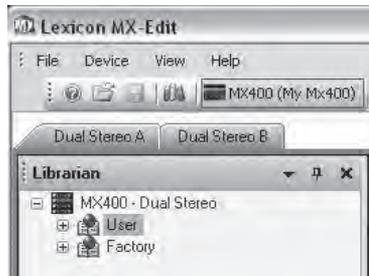
Double-click the MX400 icon to expand the Library, then double-click the Factory or User icons to see the Factory or User program lists. The Factory list will always be the same, as Factory programs cannot be changed; the User program list will represent the programs currently residing in the User program locations in your MX400 hardware.

Double-click a program name to open it in the editor. The program settings are reflected in the Parameter knobs and buttons in the Program Editor window.

The selected program is now loaded in your MX400. Any changes made in the MX-Edit Program Editor window will also occur simultaneously on the MX400 hardware.

THE MX-EDIT™ LIBRARY

The MX-Edit Library contains the Factory and User programs that are currently loaded in your MX400. When you first open MX-Edit, it communicates via USB (or MIDI) with the MX400 hardware, and populates the Library with all the information about each of the Factory and User programs stored in MX400's physical memory.

To view programs in the Library window, click the MX400 tab in the upper left corner, then double-click the Factory or User icon to expand the Library and see the Factory or User program lists. The Factory list is always the same, as Factory programs cannot be overwritten; the User program list represents the User programs currently saved in your MX400 hardware.

Note that there may be two tabs below the tool bar (one for each processor in the MX400, depending on the MX400's mode). Each tab has its own list of programs (Factory and User), and its own Program Editor window. You can load and edit programs for each processor via these two tabs.

The Library can support multiple devices at the same time. Each device that is connected to the Library is represented by a name and an icon next to the tool bar (just below the menus). To view, load, and edit programs for a device, click its icon.

EDITING A PROGRAM

To open a program, choose one of the following:

- To open a **Factory** or **User** program from the MX-Edit Library, double click on

that program number in the Library window.

- To open a program that has been saved to your computer (but doesn't appear in the MX-Edit Library), click **File** and select **Open Program**. By default, the **Open** dialog looks in the **My Documents** folder (or the last folder that a program was opened from). Double-click the program to load it.

- To open a program with the currently active settings from the MX400, select **Open Current Program** in the **Device** menu. This will retrieve all current settings from the MX400, and display those settings in the Program Editor panel.

THE MX-EDIT™ PROGRAM EDITOR

The MX-Edit Program Editor lets you quickly and easily view, compare and edit any program stored in the MX400, or programs saved to your computer.

MX-Edit gives you all the same control and functionality as the MX400 front panel, with the exception of **Input** control and **System** functions.

All changes that you make in the active Program Editor window are reflected in real-time on the MX400. MX-Edit and the MX400 are fully interactive, so any changes made on the MX400's front panel are reflected in real-time in the MX-Edit Program Editor window as well.

When you open a program, the MX-Edit Program Editor is updated with the selected program's name in the Program Name field, and you're prompted to save any previous edits. The settings of the loaded program are reflected in the Parameter knobs and buttons, and are loaded into the MX400 hardware.

SIGNAL ROUTING OPTIONS

To change the MX400's **Routing**, left click on the **Routing** button in the **Input/ Routing** control area. A list of the MX400's **Routing** options appears, with a check mark next to the currently selected routing. Highlight an item in the list and left click to select and load it. A routing diagram appears next to the **Routing** button, and the routing name is shown in the button.

REVERB/EFFECT SELECTION BUTTONS

Reverb/Effect Selection Buttons

To change a reverb or effect in Processor 1 or Processor 2, left click on the **Reverb/ Effect Select** button in Effect 1 or Effect 2 control area. A list of the MX400's reverbs and effects appears, with a check mark next to the currently selected reverb or effect. Highlight an item in the list and left click to select and load it. Notice that the reverb or effect name now appears in the **Reverb/Effect Select** button, and the Parameter knobs in MX-Edit change position, layout, and number, depending on the default values for the selected reverb or effect.

ADJUSTING KNOBS

To make editing in MX-Edit easy and intuitive, there are three ways to adjust knobs in MX-Edit:

Mouse - Circular

Place the cursor at the outer (shadowed) edge of a knob, then click and hold the left mouse button. The white indicator line on the knob jumps to the mouse cursor's position, and follows the cursor as it moves around the circumference of the knob. To make fine adjustments, continue to hold the left mouse button down and move the cursor away from the knob; the white line still follows the cursor, no matter how far away it is from the knob. (Note that this control does not apply to Macs; hold the Option key to make fine adjustments.)

Mouse – Up / Down

Move the mouse cursor to the center of a knob; the knob is highlighted, and the cursor changes to a double-headed arrow, pointing up and down. Click and hold the left mouse button, causing the cursor to disappear. Move the mouse up to turn the knob higher, or move the mouse down to turn the knob lower. For very fast edits, press and hold the Ctrl key on your computer keyboard while moving the mouse; this multiplies the adjusted value by a factor of 10 (Windows® only).

Arrow Keys

Highlight, then left-click on a knob to select it. Use the up (or right) arrow key to turn the knob higher and increase the value; use the down (or left) arrow key to turn the knob lower, decreasing the value. This is a very effective method for making small adjustments to fine-tune your settings. For faster modifications, press and hold the Ctrl key on your computer keyboard while pressing an arrow key to multiply each adjustment by a factor of 10 (Windows only).

TEMPO

If one of the MX400's delays is selected, the **Tempo** button in that processor becomes active, and begins to flash at the Tempo rate. The tempo value is shown in milliseconds (ms), and a musical note appears next to the displayed Delay Time. When the Delay Time parameter is adjusted, exact divisions of time in milliseconds relative to the flashing Tempo rate will cause a note value to be displayed next to the time, e.g. 16th note, dotted-8th note, etc. The **Tempo** button will continue to flash at the originally selected tempo, but the delay taps will occur at the rate displayed in the Delay Time value.

To change the tempo value, simply place the mouse cursor over the **Tempo** button, and left-click twice to tap the tempo, just as you would on the MX400 front panel. The **Tempo** buttons on the MX400 and in the Program Editor window now flash at the new tempo.

If a non-delay effect is loaded in the processor, the **Tempo** button is dimmed and inactive.

BYPASS

To engage the **Bypass** button (and turn off the selected effect), place the mouse cursor over the **Bypass** button, and left-click to bypass that processor.

PROGRAM NAME

To create or change a program's name, simply left click once anywhere in the Program Name field. The program name will be highlighted; type the new name into the text box.

SAVING A PROGRAM

If you make any changes to a program, an asterisk (*) will appear next to the program name in the Title Bar when the Program Editor is active. The LED on the Store button on the MX400's front panel also illuminates, indicating a change from the loaded program.

To save a program to disk, click File and select **Save** or **Save As**, and enter a file name. By default, programs are saved to your computer in the *My Documents* folder; to choose a different location, simply navigate to a different folder or create a new folder in which to save your MX400 program files. (For example, *C:\Documents and Settings\username\My Documents\MX400 Presets*). Click the **Save** button to complete the process.

You can also save a program simply by closing the Program Editor window. If any changes have been made to the loaded program, a dialog box appears, asking if you want to save your changes. Click **Yes** to save the changes, **No** to close without saving, or **Cancel** to return to the Program Editor window. If you choose this method to save your changes, the current program will be over-written; to save the program as a new file with a different name (and keep the loaded program's settings intact), click **File** then **Save As**.

MX400 programs are given the file extension .mx400dsp (dual stereo), .mx400stp (stereo), or .mx400srp (surround), and they can be copied, moved, attached to emails

– anything you can do with a standard document or file. These files should, however, only be opened by MX-Edit Editor/Librarian software to prevent corruption.

STORING A PROGRAM

To store a program into one of the User program locations in the MX-Edit Library (and the corresponding location in the MX400's physical memory), open the program you wish to store. With the Program Editor window active, click **Device**, then **Store Program**. The **Store to Device** dialog appears, allowing you to choose the User program location and program name to store with it. Be aware that storing a program in this manner will over-write the program previously stored in that location, both in the MX-Edit Library and the MX400 itself. Click **Save** to store to the selected User program location. To cancel the operation, click **Cancel**, or close the **Store to Device** dialog box.

To rename a User program in the Library, right-click on its name in the Library window and select **Rename**. Type in the new name and press **Enter** to save the change.

Since the Factory programs can never be over-written, you cannot store to nor rename a Factory program location. You may edit a Factory program, but it must be stored to a User program location.

ARCHIVING

Archiving is a powerful tool for preserving the current state of your MX400. When you archive the MX400, all of its presets and global settings are sent to the computer and saved to a file. When an archive is restored, the MX400 is configured exactly how it was when you archived it. This allows you to not only create safety backups, but create unique configurations for various purposes. For example, you might want to create a setup specifically for that gig you're playing on the weekend, but still keep all your favorite studio presets intact. Use MX-Edit's Backup feature to archive the MX400's settings, then modify and store anything and everything you want, without worrying about reprogramming all your previous programs and settings.

To archive the MX400, click **Device** and select **Backup**. A warning will appear, advising you that a full Backup may take a few minutes, and asking whether you wish to proceed. To cancel without creating a Backup archive, click **Cancel** or close the dialog box. To proceed, click **OK**. A progress bar appears at the bottom of the MX-Edit screen, indicating that a Bulk Dump is in process. When all the MX400 data is received, a **Save** dialog box appears. The default file name is the current day and date (e.g. **Backup Wednesday, April 27, 2005**) with the file extension .m2a (MX400 Archive file) for Windows®, or .syx for Mac®. Click **Save** to store the Backup Archive file.

To restore a saved archive, click **Device** and select **Restore**. When prompted, select an MX400 archive file, and click **Open**. MX-Edit then sends the MX400 archive to your MX400, replacing all the data in the hardware with the archived data.

Note: It is a good idea to create a new Backup archive file anytime you plan to restore the MX400 from a previous archive session.

USING THE MX400 AS A HARDWARE PLUG-IN

The MX400 comes with VST™ and Audio Units software which allows you to use the MX400 as a Hardware Plug-In. Now you have access to classic Lexicon® reverbs and effects within your software recording projects, with full automation and total recall, without burdening your CPU! Using the MX400 with the VST and Audio Units software works much like any other plug-in you'd use with a DAW, except that the audio is routed through the MX400 for the signal processing.

MINIMUM SYSTEM REQUIREMENTS

Audio
I/O hardware with a minimum of two inputs and four audio outputs.

Windows®
P-III, 500MHz or better, WinXP Service Pack 2 or higher plus a VST-compatible Software Recording Package

Mac
OSX 10.4 or higher plus a VST or Audio Units compatible Software Recording Package

INSTALLING THE MX-EDIT VST HARDWARE PLUG-IN

Note: If you have already installed the MX-EditTM software for Mac or WinXP, you have already installed the VST and/or Audio Units software. Simply skip this section.

FOR WINDOWS XP USERS
To install the software in Windows, insert the disc into your CD-ROM drive and follow the on-screen prompts. (If the Autorun feature is disabled, browse to the CD and double-click on the setup.exe file.)

FOR MAC USERS
To install on a Mac, insert the disc into your CD-ROM drive and double-click on the disc icon when it appears. Double-click on the MX400.dmg.hqx file to extract and run the installer. Follow the on-screen prompts to install the software.

CONNECTING THE MX400

USB CONNECTION
Make sure the MX400 is powered up and connected to your computer with a standard USB cable. (For Windows XP users, make sure the MX400 is plugged into the same USB port as when the software was loaded.)

AUDIO CONNECTIONS
To use the MX400 as a hardware plug-in, your computer needs audio hardware with multiple audio inputs and outputs available, at least enough to send and return two channels from the MX400 plus two additional outputs to monitor with.

For lower latencies and the best audio performance, it is recommended that you connect the MX400 to your computer's audio I/O device using the S/PDIF Inputs and outputs. If your I/O device does not have a S/PDIF connection, or if it already connected to another device, you may use the analog connections from your computer's I/O device to the 1/4" analog inputs and outputs on the MX400.

Important: The MX400 accepts digital audio at 44.1kHz and 48kHz sample rates. Do not connect any digital device to the MX400's S/PDIF Input that transmits at any other sample rate (such as 96kHz). Doing so can cause unpredictable performance. Make sure your recording project is set to either 44.1kHz or 48kHz sample rate to avoid problems.

SOFTWARE CONFIGURATION

Because the audio is being processed within the MX400 hardware, and not inside your computer, your DAW (Digital Audio Workstation, or Recording Software) needs to be set up to send and receive audio to and from the MX400.

Many DAW's have built-in routing configurations for this; consult your software's documentation for information about setting up external routing options.

Steinberg® Cubase SX® users: see information on "External FX" connections.

Logic® Audio users: see information about "I/O Insert Plug-Ins."

Cakewalk® Sonar™ users: see information about "Adding Send / Return Effects to a Bus"

If your software does not provide specific information about these types of configurations, you can set up the connections yourself. Each recording platform will vary slightly, but the basic principles are the same.

TO SET UP A SEND AND RETURN PATH

1. Create a Stereo Bus (or two audio busses) that are different from your Main Mix (Master) Bus.
2. Route these busses to the outputs on your audio I/O hardware that you have connected to the MX400 (Either the S/PDIF output, or two analog outputs).
3. In your VST or Audio Units Send Effects Routing options, send the MX400's effect sends to the Stereo Busses (or Bus Pair) you created in Step 1.
4. Create two audio tracks whose inputs correspond to those you connected to the MX400 (Either the S/PDIF input, or two analog inputs).
5. Route these tracks to the Main Mix (Master) Bus.

If you have followed these steps correctly, when you open an instance of the MX400 plug-in, its audio path will lead it to the bus pair you created, which will send the audio to the MX400. The processed audio is then sent from the MX400 through your audio hardware's inputs to the two audio tracks you created in Step 4, and monitored

through the Main Mix Bus, just as you would any audio or plug-in effect.

USING THE MX400 PLUG-IN WINDOW

In your DAW, open the Lexicon MX400 plug-in. You'll see an instance of the Program Editor window. You can use the MX400 plug-in software just as you would any other plug-in: Session Recall, automation – everything behaves just as any other VST™ or Audio Unit plug-in. The primary difference is that the audio processing occurs in the MX400 rather than on your computer. And, since the MX400 is a physical device, you can only open one instance (per physical device) of the plug-in window. If you attempt to open more than one plug-in window, the message shown below will appear.

This message will also appear if the MX400's MIDI ports are being used by the DAW or another application.

CONTROLS

The MX400's Plug-In window functions much like the MX-Edit Program Editor window described on page 38.

MIDI IMPLEMENTATION CHART

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	X	1	2 MIDI channels - A/B Channel B only recognized in Dual Stereo configuration.
	Changed	X	1-16, Omni, Off	
Mode	Default		Mode 2	
	Messages	X	X	
	Altered		X	
Note Number	True Voice	X	X	
Velocity	Note ON	X	X	
	Note OFF	X	X	
After Touch	Keys	X	X	
	Channels	X	X	
Pitchbend		X	X	
Control Change		X	1-127	See MIDI CC list
Program Change	True #	X	0-98 = 1-99	See Program mapping
	Bank Select	X	0	MIDI CC 32 Value 0 = Factory, Value 1 = User
System Exclusive		O	O	Lexicon Editor Only. Sys Ex channel follows MIDI channel except when MIDI channel is set to Off, where Sys Ex channel then receives on all channels.
System Common				
	Song Position:	X	X	
	Song Select:	X	X	
	Tune:	X	X	
System Real Time				
	Clock:	X	O	MIDI clock can set Delay Tempo
	Commands:	X	X	
Aux Messages		X	X	

O = Yes	Mode 1: OMNI ON, POLY	Mode 2: OMNI ON, MONO
X = No	Mode 3: OMNI OFF, POLY	Mode 4: OMNI OFF, MONO

MIDI CC MAP - *DUAL STEREO EFFECTS*

Effect 1/2	26/27	13/20	18/25	14/21	15/22	16/23	17/24
				MIDI CC #			
Small Hall	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Large Hall	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Small Plate	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Large Plate	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Chamber	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Room	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Studio	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Ambience	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Vocal Hall	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Vocal Plate	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Drum Hall	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Drum Plate	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Arena	Mix	Bypass		Pre Delay	Decay / Mid RT	Liveliness	
Gated	Mix	Bypass		Pre Delay	Decay	Diffusion	
Reverse	Mix	Bypass		Pre Delay	Decay	Diffusion	
Spring	Mix	Bypass		Pre Delay	Decay	Boing	
Studio Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	Ducker Threshold
Mono Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	Ducker Threshold
Tape Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	Smear
Pong Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	Tap Ratio
Modulated Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	Modulation Depth
Reverse Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	Smear
Chorus	Mix	Bypass		Speed	Depth	Voices	
Flanger	Mix	Bypass		Speed	Depth	Regen	
Phaser	Mix	Bypass		Speed	Depth	Regen	
Tremolo / Pan	Mix	Bypass		Speed	Depth	Phase	
Rotary	Mix	Bypass		Speed	Doppler	Stereo Spread	
Vibrato	Mix	Bypass		Speed	Depth	Phase	
Pitch Shift	Mix	Bypass		Shift Amount	Down/Up Shift	High Pass Filter	
Detune	Mix	Bypass		Shift Amount	Shift Amount	Stereo Spread	
De Esser	Mix	Bypass		Ratio	Frequency	Bandwidth	

Effect 1/2	26/29	27/30	28/31	12/19	28
	Assign A	Assign B	Assign C	Effect Type	Routing

MIDI CC MAP - *ROUTING 5 DUAL STEREO EFFECTS, STEREO EFFECTS*

Effect 1/2	27/54	13/40	26/53	MIDI CC # 14/41	15/42	16/43	17/44
Hall Reverbs	Mix	Bypass		Pre Delay	Mid RT	Size	Shape
Plate Reverbs	Mix	Bypass		Pre Delay	Mid RT	Size	Shape
Chamber Reverb	Mix	Bypass		Pre Delay	Mid RT	Size	Shape
Room Reverb	Mix	Bypass		Pre Delay	Mid RT	Diffusion	Shape
Ambience Reverb	Mix	Bypass		Pre Delay	Size	Diffusion	Shape
Gated / Reverse Reverb	Mix	Bypass		Pre Delay	Decay	Diffusion	
Spring Reverb	Mix	Bypass		Pre Delay	Decay	Boing	
Stereo Studio Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	High Pass Filter
Mono Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	High Pass Filter
Pong Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	High Pass Filter
2-Tap Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	Delay Type
Modulated Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	High Pass Filter
Tape / Reverse Delay	Mix	Bypass	Tempo	Tempo	Delay Time	Feedback	Pan
Chorus	Mix	Bypass		Speed	Depth	Voices	Pre Delay
Flanger	Mix	Bypass		Speed	Depth	Regen	Waveform
Phaser	Mix	Bypass		Speed	Depth	Regen	Waveform
Tremolo/Panner	Mix	Bypass		Speed	Depth	Phase	Waveform
Rotary	Mix	Bypass		Speed	Stereo Spread	Drive	Rotor Minimum
Vibrato	Mix	Bypass		Speed	Depth	Phase	Waveform
Pitch Shift / Detune	Mix	Bypass		Shift 1	Delay 1	Feedback 1	Shift 2
DeEsser	Mix	Bypass		Ratio	Frequency	Bandwidth	
Compressor	Mix	Bypass		Ratio	Threshold	Gain	Attack

Effect 1/2	29/55	30/56	31/57	12/39	28
	Assign A	Assign B	Assign C	Effect Type	Routing

MIDI CC MAP- *ROUTING 5 DUAL STEREO EFFECTS, STEREO EFFECTS*

Effect 1/2	18/45	19/46	20/47	21/48	22/49	23/50	24/51	25/52
Hall Reverbs	Spread	RT High Cut	High Cut	Bass Boost Freq	Bass Boost	Diffusion	ER Time	ER Level
Plate Reverbs	Spread	RT High Cut	High Cut	Bass Boost Freq	Bass Boost	Diffusion	Feedback Delay	Feedback Level
Chamber Reverb	Spread	RT High Cut	High Cut	Bass Boost Freq	Bass Boost	Diffusion	ER Time	ER Level
Room Reverb	Spread	RT High Cut	High Cut	ER Time	ER Level			
Ambience Reverb	Spread	RT High Cut	High Cut					
Gated / Reverse Reverb								
Spring Reverb								
Stereo Studio Delay	Low Pass Filter	Ducker Level	Ducker Thresh					
Mono Delay	Low Pass Filter	Ducker Level	Ducker Thresh	Pan				
Pong Delay	Low Pass Filter	Ducker Level	Ducker Thresh	Tap Ratio	Tap Swap			
2-Tap Delay	Tap 1	Level 1	Pan 1	Tap 2	Level 2	Pan 2		
Modulated Delay	Low Pass Filter	Mod Depth						
Tape / Reverse Delay	Smear							
Chorus	Waveform	Diffusion	High Pass Filter					
Flanger	PreDelay	Phase						
Phaser	Phase Stages							
Tremolo/Panner								
Rotary	Rotor Maximum	Horn Minimum	Horn Maximum	Doppler				
Vibrato								
Pitch Shift / Detune	Delay 2	Feedback 2	Pan 1	Pan 2				
DeEsser								
Compressor	Release	Knee						

MIDI CC MAP - *SURROUND HALL EFFECTS*

Effect 1	MIDI CC #						
	13	26	27	28	14	15	16
Surround Hall	Bypass	Mix Front	Mix Rear	Routing	Pre Delay	Mid RT	Size

	MIDI CC #						
18	19	20	21	22	23	24	25
Spread	RT High Cut	High Cut	Bass Boost Freq	Bass Boost	Diffusion	ER Time	ER Level

Effect 2		
29	30	31
Assign A	Assign B	Assign C

PROGRAMS - *DUAL STEREO*

Dual Stereo Programs

Program	Title	Routing	Program	Title	Routing
1	BIG POP VOCAL	Cascade	51	POP VOCALS	Dual Stereo (Parallel)
2	RETROVERB	Cascade	52	GATED SNARE	Dual Stereo (Parallel)
3	STUDIO DELAY	Cascade	53	GET SOME	Dual Stereo (Parallel)
4	60'S DELAY	Cascade	54	BIG EASY	Mono Split
5	DE-ESSER / COMPR	Cascade	55	NASHVILLE	Mono Split
6	COMPRESSED VOX	Cascade	56	LA-LA LAND	Mono Split
7	NO "S" VOCALS	Cascade	57	SMOOTH VOCALS	Mono Split
8	CHORAL HALL	Cascade	58	DE-ESSER	Mono Split
9	VOCAL CHORUS	Cascade	59	COMPRESSOR	Mono Split
10	VOICE OF EVIL	Cascade	60	CHORUS + PLATE	Mono Split
11	DOUBLE TRACKS	Cascade	61	SHIFT ROOM	Mono Split
12	TAPE CHOURUS	Cascade	62	VOCAL PLATE/HALL	Mono Split
13	SLAPBACK	Cascade	63	VOCAL + INST 1	Mono Split
14	BIG VOCAL VERB	Cascade	64	VOCAL + INST 2	Mono Split
15	ECHOVERB	Cascade	65	VOCAL + INST 3	Mono Split
16	TAP CHAMBER	Cascade	66	ALIVE & KICKING	Mono Split
17	SPACED OUT	Cascade	67	GET SMALL	Mono Split
18	TAPS	Cascade	68	ACOUSTIC BLISS	Mono Split
19	QUICKIE	Cascade	69	ROCK LEAD	Mono Split
20	TUNED ROOM	Cascade	70	MORE & MORE	Mono Split
21	BIGGER BAND	Cascade	71	DUALING GUITARS	Mono Split
22	EXTRA ROOMY	Cascade	72	SIDE BY SIDE	Mono Split
23	PONG VERB	Cascade	73	TRIED & TRUE	Mono Split
24	MOD-U-VERB	Cascade	74	ROTARY	Mono Split
25	HIT ME	Cascade	75	WOBBLERS	Mono Split
26	PRECISION DELAY	Cascade	76	RHODES PANNER	Mono Split
27	PHASED PLATE	Cascade	77	AMBIENT CHAMBER	Mono Split
28	ROTO-VERB	Cascade	78	GIANT SNARE	Mono Split
29	JET FLANGE	Cascade	79	TOM-TOM	Mono Split
30	PHASER TASER	Cascade	80	SNARE + TOMS	Mono Split
31	AND THEN SOME	Cascade	81	SQUISHED KICK	Mono Split
32	GUITAR WORLD	Cascade	82	DRUM PLATE/HALL	Mono Split
33	HAM 'N EGGS	Cascade	83	BIG TIME	Mono Split
34	ACOUSTIC CHAMBER	Cascade	84	BACK AT YA	Mono Split
35	SPRINGTIME	Cascade	85	DELAY WARS	Mono Split
36	TEMPO GATE	Cascade	86	VIBRATO	Mono Split
37	DRUM ECHO	Cascade	87	SPRING STUDIO	Mono Split
38	SNARE DELAY	Cascade	88	TWO ROOMS	Dual Mono
39	DRUM DELAY	Cascade	89	DELAY + VERB	Dual Mono
40	FLANGE DRUMS	Cascade	90	LIKE THAT!	Dual Mono
41	SMOOTH DRM PLATE	Cascade	91	CORE US	Dual Mono
42	RICH DRUM HALL	Cascade	92	MUY GRANDE	Dual Mono
43	WAYBACK MACHINE	Cascade	93	PLATE + HALL	Dual Mono
44	MODULATED DELAY	Cascade	94	BREWED AWAKENING	Dual Mono
45	REWIND	Cascade	95	DUAL HALLS	Dual Mono
46	PHASE GATE	Cascade	96	VIBROLUX	Dual Mono
47	SPIN CYCLE	Cascade	97	PHAME	Dual Mono
48	PITCH OUT	Cascade	98	THE LOW DOWN	Dual Mono
49	HUH?	Cascade	99	VIBRA-SLAP	Dual Mono
50	ROLE REVERSAL	Cascade			

PROGRAMS - *STEREO*

Stereo Programs

Program	Title	Routing	Program	Title	Routing
1	ORCHESTRAL	Stereo	51	VIBRO DELAY	Cascade
2	SMALL BUT LARGE	Stereo	52	SPANKY GUITAR	Cascade
3	GOTHICAL	Stereo	53	GUITAR HALL	Cascade
4	CONCERTVERB	Stereo	54	PING PONG PLATE	Cascade
5	VOCALITY	Stereo	55	MOVING DELAY	Cascade
6	VOCALIZED	Stereo	56	VIBRO PHASER	Cascade
7	FANTASTIC	Stereo	57	50'S SLAPBACK	Cascade
8	WIDE LOAD	Stereo	58	AMBIENT TAPE DLY	Cascade
9	REALISM	Stereo	59	BIG WIDE DETUNE	Cascade
10	LIVE HALL	Stereo	60	COOL WIDE DELAY	Dual Stereo
11	BRICK HOUSE	Stereo	61	PLATE + HALL	Mono Split
12	THE SPATIALIST	Stereo	62	DELAY + VERB	Mono Split
13	SIZZLIN	Stereo	63	SNARE + TOMS	Mono Split
14	SMALLIS HALLIS	Stereo	64	CHORUS + DELAY	Mono Split
15	BIG SNARE	Stereo	65	COMP + DE ESS	Dual Mono
16	MALE VOCAL	Stereo	66	PLATE + GATEVRB	Mono Split
17	BIG WIDE VOCAL	Stereo	67	DETUNE + ROOM	Mono Split
18	ACOUSTIC PLATE	Stereo	68	DELAY + DELAY	Dual Mono
19	ACOUSTIC PLATE	Stereo	69	2 PLATES	Mono Split
20	PERCUSSOPLATE	Stereo	70	FLANGE + VOCDLY	Mono Split
21	SNARE PLATE	Stereo	71	VOCAL DELAYVERB	Cascade
22	POPPY SNARE	Stereo	72	DE ESSED VOCAL	Cascade
23	AC CHAMBER	Stereo	73	VOCAL THICKENER	Stereo
24	AC ROOM	Stereo	74	AMBIENT VOICE	Stereo
25	AC AMBIENCE	Stereo	75	SOFT VOX DELAY	Stereo
26	BIG CHAMBER	Stereo	76	ECHO VOCAL VERB	Cascade
27	SMALL CHAMBER	Stereo	77	POLTERGEIST	Stereo
28	DRY CHAMBER	Stereo	78	NETHER WORLD	Cascade
29	SMALL ROOM	Stereo	79	SMALL VOX HALL	Stereo
30	METALLIC	Stereo	80	PERFECT PLATE	Stereo
31	IN REVERSE	Stereo	81	SEXY SAX SOLO	Cascade
32	60S GUITARVERB	Stereo	82	BRASS HITS	Stereo
33	AMBIVERB	Stereo	83	HORN ENSEMBLE	Stereo
34	KICK THUNDER	Stereo	84	TRUMPET HALL	Stereo
35	SOLO PLATE	Stereo	85	SWIRLING REEDS	Cascade
36	CHOIR PLATE	Stereo	86	SIZZLE DRUMS	Stereo
37	SLAPPY SNARE	Stereo	87	WARM DRUM ROOM	Stereo
38	VERY SMALL HALL	Stereo	88	PERUSSN RHTHM	Cascade
39	LONG GATEVERB	Stereo	89	DRUM ARENA	Stereo
40	OMENLIKE VOCAL	Stereo	90	BALLAD SNARE	Cascade
41	CHORUS PLATE	Dual Stereo	91	ARPEGGIO MAGIC	Cascade
42	SUPER CHORUS	Dual Stereo	92	SHWIMMIN POOL	Cascade
43	JET FLANGER	Cascade	93	FINAL FRONTIER	Cascade
44	SLOW PHASE	Cascade	94	WATER TANK	Stereo
45	TREM-DELAY	Cascade	95	FLANGETASTIC	Dual Stereo
46	REVERAND ROTARY	Dual Stereo	96	INNER SPACE	Cascade
47	DUALING PITCH	Dual Stereo	97	ECHO CAVERN	Cascade
48	RETRO DELAYVERB	Cascade	98	WHIRLING DERVISH	Cascade
49	PUNCHY DRUMS	Dual Stereo	99	IN REVERSE	Stereo
50	HEAVENLY DELAY	Cascade			

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PROGRAMS - *SURROUND*

Surround Programs		
Program	Title	Routing
1	SURROUND HALL	Stereo/Surround
2	SMALLISH SPACE	Stereo/Surround
3	CAVERN	Stereo/Surround
4	CONCERT HALL	Stereo/Surround
5	BIG AMBIENCE	Stereo/Surround
6	DEEP SPACE	Stereo/Surround
7	BRIGHT HALL	Stereo/Surround
8	PLATE LIKE	Stereo/Surround
9	REFLECT ROOM	Stereo/Surround
10	WARM HALL	Stereo/Surround
11	GYMNASIUM	Stereo/Surround
12	CLASSICAL	Stereo/Surround
13	TUNNEL VISION	Stereo/Surround
14	SURROUND CLUB	Surround/Surround
15	CLOSED IN	Surround/Surround
16	VOCAL 3D	Surround/Surround
17	TILED ROOM	Surround/Surround
18	MASSIVE DRUMS	Surround/Surround
19	CATHEDRAL	Surround/Surround
20	ARENA	Surround/Surround
21	WAIT FOR IT	Surround/Surround
22	COOL BRASS	Surround/Surround
23	PARKING GARAGE	Surround/Surround
24	HANGER 51	Surround/Surround
25	WIDE STUDIO	Surround/Surround

SPECIFICATIONS

Analog Audio Inputs

Connectors	four ¼" TRS balanced or unbalanced
Impedance	50k Ohms bal., 25k Ohms unbal.
Input Level	+4 dBu nominal, +24 dBu maximum
A/D Conversion	24-bit, 48kHz or 44.1kHz, 128 x oversampling

Analog Audio Outputs

Connectors	four ¼" TRS balanced or unbalanced
Impedance	2k Ohms bal., 1k Ohms unbal.
Output Level	+4 dBu or −10 dBV nominal (software adjustable), 24 dBu maximum
D/A Conversion	24-bit, 48kHz or 44.1kHz, 128 x oversampling

Analog Audio Performance (Effects Bypassed)

Frequency Response	10 Hz − 20kHz +0 dB/−0.5 dB
THD+N	<0.0019% 10Hz − 20kHz
Dynamic Range	>109 dB (A-weighted) A/A
Crosstalk	typical <−80 dB 20Hz − 20kHz

Digital Input and Output

Connectors	Dual RCA phono (S/PDIF); XLR balanced (MX400XL version)
Format	S/PDIF 24-bit
Sample Rate	44.1 or 48kHz
Processing Delay	3.7 ms @ 48 kHz
Frequency Response	10Hz to 22kHz ±0.5 dB @ 48kHz

Control Interface

USB	USB 1.0 for MX-EDIT™ Editor/Librarian and VST™/Audio Units plug-ins
MIDI	In/Out 5-pin DIN
Foot Pedal	¼" TRS phone jack

General

Power	117 VAC or 230 VAC, 18 Watts
Size (W/H/D)	19" x 1.75" x 7.25"*/6.375" (483 x 44 x /185mm*/162 mm)
Weight	5.8 lbs (2.6 kg)

* Including knobs.

Lexicon®

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