by GENERALMUSIC

FX 24 40-bit DUAL STEREO DIGITAL EFFECT PROCESSOR

OWNER'S MANUAL English

CODE: 277.348

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Warnings and Installation

✔ ***Connection to the mains supply***

The unit is supplied with an internal power supply. Before switching on the unit, make certain that the mains voltage matches that shown on the rear (a tolerance of up to ±10% is acceptable).

✔ ***Switching on and off***

CAUTION: before switching on or off, make certain the sound system's amplifiers are off: this will avoid signal peaks, which are annoying and sometimes dangerous (particularly for speaker enclosures).

✔ ***Connecting and preventing or identifying interference***

First of all, check that the apparatus is installed in a place free from industrial or RF (radio frequency) interference. Avoid installing your equipment very near radio or TV sets, mobile phones, etc., as these can cause noisy interference.
When connecting the other parts of your sound system, watch out for the so-called "ground loops", which could cause hum and jeopardize the products's excellent Sound-to-Noise and low distortion characteristics. The best way (even if not always feasible) to avoid ground loops is to connect the electric ground of all the equipment to a single central point ("star" system). In this case, the central point can be the mixer.

✔ ***Protection and maintenance***

Don't force knobs, switches or faders: these are designed and manufactured to respond to light pressure and could be damaged if used with excessive force.
Take care of your connector cables, a very frequent cause of small/big problems. Always grip them by the connector, avoid pulling them forcefully and wind them without forming knots or sharp bends: they'll last longer this way, and be more reliable, which is a definite advantage.
Avoid exposing the product to strong direct sunlight, high temperatures or intense vibrations, in very dusty or particularly damp surroundings or, even worse, in the rain: this will help to avoid the risk of faulty operation, deterioration or even electric shocks and fires.
The product is built in shock-resistant material. Nevertheless, protect it during transport with a flight-case to avoid the risk of any casual accidents.
When you've finished using the apparatus, it's always advisable to protect it from dust, but any dust that does form should be removed using a cloth or a soft brush. Never use alcohol, acetone or any solvents.
The effect does not require any other maintenance.

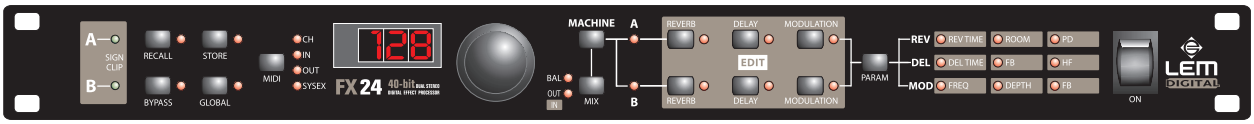
✔ ***In the event of breakdown***

All user-adjustable parts are external and easily accessed.
In the event of a breakdown, do not open the apparatus, but contact the nearest ***Generalmusic/Lem Service Centre****.*

✔ ***Keeping the documentation***

Keep this user's manual for future consultation. Also remember that the effect will get a better price on the secondhand market if (as well as being in good condition) it has its original documentation and packaging.

Introduction



*Congratulations for having chosen **FX 24**!*

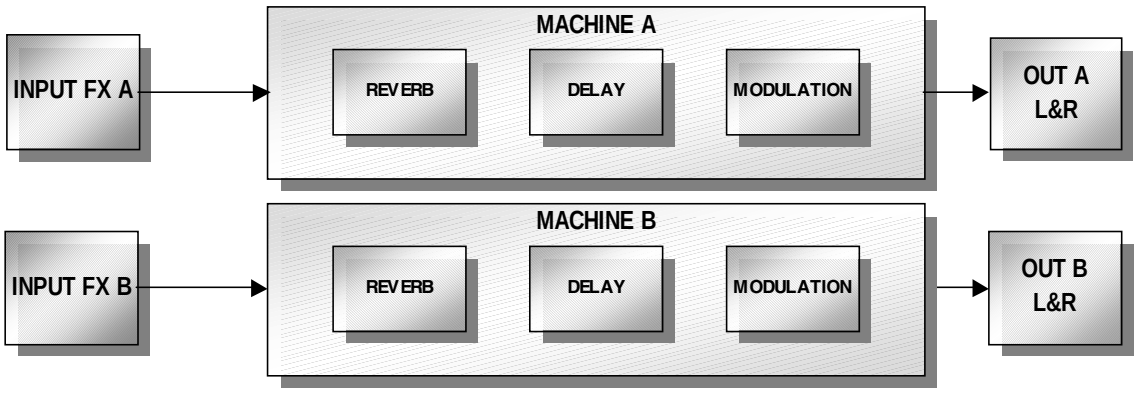
LEM **FX 24** is a high-quality, extremely user-friendly multi-effect unit which includes **TWO SEPARATE STEREO EFFECT** (with separate inputs and outputs).

FX 24 has been designed by LEM around the powerful **RED 208** DSP, the same as is used on the FALCON digital mixer. The **40-bit processing** together with the use of **20 and 24-bit converters** ensures the maximum audio quality and allows to obtain very rich and accurate effects.

FX 24 includes an extremely vast choice of programs and combinations of effects designed to be used with the most different signals and an editing capability which is unique in its range. Each of the two A & B sections includes **two identical BANKS (FACTORY and USER) made of 128 PRESETS each**. In each bank **single** (reverbs, delays or modulations), **double** (reverb + delay, reverb + chorus) and **triple** PRESETS are available. For each effect included in the various PRESETS **3 DIFFERENT PARAMETERS** can be edited, allowing you to design precisely the kind of effect most suited to your requirements. The new PRESETS can be stored into one of the 128 memories available in each section.

Controlling and programming the **FX 24** is very easy. All operations are carried using buttons that are immediately accessible on the front panel. Each button has a corresponding LED that lights up to show users which operation is being carried out at that particular moment. Parameters can be easily modified using a Dial and a 3-digit display. Finding and programming the right effect for each situation takes just a few seconds.

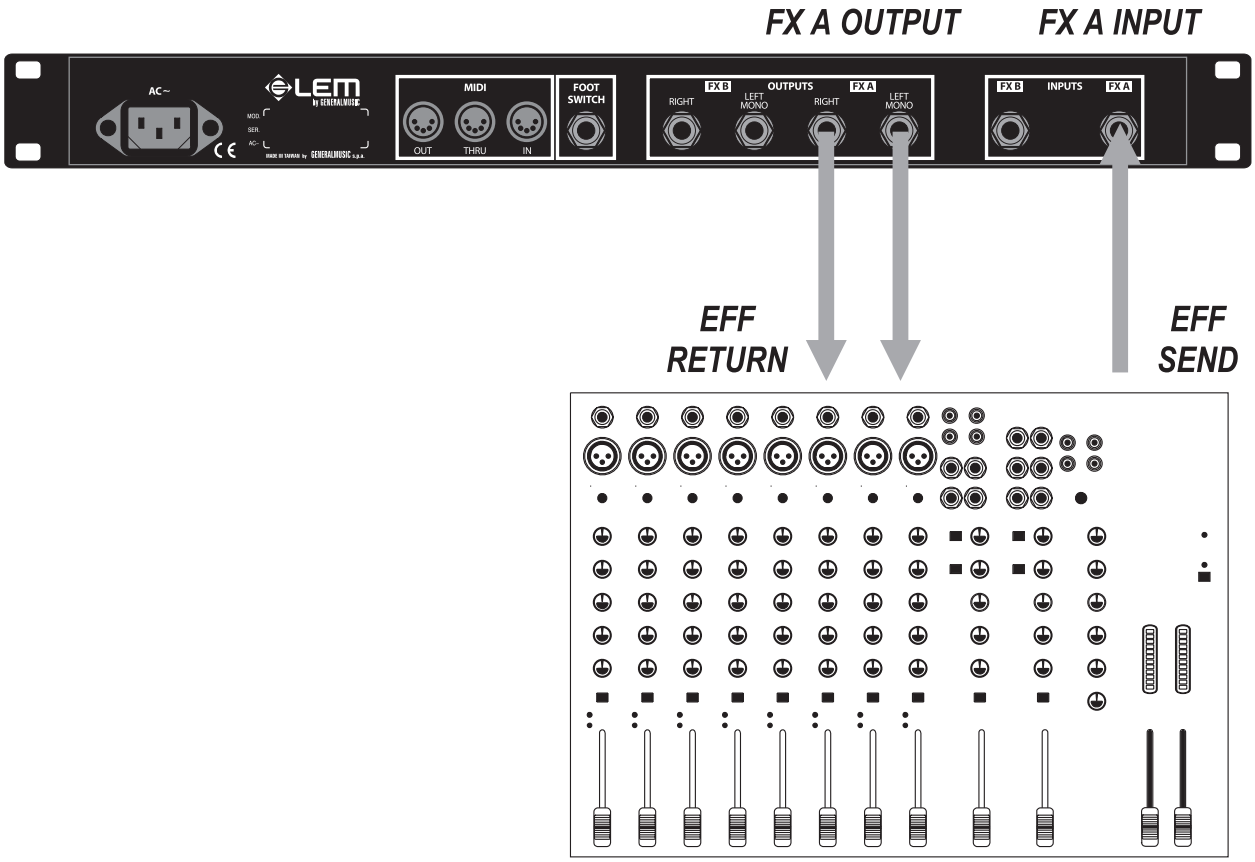
FX 24 is fitted with an internal power supply and is contained in standard 19" chassis (1 rack unit).



Getting Started

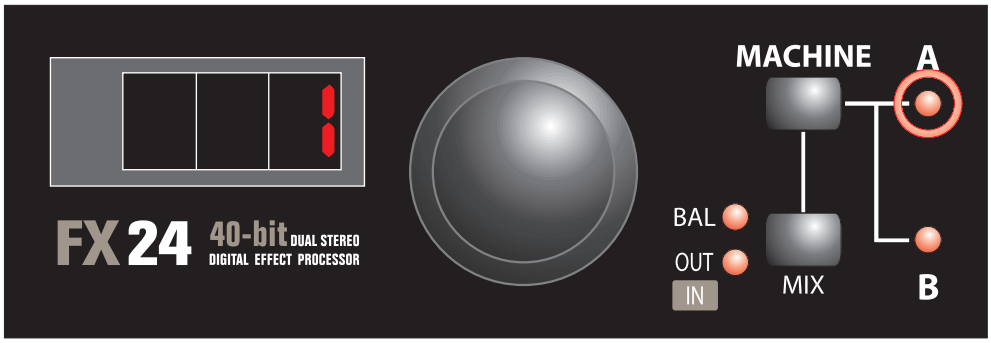
To start familiarizing with the **FX 24**'s effects and PRESETS**,** it's advisable to firstly connect and use just one of the multieffect's two sections. The best way to try out the unit is to use a mixer, connecting the **FX 24** to an effects send and return.

Connection to the mixer



1 - Connect the FX A input to an effects send on the mixer.
2 - Connect the FX A stereo output to an effects return or two channels (or a stereo channel) on mixer.
3 - Connect the power cord to a mains socket and switch the unit on.
4 - Press the BAL - OUT button and set both values at 100.
5 - Connect an instrument or microphone to the mixer and open the effects send and return.

Listening to PRESETS

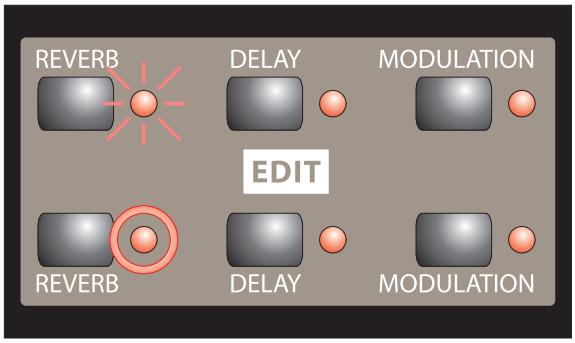


1 - Pressing the **MACHINE** button, select section A (the LED A must be illuminated).
2 - Turn the dial to select an effect number.
3 - Press the **RECALL** button to load it into the memory. The PRESET is now enabled.
4 - Repeat steps 2 and 3 to listen to other PRESETS.

The complete list of the FX 24's PRESETS is printed on the unit's cover. In addition, along with this manual you'll find a useful sticker which can be used as a quick reminder and which can be applied, for example, on a free 1-unit panel in your effect rack.

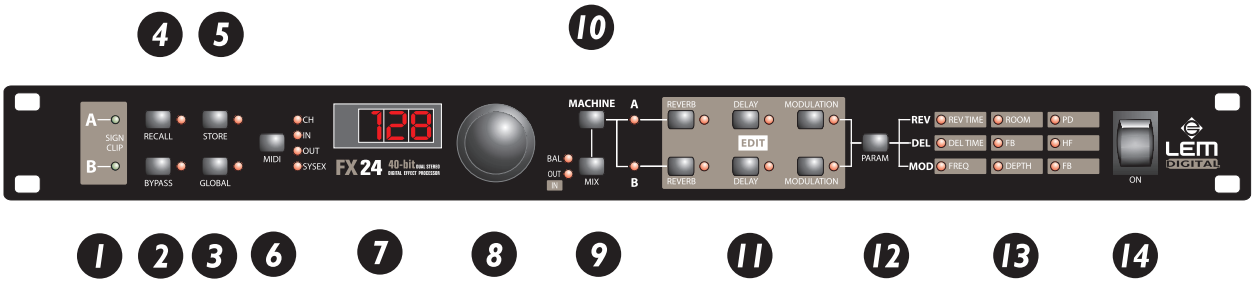


Modifying PRESETS



1 - Select a PRESET. For example number 1 "Large Bright Hall".
2 - In the **EDIT** section of the front panel, press the **REVERB** button (the LED is lit).
3 - In the LED parameter matrix, the REV TIME LED lights up and the display shows the relative value (2.4).
4 - By turning the Dial, change the reverb time and listen to the result.

Front Panel



All the **FX 24**'s functions are accessible by means of the buttons on the front panel. The value of the selected function can be modified using the dial.
Each function key has a **red LED** that lights up when the key is pressed and visually indicates which command has been enabled or which parameter is being modified with the editing knob.

1 A B SIGN CLIP

LED indicating there is an input and any signal distortion.
When the level is within the dynamic limits which the unit can accept, the LEDs remain green. If they change to red, this means the input signal is too high and must be lowered. Momentary signal peaks, with the red LED lighting up briefly, are normally acceptable.

2 BYPASS

BYPASS function for the disabling of the processor.
Pressing the BYPASS button the effected signal (WET) is removed from the outputs. Therefore, if the BALANCE control is in the 100% WET position, no signal will be present on the effect outputs. If, the BALANCE control is in a middle position, on the outputs only the DRY signal will be present.

3 GLOBAL

Key enabling the Global PRESET section.

4 RECALL

RECALL button for the PRESETS and GLOBAL PRESETS enabling.
The PRESETS are selected by means of the dial. When the necessary PRESET number is reached, by pressing the RECALL button it's loaded into the memory and immediately enabled.

5 STORE

STORE button: allow to store the PRESETS and GLOBAL PRESETS in the unit's USER memory locations. Once a PRESET has been modified, when the STORE key is pressed the corresponding LED flashes and by pressing the key again it's possible to store it in the same memory position or in another by turning the dial.

6 MIDI

MIDI function selection.

CH	(off - 1/16)	Sets the MIDI channel of the unit.
IN	(off - on - ALL)	Enables the MIDI input.
OUT	(off - on)	Enables the MIDI output.
SYSEX	(off - on)	Enables the system exclusive parameters.

7 DISPLAY

3-digit 7-segment display: indicates the values relative to the functions of the **FX 24** and the PRESET numbers.

8 DIAL

Rotary knob for selecting PRESETS and editing parameters.

9 MIX (OUT - BAL - IN)

Button for the level adjustment.
The OUT function controls the general output level.
The BAL function controls the balance between original signal and processed signal.
The IN function controls the input gain.

10 MACHINE A / B

Key for selecting section A or B of the effect.
The LED corresponding to the enabled section lights up.

11 EDIT

Keys for enabling the EDIT function.
The illuminated LEDs indicate which types of effect (Reverb, Delay, Modulation) there are in the selected PRESET. Pressing the key corresponding to each effect gives access to the EDIT function.

12 PARAM

Key for selecting editing parameters.
In the EDIT function, by pressing the key repeatedly, it's possible to scroll through the LED parameter matrix and select the parameter to be edited.

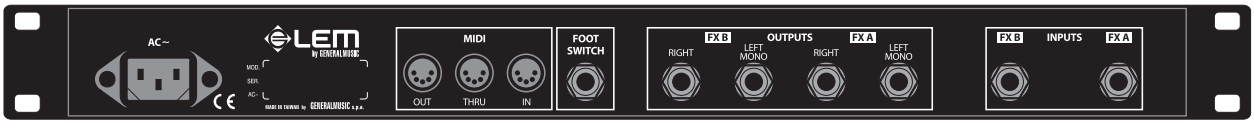
13 REV - DEL - MOD

LED matrix with the nine parameters (three for each effect) which can be edited by users.
In EDIT mode, the LED corresponding to the editable parameter is illuminated and its value appears on the display.

14 ON

On/Off switch.

Rear Panel



1 2 3 4 5

1 AC

Connector for the power cord.

2 MIDI OUT / THRU / IN

MIDI connectors:

OUT	Output
THRU	For daisy-chaining, input data are fed out
IN	Input

3 FOOTSWITCH

Connector for a footswitch to enable the BYPASS function.
Using the pedal allows to switch the multieffect on and off while you're playing and your hands are occupied.

4 OUTPUTS (RIGHT - LEFT/MONO)

Unbalanced output Jack connectors.
Each of the two sections (FX A and FX B) has its own independent stereo output (LEFT / RIGHT).
When connecting the output of the effect to a mono input, use the LEFT output.

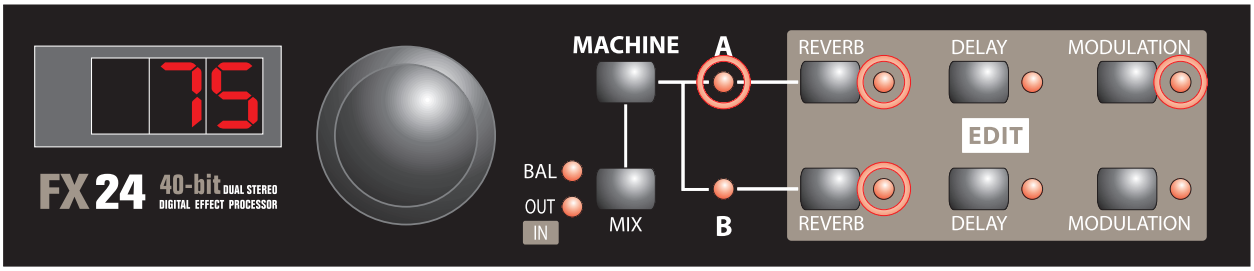
5 INPUTS

Unbalanced input Jack connectors for the two sections (FX A and FX B).

General Controls

Machine A / B

By pressing the MACHINE button repeatedly, it's possible to pass from one **FX 24** section to the other in order to load new PRESETS into the memory or carry out editing procedure.

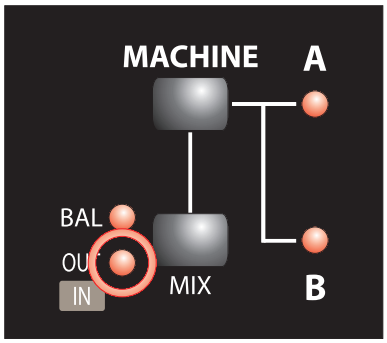


When one of the two **FX 24** "Machines" is selected:

- The corresponding LED (A or B) lights up.
- The display shows the number of the PRESET currently enabled in the memory.
- The EDIT section LEDs light up to show the contents (Reverb-Delay-Modulation) of the PRESET.

Mix (Out - Bal - In)

The **MIX** button gives access to the output and input signal control functions.
By pressing this button repeatedly, it's possible to pass from the **OUT** function to the **BAL** function. Holding it down for a few seconds gives access to the **IN** function **(the OUT/IN LED flashes)**.



The FX A and FX B sections have separate independent OUT, BAL and IN values. When the MIX functions are enabled, the parameters displayed and modified are those of the section which at that moment is selected and indicated by the MACHINE A / B LED.

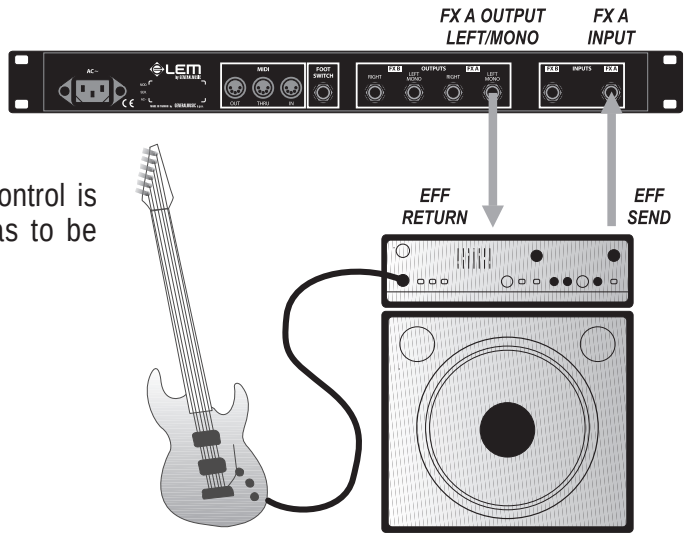
OUT (Range 0 / 100)
Controls the main output volume.
1 - Press the MIX button until the OUT LED lights up.
2 - The display shows the set value that can be modified with the DIAL.

BAL (Range 0 / 100)
Controls the balance between the original and processed signals.
1 - Press the MIX button until the BAL LED lights up.
2 - The display shows the set value that can be modified with the DIAL.
When set at 0, the output signal is completely unprocessed (DRY). When set at 100 on the other hand, the signal is produced entirely by the effect (WET).

The use of this control depends on how the multieffect unit has been connected.

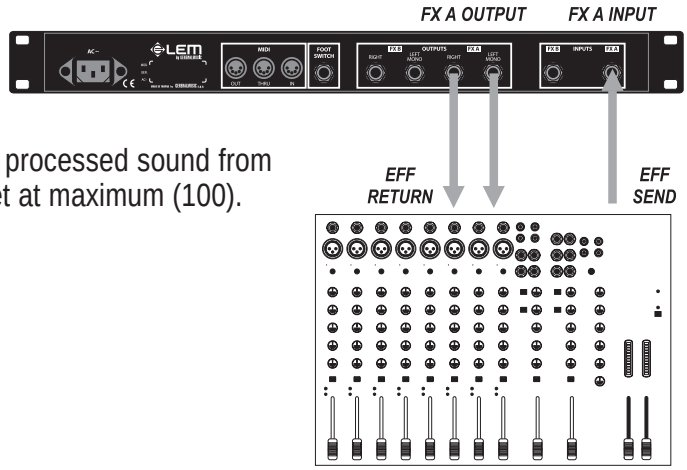
INSERT CONNECTION

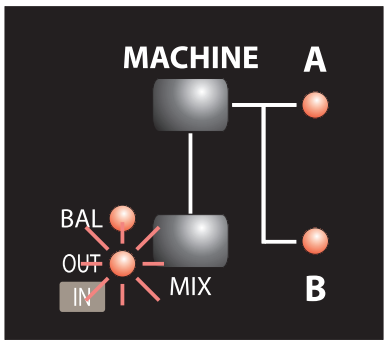
If the **FX 24** is connected between an instrument and its amplifiers the BAL control must be set in such a way as to obtain the required balance between original and processed sound. With this setup, the BAL control is used to control the amount of effect that has to be applied to the sound.



SEND/RETURN CONNECTION

If on the other hand, the **FX 24** is connected to a mixer, the balance between original and processed sound is controlled by the mixer's effects return. With this setup, you only require processed sound from the unit's output, so the BAL control must be set at maximum (100).



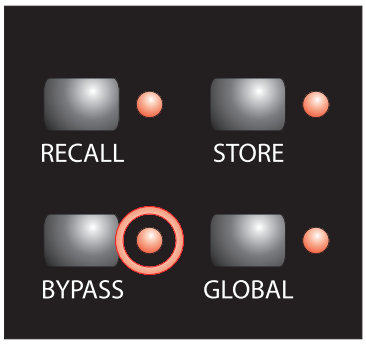


IN (Range -6 / +6)

The IN function controls the gain of the **FX 24**'s input.
To access the IN function:

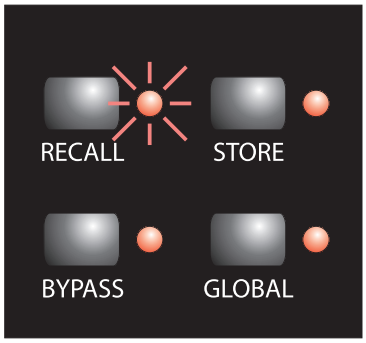
1 - Keep the MIX button pressed down for a few seconds.
2 - The OUT LED flashes and the display shows the Gain value currently stored.
3 - Set the required value with the DIAL.
4 - To exit, press the MIX key again.

Use the two SIGN CLIP LEDs to monitor input Gain level.
When they change from green to red, this shows that the signal has reached an excessively high value and the input signal is distorted. Rapid intermittent red LED flashes are however acceptable.



BYPASS

The BYPASS function completely excludes the processed signal from the outputs.
The functioning of this button depends on the position of the BALANCE control.
- If the BALANCE control is in the 100% WET position, no signal will be sent to the outputs.
- If the BALANCE control is in any position between 0 and 99%, only the DRY signal will be sent to the outputs.



Recall

The RECALL function loads the PRESET or Global PRESET selected with the DIAL into the memory.
To recall a PRESET:

1 - Press the RECALL button: the LED flashes.
2 - Select a new PRESET by turning the DIAL: the display flashes indicating that the PRESET displayed is not the one currently enabled and stored.
3 - Press the RECALL button again: the PRESET is loaded into the memory and the display stops flashing, showing that the preset shown is the one currently enabled.

Store

The STORE function stores the PRESET or GLOBAL PRESET modified by the user. 128 User PRESET locations (129 / 256) and 64 User GLOBAL locations (65 / 128) are available for storing custom PRESETS. PRESETS can obviously be saved in a memory other than the source memory.

FX 24 - USER PRESET

Preset			
129	…	256	***User Preset***
65	…	128	***User Global***

To store a PRESET:

1 - Press the STORE button.
2 - If necessary, select a new memory by turning the DIAL.
3 - Press the STORE button again.

PRESET

FX 24 contains 128 *FACTORY* PRESETS, programmed by the manufacturer and unable to be permanently modified by users, and 128 *USER* PRESETS, in which users' custom PRESETS can be stored.
The 128 FACTORY PRESETS include all the possible combinations of the three algorithms contained in the multieffect. The first 64 PRESETS are dedicated to single Reverb, Delay Modulation and Pitch Shift effects, whereas PRESETS 65 to 128 contain multieffect combinations. Here is a summary table:

FX 24 - FACTORY PRESETS

Preset	EFF 1	EFF 2	EFF3
1 … 37	***Reverb***		
38 … 43	***Delay***		
44 … 61	***Modulation***		
62 … 64	***Pitch Shift***		
65 … 73	***Reverb***	***Delay***	
74 … 88	***Reverb***		***Modulation***
89 … 128	***Reverb***	***Delay***	***Modulation***

For a complete list of Factory PRESETS, refer to the tables at the end of this handbook, where you can also find all the details of the parameters programmed for each PRESET.

Selecting a PRESET

To load a PRESET into the memory and make it operative, proceed as follows:

1 - Press the MACHINE button and select section A or B of the effect unit. According to the section chosen, LED A or B lights up and the display shows the number of the PRESET currently in the memory.
2 - Turn the DIAL to the required PRESET number.
The RECALL LED flashes.
The display flashes to show that the PRESET numbers through which you are scrolling aren't those currently in the memory. In fact, if you return to the source PRESET, the display stops flashing.
3 - Once the required PRESET has been reached, press the RECALL key. The RECALL LED goes off and the display stops flashing, showing that the PRESET indicated is currently loaded in the memory and enabled.

If the MACHINE key is pressed during RECALL procedure, this operation stops and the PRESET in the memory is shown on the display again.
It's possible to select a PRESETS also pressing the RECALL button from any other position: the RECALL LED start flashing and the DIAL can be used to select the new PRESET. The RECALL button can be used also to RESTORE the current PRESET to his original condition, undoing all the modifications.

GLOBAL PRESET

The GLOBAL function enables to recall the unit's global preset with just one operation. In fact, the combination of the two effects contained in the two MACHINE A and B sections are stored in the GLOBAL PRESET.
128 GLOBAL PRESETS are available (64 FACTORY and 64 USER).

FX 24 - GLOBAL PRESET			
Preset			
1	…	64	***Factory***
65	…	128	***User***

The FACTORY GLOBAL PRESETS (1 / 64) are set by the manufacturer and can't be edited. In the 64 USER PRESETS (65 / 128), on the other hand, you can store your favourite combinations.

NOTE: the OUT, BAL and IN functions' settings are not contained in the GLOBAL PRESETS.

Selecting a GLOBAL PRESET

To recall a stored GLOBAL PRESET:

1 - Press the GLOBAL button. The display shows the number of the GLOBAL PRESET currently enabled.
2 - Use the DIAL to select the GLOBAL PRESET required.
3 - Press the RECALL button. The GLOBAL PRESET is loaded into the memory and enabled.

Modifying and Storing a User GLOBAL PRESET

To modify a GLOBAL PRESET:

1 - Press the GLOBAL button. The display shows the number of the GLOBAL PRESET currently enabled.
2 - Select the PRESET to edit. Only User GLOBAL PRESETS (from 65 to 128) can be edited.
3 - Press the MACHINE button, select and recall the required effects in the two sections (FX A and FX B).
4 - Press the GLOBAL button again. The flashing dot at the bottom right of the display shows that the GLO BAL PRESET has been edited.
5 - Press the STORE button twice.

Editing

The **FX 24** multieffect offers the possibility of editing the effects contained in the USER PRESETS, adapting them to your personal requirements. Each effect algorithm has three parameters that can be edited by users. The parameters chosen are those most commonly used when programming effects and will allow to easily achieve satisfactory personal results, without having to scroll through numerous menu pages and parameters.

FX 24 - EDITING PARAMETERS

Effect type	Parameter 1		Parameter 2		Parameter 3	
	Name	Range	Name	Range	Name	Range
REVERB Hall/Room	REV TIME	0.6 / 6.0	ROOM SIZE	0 / 57	PRE-DELAY	0 / 300
REVERB Vocal/Plate	REV TIME	0.6 / 6.0	ROOM SIZE	0 / 79	PRE-DELAY	0 / 300
DELAY	DELAY TIME	0 / 1 sec.	FEEDBACK	0 / 100	HIGH FREQ	0 / 20
CHORUS	MOD FREQ	0.1 / 40.0	MOD DEPTH	0 / 100	PAN DEPTH	0 / 100
FLANGER	MOD FREQ	0.1 / 40.0	MOD DEPTH	0 / 100	FEEDBACK	0 / 100
PHASER	MOD FREQ	0.1 / 40.0	MOD DEPTH	0 / 100	FEEDBACK	0 / 100
ROTARY	ATTACK TIME	0.5 / 12.0	SLOW / FAST	SLOW / FAST	CROSS FREQ	0.25 / 4.00
TREMOLO	PAN FREQ	0.1 / 40.0				
PITCH	GLOB PITCH	-12 / 12	FINE PITCH	-50 / 50		

Reverb

REV TIME (Range 0.6 / 6.0)
Reverb time. The time taken by the sound to decay to a minimum level.

ROOM SIZE (Range 0 / 57 Hall, Room e Gate - 0 / 79 Vocal e Plate)
Size of the room. This is the parameter that defines the characteristics of the environment recreated by the effect. Has a range of from 0 to 57 for Hall, Room and Gate Reverbs and from 0 to 79 for Vocal and Plate.

PRE DELAY (Range 0 / 300)
The time that passes from the start of the original signal and the first reflection. Varies according to the dimensions and the characteristics of the room.

Delay

DELAY TIME (Range 0 / 1sec.)
Delay time. Defines the interval of time between repetitions of the signal.

FEEDBACK (Range 0 / 100)
Controls the number of repetitions. 0 corresponds to just one repetition. Increasing the Feedback, the number of repetitions increases and the echo effect gradually becomes longer.

HIGH FREQUENCY (Range 0 / 20)
Controls the attenuation of the high frequencies of the delayed signal. Allows to obtain a more or less bright Delay and to simulate rooms that are more or less absorbent concerning high frequencies.

Chorus - Flanger - Phaser

MODULATION FREQUENCY (Range 0.1 / 40.0)
Chorus, Flanger and Phaser effects are based on the low frequency modulation of a Delay. This parameter controls modulation frequency and allows to obtain effects that are slower or faster according to the time set.

MODULATION DEPTH (Range 0 / 100)
Controls the depth of the modulation. Greater depth gives a more pronounced effect, which is therefore more audible from an acoustic point of view.

PAN DEPTH (Chorus) (Range 0 / 100)
The Chorus is a stereo effect. This parameter sets the effect in the stereo image.

FEEDBACK (Flanger, Phaser) (Range 0 / 100)
According to the Feedback parameter setting, part of the processed signal is returned to the input of the effect unit. In fact, the signal is increasingly processed in a series of “runs”. This contributes to increasing the depth and acoustic complexity of the Flanger and Phaser effects.

Rotary

ATTACK TIME (Range 0.5 / 12.0)
The Rotary effect simulates the typical sound of rotary loudspeakers. This parameter establishes the time taken by the effect to reach programmed rotation speed (Slow or Fast). Simulates the loudspeakers’ acceleration or deceleration when changing from one speed to another.

SLOW / FAST (Range SLOW / FAST)
By means of this parameter, it’s possible to set the loudspeakers’ rotation speed, which can be slow or fast.

CROSSOVER FREQUENCY (Range 0.25 / 4.00)
Rotary loudspeaker amplifiers are normally fitted with two loudspeakers: one for low and the other for high frequencies. This parameter modifies the Crossover cut-off frequency which divides the (bass and treble) audio ranges sent to the respective speakers.

Tremolo

PAN FREQUENCY (Range 0.1 / 40.0)
The Tremolo is a simple amplitude modulation effect. The only parameter available controls the frequency of the pan in the stereo image.

Pitch

GLOBAL PITCH (Range -12 / +12)
This parameter controls pitch shift at intervals of a semitone. The range is one octave up or down.

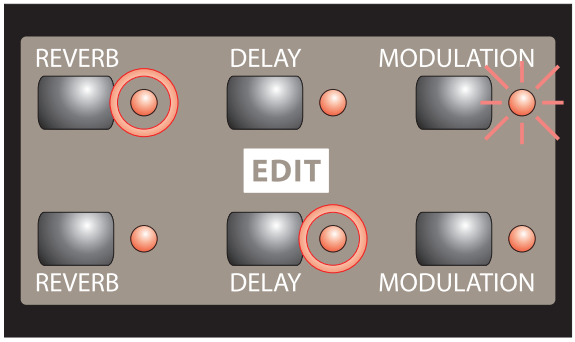
FINE PITCH (Range -50 / +50)
This parameter controls fine pitch shift at intervals of a hundredth of a semitone. The range is half a tone up or down.

Editing a PRESET

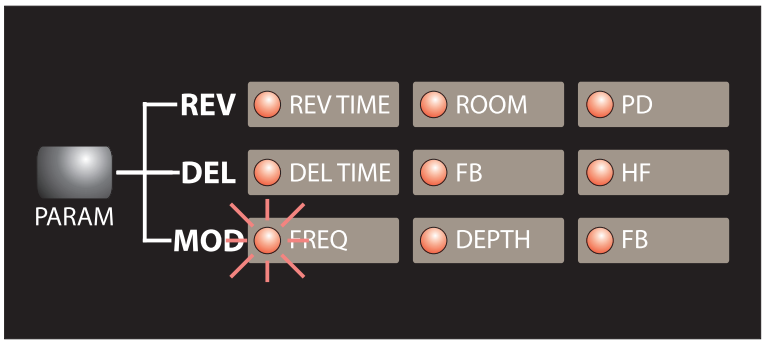
The procedure for editing the **FX 24**'s PRESETS is extremely easy and rapid. Only USER PRESETS (programs 129 to 256) can be edited. When the unit leaves the factory, the USER PRESET memories contain the same effects as the FACTORY memories (programs 1 to 128) and can be used as a starting point for editing and programming experiments. In any case, the original PRESETS remain stored in the FACTORY memories and can be recovered whenever necessary by copying them from the corresponding programs with the RECALL and STORE functions.

When a PRESET is selected with the RECALL function, the LEDs of the EDIT section on the front panel will show the effects that make up the selected PRESET.

IMPORTANT: **the effects combination of each PRESET can't be modified.** In other words, effects can't be added or removed from a selected PRESET. So, before to create a new PRESET, select the PRESET that contains the required effects combination and save it in the desired USER memory, then set the parameters according to your needs.



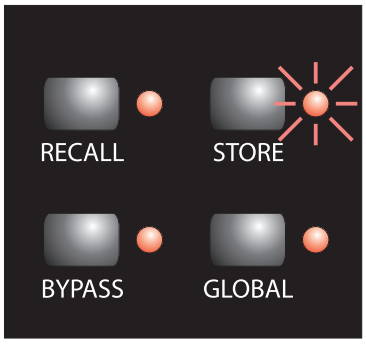
Pressing the key relative to an effect gives access to the corresponding EDIT function. The EDIT LED flashes and the LED furthest to the left in the LED parameter matrix lights up. By repeatedly pressing the PARAM button, it's possible to move between the three parameters whose value appears on the display. With the DIAL, it's possible to change the value of the parameters selected.



To edit an effect:
1 - Select the PRESET to be edited.
2 - In the EDIT window, press the key of the effect to be edited (the LED flashes).
3 - Use the DIAL to modify the value of the parameter.
4 - Using the PARAM key, move to the following parameters and modify them in the same way.
5 - To exit the EDIT function, press the MACHINE button.
6 - The flashing dot on the display shows that the PRESET has been edited.

If on the other hand you wish to store the PRESET immediately, you can also exit the EDIT function by pressing the STORE button directly.

ATTENTION: Modifications carried out on the PRESET are not definitive until you enable the STORE function. If you select a new PRESET without having stored the modification carried out on the PRESET previous, they will be irremediably lost.



Storing an Edited PRESET

The PRESET can only be saved in the User memory locations (129 - 256). The PRESETS can also be stored in a different memory from the source memory.

To store an edited PRESET **in the same memory location**:
1 - Press the STORE button. The STORE LED flashes.
2 - Press the STORE button again.

To Store an edited PRESET **in a different location from the source**:
1 - Press the STORE button. The STORE LED flashes.
2 - Select the User PRESET number with the DIAL. The display flashes, indicating that the memory selected is not the original one.
3 - Press the STORE button again.

The new PRESET has been stored and the new number is shown by the display.

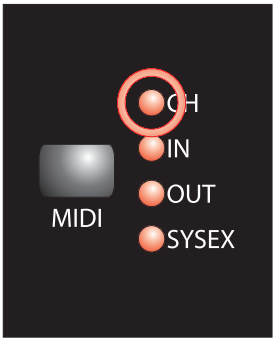
MIDI Functions

FX 24 has a complete MIDI implementation, so can therefore be controlled by a sequencer or other hardware (a pedal board for example) which transmit CONTROL and PROGRAM CHANGE messages.

To use the unit in a MIDI chain, use a MIDI cable to connect MIDI OUT socket of the controller (computer MIDI interface, MIDI pedal board, etc.) to the MIDI IN socket of the **FX 24**. If the unit is fitted in a MIDI chain made up of other equipment (keyboard, expander, etc.), the multieffect can be included as the last unit in the chain, connecting its MIDI IN input to the MIDI THRU socket of the unit preceding it.

MIDI Controls

To access MIDI controls, press the MIDI button on the front panel repeatedly. The MIDI functions' LEDs light up, indicating the control selected and the display shows the corresponding value.



CH (OFF, 1...16)
Sets the multieffect MIDI channel. In the OFF position, the MIDI interface is disabled.

IN (OFF, ON, ALL)
Controls enabling of the MIDI input. In the ALL position, the multieffect unit is controlled by messages sent by any channel.

OUT (OFF, ON)
Enables/disables the MIDI output.

SYSEX (OFF, ON)
Enables/disables reception and transmission of System Exclusive data.

PROGRAM CHANGE

The **FX 24**'s PRESETS can be recalled with PROGRAM CHANGE and CONTROL CHANGE messages. PROGRAM CHANGE messages are used for the GLOBAL PRESETS, whereas the Factory and User PRESETS are recalled by means of CONTROL CHANGE messages.

FX 24 - MIDI PROGRAM

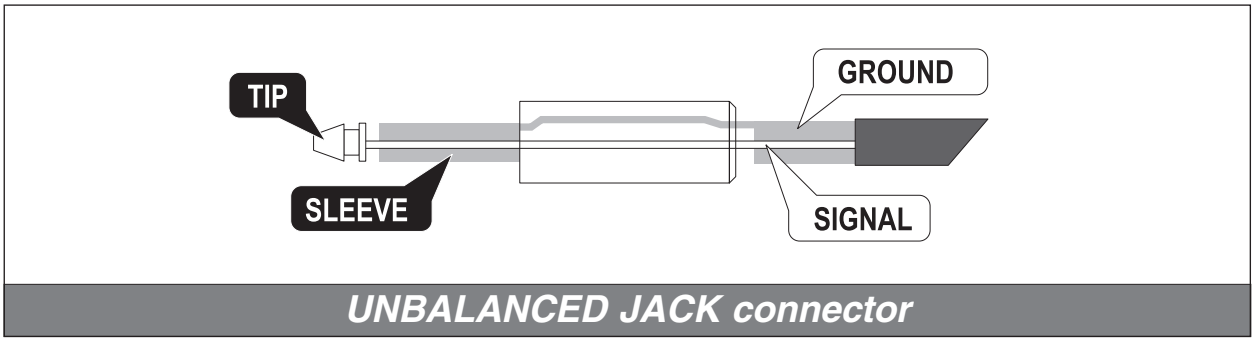
Preset	Number	Message	*Value*
FACTORY GLOBAL PRESET	1 .. 64	*Program Change*	*0 ...63*
USER GLOBAL PRESET	65 .. 128	*Program Change*	*64 ...127*
FACTORY PRESET A	1 .. 128	*Control Change 14*	*0 ... 127*
USER PRESET A	129 .. 256	*Control Change 15*	*0 ... 127*
FACTORY PRESET B	1 .. 128	*Control Change 102*	*0 ... 127*
USER PRESET B	129 .. 256	*Control Change 103*	*0 ... 127*

All the effects' editable parameters can also be controlled by means of CONTROL CHANGE messages. This allows the **FX 24**'s parameters to be modified with an external controller. This type of procedure offers numerous possibilities. For example, you can create your own *Editor* for the multieffect unit, exploiting your desktop sequencer's functions or, again using a sequencer, you can make the variations of a PRESET automatic by changing for example the Delay time or Reverb time during a song.

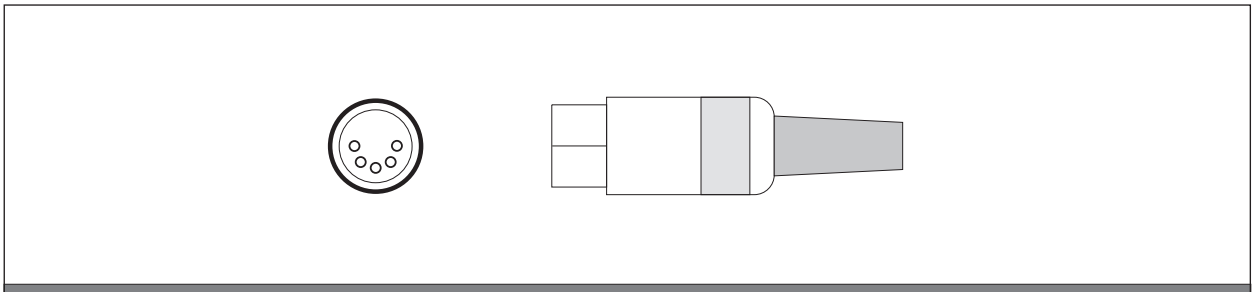
All the parameters relative to the MIDI controls implemented in the **FX 24** can be found in the table at the end of this manual

A series of Editors already programmed for the most common desktop sequencers are however available on the web site: *www.lemaudio.com*.

Connection cables



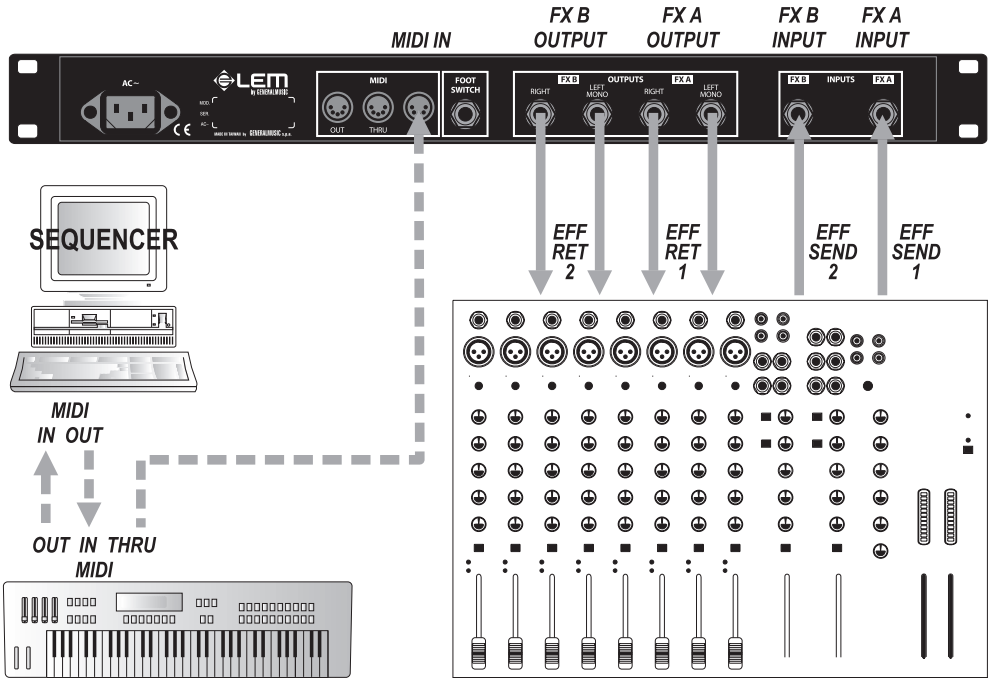
UNBALANCED JACK connector



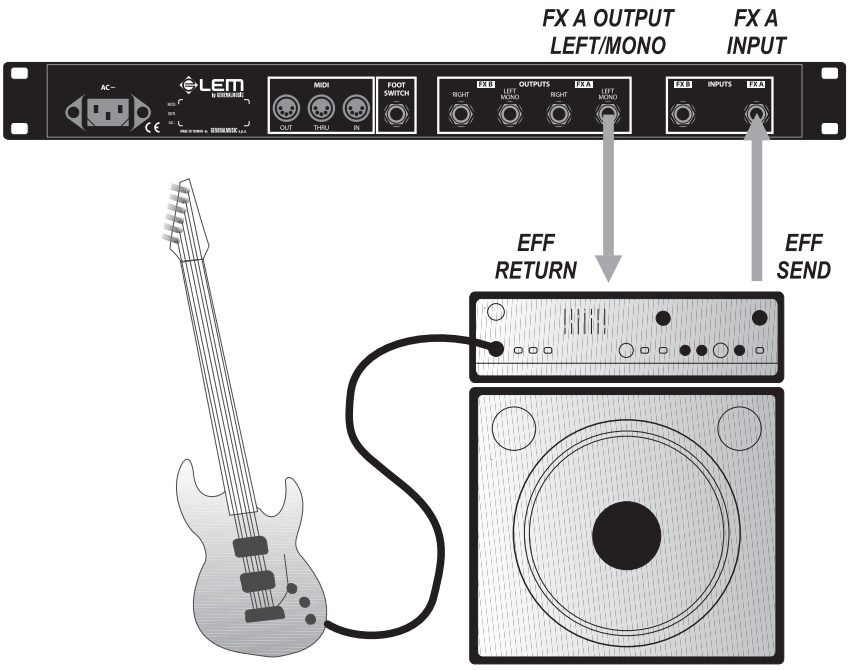
MIDI connector

Connection examples

Audio e MIDI connection



Connection to an amplifier



FACTORY PRESETS

1 / 37 - REVERB						
No.	***Preset***	***REV***	*Pre Delay*	*Rev Time*	*ROOM*	*HF*
1	***Large Bright Hall***	*Hall*	2.4	54	22	6.94
2	***Small Bright Hall***	*Hall*	1.5	38	14	6.94
3	***Brass Hall***	*Hall*	1.7	50	40	8.98
4	***Crystal Hall***	*Hall*	1.7	35	22	thru
5	***Choir Hall***	*Hall*	1.7	38	16	11.6
6	***Percussion Hall***	*Hall*	1.7	35	16	8.98
7	***Large Warm Hall***	*Hall*	2.9	55	23	1.49
8	***Small Warm Hall***	*Hall*	1.7	38	14	1.92
9	***Acoustic Hall***	*Hall*	1.7	45	20	1.92
10	***Concert Hall***	*Hall*	0.9	45	35	1.15
11	***Horn Hall***	*Hall*	2.1	40	50	5.37
12	***Cathedral***	*Hall*	6.1	55	50	1.49
13	***Stadium***	*Hall*	2.4	55	50	0.53
14	***Large Room***	*Room*	1.7	0.00	15	5.37
15	***Small Room***	*Room*	0.8	25	7	2.49
16	***Tom Room***	*Room*	1.3	35	8	8.98
17	***BD Room***	*Room*	0.8	25	7	5.37
18	***SD Room***	*Room*	0.9	35	6	1.15
19	***Dark Room***	*Room*	1.0	30	9	3.21
20	***Female Long***	*Vocal*	2.9	70	70	3.21
21	***Female Short***	*Vocal*	0.9	15	30	3.21
22	***Male Long***	*Vocal*	2.9	70	70	4.16
23	***Male Short***	*Vocal*	0.9	15	30	4.16
24	***Backing Vox***	*Vocal*	0.7	50	70	6.94
25	***Drums Small***	*Plate*	1.2	22	8	5.37
26	***Drums Large***	*Plate*	3.6	22	40	8.98
27	***Piano Small***	*Plate*	0.6	5	15	11.6
28	***Piano Large***	*Plate*	1.3	42	20	5.37
29	***Vocal Small***	*Plate*	1.0	15	15	1.15
30	***Vocal Large***	*Plate*	2.1	45	33	6.94
31	***SD Gate***	*Gate*	0.9	35	6	1.15
32	***BD Gate***	*Gate*	0.8	25	7	5.37
33	***Percussion Gate***	*Gate*	1.2	23	7	6.94
34	***Vocal Gate***	*Gate*	0.6	50	40	8.98
35	***Brass Gate***	*Gate*	1.7	50	40	8.98
36	***Rhythm Gate***	*Gate*	1.5	30	20	8.98
37	***Strong Cut***	*Gate*	2.1	20	10	3.21

38 / 43 - DELAY

No.	Preset	DEL	LD	RD	L FB	R FB	HF
38	**Mono Delay**	Mono	200	200	50%	50%	0
39	**Stereo Delay**	Stereo	250	500	56%	23%	0
40	**Tube**	Stereo	35	35	59.5%	52	0
41	**Bounce**	Stereo	500	250	0%	0%	-3
42	**Tape Back**	Stereo	35	75	11%	11%	-1
43	**R&R**	Stereo	69	80	21%	21%	0

44 / 61 - MODULATION

No.	Preset	MOD	Mod. freq.	Mod. Depth	Pan Depth	R FB	L FB	LPF
44	**Vocal Chorus**	Chorus	0.8	80.0	0			
45	**Guitar Chorus**	Chorus	0.7	61.5	29.0			
46	**Rich Chorus**	Chorus	1.1	87.0	29.0			
47	**Vibra Chorus**	Chorus	5.3	16.5	0			
48	**Moving Flanger**	Flanger	1.6	25.5	47.5	67.5%	67.5%	
49	**Guitar Flanger**	Flanger	1.6	43.0	0	65%	65%	
50	**Rich Flanger**	Flanger	1.6	66.5	43.0	75.5%	64%	
51	**Large Flanger**	Flanger	0.2	89.5	16.5	75.5%	80%	
52	**Fast Phaser**	Phaser	6.2	67.5	58.0	65%	65%	-19
53	**Slow Phaser**	Phaser	0.6	67.5	96.0	65%	65%	-19
54	**Funky Phaser**	Phaser	1.1	58.0	0	31.5%	31%	-6
55	**Large Phaser**	Phaser	0.6	100.0	58.0	79%	78%	-6
56	**Sweet Rotation**	Phaser	3.9	43.0	76.0	31.5%	33%	0
57	**Hard Rotation**	Phaser	16.4	43.0	78.0	54.5%	53%	0
No.	Preset	MOD	Pan freq.	Slow/Fast	Attack	Xover		
58	**Slow Rotary**	Rotary		SLOW	6.5	0.35		
59	**Fast Rotary**	Rotary		FAST	6.5	0.35		
60	**Slow Tremolo**	Tremolo	2.1					
61	**Fast Tremolo**	Tremolo	5.3					

62 / 64 - PITCH

No.	Preset	PITCH	Glob. Pitch	Fine Pitch
62	**Fine Pitch +**	Pitch	0	5
63	**Fine Pitch -**	Pitch	0	-6
64	**Pitch 4**	Pitch	5	-2

65 / 73 - REV + DELAY

No.	Preset	REV	PD	RT	ROOM	HF	DEL	LD	RD	L FB	R FB	HF
65	**Heavy D&R Vocals**	Vocal	4.5	30	5	3.21	Stereo	300	150	24%	60%	-5
66	**Soft D&R Vocals**	Vocal	1.0	15	20	6.94	Stereo	111	150	0%	0%	-5
67	**Drum Hall**	Hall	1.7	35	16	8.98	Stereo	200	100	50%	50%	-20
68	**Small Reflections**	Hall	1.0	15	16	8.98	Stereo	100	90	5%	5%	-12
69	**Plate Delay**	Room	1.7	20	18	8.98	Stereo	300	150	42%	61%	-10
70	**Gymnasium**	Hall	1.5	20	225	6.94	Stereo	200	209	43%	43%	-11
71	**Smooth Church**	Hall	2.1	38	20	3.21	Stereo	150	250	60.5%	33%	-11
72	**Background**	Plate	1.7	30	20	6.94	Stereo	111	150	0%	0%	-5
73	**Back Gate**	Plate	0.6	10	5	6.94	Stereo	200	300	0%	0%	0

74 / 88 - REV + MODULATION

No.	Preset	REV	PD	RT	ROOM	HF	MOD	Freq	Depth	Pan	R FB	L FB	LPF
74	**C&R Vocals**	Plate	2.1	20	125	8.98	Chorus	2.5	63.0	0			
75	**Guitar Combo**	Plate	1.2	30	8	8.98	Chorus	1.1	83.5	39.5			
76	**Electric Hall**	Plate	1.7	30	15	5.37	Chorus	7.2	47.5	75.5			
77	**Soft Chords**	Plate	1.3	15	10	11.6	Chorus	1.1	10.0	47.5			
78	**Ambience**	Hall	2.1	20	50	8.98	Chorus	2.5	63.0	0			
79	**Reflections**	Hall	1.2	10	125	8.98	Chorus	0.7	83.5	47.5			
80	**Flanged Piano**	Plate	0.6	5	15	11.6	Flanger	0.2	89.5	16.0	68%	75%	-0.08
81	**Flanged Vocal**	Plate	1.0	15	15	1.15	Flanger	1.6	25.5	47.0	60%	60%	-0.35
82	**Rich Room**	Room	1.7	45	15	5.37	Flanger	1.6	25.5	53.0	60%	68%	-0.08
83	**Vibra Hall**	Hall	2.4	54	22	6.94	Flanger	6.7	6.0	28.0	60%	60%	-0.1
84	**Phased Piano**	Plate	1.3	42	20	5.37	Phaser	0.9	67.5	58.0	65%	65%	-19
85	**Funky Hall**	Hall	0.7	20	12	8.98	Phaser	1.1	58.0	0	31.5%	31.5%	-6
								Pan freq.	Slow /Fast	Attack	Xover		
86	**Tremolo Hall**	Hall	1.7	38	14	1.92	Phaser	2					
87	**Rotary Room**	Room	0.8	15	8	1.49	Rotary		SLOW	6.5	0.35		
88	**Rotary Jazz**	Room	0.6	22	12	1.92	Rotary		FAST	6.5	0.35		

89 / 128 - REV + DELAY + MODULATION

No.	Preset	REV	PD	RT	ROOM	HF	DEL	LD	RD	L FB	R FB	HF	MOD	Freq.	Depth	Pan	R FB	L FB	LPF	Slow /Fast	Attack	Xover
89	Stereo Guitar	Ha	1.0	27	22	thru	St	100	50	0%	0%	-13	Cho	1.1	61.5	9.5						
90	Solo Guitar	Ha	1.7	20	22	thru	St	150	100	0%	0%	-13	Cho	2.1	68.5	44.0						
91	Deep Impact	Pla	1.0	30	225	thru	St	30	50	0%	0%	-13	Fla	3.8	0	64.0	85%	85%	0			
92	Cavern	Pla	3.6	30	70	thru	St	100	150	0%	0%	-13	Fla	3.9	0	64.0	85%	85%	0			
93	Ice Pizzicato	Ro	6.1	30	50	thru	St	100	110	61.5%	55%	0	Fla	2.1	51.5	60.0	100%	100%	0			
94	Split Signals	Ro	0.6	30	50	thru	St	10	300	61.5%	61.5%	0	Fla	38.7	0.5	0	100%	100%	-10			
95	Inside A Dream	Ro	6.1	30	50	13	St	300	0	66.5%	0	0	Fla	38.7	0.5	0	100%	100%	-10			
96	Foundry Room	Ro	1.5	8	0	thru	St	1	1	50%	25%	0	Pha	0.6	95.5		73.5%	75%	-7.9			
97	Foundry Cut	Ro	1.2	10	0	thru	St	1	1	50%	25%	0	Pha	0.6	95.5		73.5%	75%	-7.9			
98	Snake Guitar	Ha	6.1	20	225	thru	St	100	200	80%	60%	0	Pha	2.1	100		80%	92%	0			
99	Spatial Groove	Pla	2.9	15	40	thru	St	337	325	37%	20%	-13	Pha	5.3	13.0		73.5%	68%	0			
100	Glass Cavern	Ro	4.5	40	125	thru	St	10	30	37%	20%	-13	Pha	0.2	83.5		82.5%	82.5%	0			
101	Silica Hall	Ha	2.1	25	70	thru	St	10	30	37%	20%	-13	Pha	0.2	83.5		82.5%	82.5%	0			
102	Brake Loop	Pla	2.1	25	70	thru	St	100	50	37%	20%	-13	Pha	0.2	83.5		82.5%	82.5%	0			
103	Separated Floor	Pla	0.9	25	70	32	St	100	50	37%	20%	-13	Pha	0.2	83.5		82.5%	82.5%	0			
104	Pulsar	Ha	4.5	5	225	1.92	St	186	174	36%	30%	-13	Pha	0.2	51.0		46.5%	82%	0			
105	Electric Chain	Ha	4.5	5	225	1.92	St	186	174	36%	30%	-13	Pha	0.2	26.0		13%	82%	0			
106	Chewingum	Ha	4.5	30	50	thru	St	186	174	36%	30%	-13	Pha	0.2	26.0		13%	82%	0			
107	Brake Rubber	Ha	4.5	30	50	thru	St	186	174	0%	0%	-13	Pha	0.2	26.0		13%	82%	0			
108	Slow Room	Ro	1.3	8	0	3.21	St	20	10	0%	0%	-10	Rot							SLOW	6.5	0.35
109	Fast Room	Ro	1.3	15	30	3.21	St	20	10	0%	0%	-10	Rot							FAST	6.5	0.35
110	Rotary Gate	Ga	1.7	15	30	3.21	St	50	25	30%	42%	-10	Rot							FAST	6.5	0.35
111	Extreme Rotary	Pla	0.9	15	30	3.21	St	50	25	30%	42%	-10	Rot							FAST	1	0.70
112	Rotated Echo	Pla	0.6	15	30	3.21	St	250	300	68.5%	63%	-10	Rot							FAST	5.5	0.70
113	Nightmare Echo	Pla	0.6	15	30	3.21	St	30	10	93%	85%	-10	Rot							FAST	5.5	0.70
114	Deep Space	Pla	6,1	20	50	thru	St	210	250	53.5%	50%	0	Cho	0.6	25.0	0.5						
115	Metal Geyser	Pla	0.8	20	50	thru	St	210	250	0%	0%	0	Cho	0.6	25.0	0.5						
116	Dark Shade	Pla	0.8	20	50	thru	St	210	250	0%	0%	0	Fla	28	100	0.5	50%	50%	0			
117	Smooth Voice	Pla	1.0	30	30	11.6	St	15	5	7%	7%	-9	Fla	0.6	74.5	23.0	70%	63%	0			
118	Vega Loop	Pla	0.6	30	5	thru	St	105	70	7%	7%	-9	Fla	0.4	10.0	0	73.5%	70%	-5			
119	Acoustic Dreams	Ha	3.6	30	20	thru	St	233	256	7%	7%	0	Fla	0.6	74.5	23.0	70%	69%	0			
120	Crazy Tremolo	Ha	6.1	30	20	thru	St	93	151	54.5	53	0	Fla	6.2	0	0	0	78%	0			
121	Space Tremolo	Pla	6.1	30	20	thru	St	12	24	33.5%	30%	0	Fla	4.4	37.0	90.0	95.5%	95.5%	0			
122	Guitar Stop	Pla	0.8	15	5	6.94	St	174	174	9.5%	12	0	Cho	0.7	75.5	53.5						
123	A-synch Echo	Pla	1.0	30	225	thru	St	15	11	0.5%	0.5%	0	Fla	3.1	0	90.0	85%	85%	0			
124	Washed Strings	Pla	1.0	30	15	thru	St	163	0	24.5%	0	-1	Cho	1.1	100	0						
125	Arpeggio	Pla	1.0	30	225	thru	St	163	0	24.5%	0	-1	Fla	0.7	100	90.0	85%	85%	0			
126	Wash Cut	Ga	2.1	30	225	thru	St	163	0	24.5%	0	-1	Fla	0.7	100	90.0	85%	85%	0			
127	Pad Torsion	Ha	2.4	13	0	thru	St	15	30	0	0	0	Fla	0.2	90.5	0	60.5%	57%	0			
128	Soft Torsion	Ha	2.4	15	0	thru	St	50	80	64%	56%	0	Fla	0.2	90.5	16.0	88.5%	64%	-8.5			

GLOBAL PRESETS

FX 24 - Global Preset Table

GLOBAL PRESETS		Machine A		Machine B	
No.	***Name***	*No.*	*Name*	*No.*	*Name*
	VOX & GUITAR				
1	**Vox & Guit Fly**	65	*Heavy D&R Vocals*	49	*Guitar Flanger*
2	**Vox & Guit Comb**	74	*C&R Vocals*	75	*Guitar Combo*
3	**Vox & Guit Snake**	65	*Heavy D&R Vocals*	98	*Snake Guitar*
4	**Vox & Guit Club**	29	*Vocal Small*	45	*Guitar Chorus*
5	**Vox & Guit Mod**	74	*C&R Vocals*	49	*Guitar Flanger*
6	**Vox & Guit Short**	23	*Male Short*	57	*Hard Rotation*
7	**Vox & Guit Reflections**	79	*Reflections*	79	*Reflections*
8	**Vox & Guit Stereo**	81	*Flanged Vocal*	89	*Stereo Guitar*
9	**Vox & Guit Electric**	74	*C&R Vocals*	76	*Electric Hall*
10	**Vox & Guit Solo**	22	*Male Long*	90	*Solo Guitar*
11	**Vox & Guit Overdrive**	30	*Vocal Large*	105	*Electric Chain*
12	**Vox & Guit Back**	24	*Backing Vox*	54	*Funky Phaser*
13	**Vox & Guit Flanged**	81	*Flanged Vocal*	49	*Guitar Flanger*
14	**Vox & Guit Soft**	20	*Female Long*	77	*Soft Chords*
15	**Vox & Guit Deep**	91	*Deep Impact*	46	*Rich Chorus*
16	**Vox & Guit Near**	42	*Tape Back*	52	*Fast Phaser*
	VOX & PIANO				
17	**Vox & Piano Large**	30	*Vocal Large*	28	*Piano Large*
18	**Vox & Piano Small**	29	*Vocal Small*	27	*Piano Small*
19	**Vox & Piano Hall**	65	*Heavy D&R Vocals*	1	*Large Bright Hall*
20	**Vox & Piano Slow**	70	*Gymnasium*	27	*Piano Small*
21	**Vox & Piano Flanged**	78	*Ambience*	80	*Flanged Piano*
22	**Vox & Piano Back**	72	*Background*	68	*Small Reflections*
23	**Vox & Piano Phased**	66	*Soft D&R Vocals*	84	*Phased Piano*
24	**Vox & Piano Near**	42	*Tape Back*	61	*Fast Tremolo*
25	**Vox & Piano Tremolo**	21	*Female Short*	61	*Fast Tremolo*
26	**Vox & Piano Back**	24	*Backing Vox*	108	*Soft Leslie*
27	**Vox & Piano UpDown**	79	*Reflections*	15	*Small Room*
28	**Vox & Piano DownUp**	14	*Large Room*	27	*Piano Small*
29	**Vox & Piano Chorus**	74	*C&R Vocals*	46	*Rich Chorus*
30	**Vox & Piano Big**	70	*Gymnasium*	28	*Piano Large*
31	**Vox & Piano Close**	43	*R&R*	37	*Strong Cut*
32	**Vox & Piano Concert**	72	*Background*	10	*Concert Hall*
	VOX & DRUMS				
33	**Vox & Drums Large**	30	*Vocal Large*	25	*Drums Small*
34	**Vox & Drums Small**	29	*Vocal Small*	17	*BD Room*
35	**Vox & Drums Close**	19	*Dark Room*	79	*Reflections*
36	**Vox & Drums Gate**	24	*Backing Vox*	33	*Percussion Gate*
37	**Vox & Drums Tech**	34	*Vocal Gate*	32	*BD Gate*
38	**Vox & Drums SlowRap**	81	*Flanged Vocal*	128	*Soft Torsion*
39	**Vox & Drums Electr**	42	*Tape Back*	59	*Fast Rotary*
40	**Vox & Drums Crazy**	115	*Metal Geyser*	95	*Inside A Dream*
	VOX & ENSEMBLE				
41	**Vox & Ensemble Large**	30	*Vocal Large*	2	*Small Bright Hall*
42	**Vox & Ensemble Small**	29	*Vocal Small*	15	*Small Room*
43	**Vox & Ensemble R&R**	43	*R&R*	36	*Rhythm Gate*
44	**Vox & Ensemble Live**	117	*Smooth Voice*	13	*Stadium*
45	**Vox & Ensemble Reflections**	68	*Small Reflections*	43	*R&R*
46	**Vox & Ensemble Soft**	24	*Backing Vox*	77	*Soft Chords*
47	**Vox & Ensemble Close**	81	*Flanged Vocal*	79	*Reflections*
48	**Vox & Ensemble Near**	79	*Reflections*	96	*Foundry Room*
	DRUMS & GUITAR				
49	**Drums & Guit Stop**	15	*Small Room*	122	*Guitar Stop*
50	**Drums & Guit Combo**	17	*BD Room*	75	*Guitar Combo*
51	**Drums & Guit Snake**	33	*Percussion Gate*	98	*Snake Guitar*
52	**Drums & Guit Club**	19	*Dark Room*	45	*Guitar Chorus*
53	**Drums & Guit Stereo**	16	*Tom Room*	89	*Stereo Guitar*
54	**Drums & Guit Vega**	37	*Strong Cut*	118	*Vega Loop*
55	**Drums & Guit Strange**	31	*SD Gate*	125	*Strange Arpeggio*
56	**Drums & Guit Electric**	103	*Separated Floor*	76	*Electric Hall*
	ENSEMBLE & GUITAR				
57	**Ensembe & Guit Chain**	50	*Rich Flanger*	105	*Electric Chain*
58	**Ensembe & Guit Solo**	4	*Crystal Hall*	90	*Solo Guitar*
59	**Ensembe & Guit Stop**	33	*Percussion Gate*	122	*Guitar Stop*
60	**Ensembe & Guit Funky**	68	*Small Reflections*	54	*Funky Phaser*
61	**Ensembe & Guit Slow**	2	*Small Bright Hall*	1	*Large Bright Hall*
62	**Ensembe & Guit Soft**	96	*Foundry Room*	77	*Soft Chords*
63	**Ensembe & Guit Chorus**	18	*SD Room*	45	*Guitar Chorus*
64	**Ensembe & Guit Pulsar**	97	*Foundry Cut*	104	*Pulsar*

MIDI Standard Messages

FX 24 - CONTROL CHANGE LIST

	Control	Value	
PRESET FACTORY-A	14	0	127
PRESET USER-A	15	0	127
REV-A PAR-1 Rev Time	20	0	127
REV-A PAR-2 Room	21	0	127
REV-A PAR-3 Pre Delay	22	0	127
DLY-A PAR-1 Delay	23	0	127
DLY-A PAR-2 Feedback	24	0	127
DLY-A PAR-3 Hi Freq	25	0	127
MOD-A PAR-1 Freq	26	0	127
MOD-A PAR-2 Depht	27	0	127
MOD-A PAR-3 Feedback	28	0	127
OUT-A	29	0	127
DRY/WET-A	30	0	DRY
		127	WET
REV-A ON/OFF (send only)	70	0	OFF
		1	ON
DAL-A ON/OFF (send only)	71	0	OFF
		1	ON
MOD-A ON/OFF (send only)	72	0	OFF
		1	ON
REV-B ON/OFF (send only)	73	0	OFF
		1	ON
DAL-B ON/OFF (send only)	74	0	OFF
		1	ON
MOD-B ON/OFF (send only)	75	0	OFF
		1	ON
PRESET FACTORY-B	102	0	127
PRESET USER-B	103	0	127
REV-B PAR-1 Rev Time	104	0	127
REV-B PAR-2 Room	105	0	127
REV-B PAR-3 Pre Delay	106	0	127
DLY-B PAR-1 Delay	107	0	127
DLY-B PAR-2 Feedback	108	0	127
DLY-B PAR-3 Hi Freq	109	0	127
MOD-B PAR-1 Freq	110	0	127
MOD-B PAR-2 Depht	111	0	127
MOD-B PAR-3 Feedback	112	0	127
OUT-B	113	0	127
DRY/WET-B	114	0	DRY
		127	WET
BYPASS	115	0	OFF
		1	ON

Technical Specifications

INPUT section	
Connectors	2 x JACK 1/4" unbalanced
Input sensitivity	0 dB / 0.775 V
Max. input level	+12 dB
Impedance	47 kOhms
OUTPUT section	
Connectors	4 x JACK 1/4" unbalanced
Nominal output level	0 dB
Max. output level	+12 dB
Impedance	1 kOhms
DSP section	
A/D converters	20 bit
D/A converters	24 bit
Internal dynamics	40 bit
Sampling frequency	48 kHz
Features	
Configuration	FULL DUAL STEREO (2 IN / 4 OUT): 2 stereo effects completely independents
Features	Up to 3 effect ALGORITHMS for each PRESET 3 EDITABLE PARAMETERS for each effect ALGORITHMS 128 FACTORY PRESETS + 128 USER PRESETS for each A & B section 64 + 64 GLOBAL MIDI implementation
Type of effects	Hall, Room, Vocal, Plate & Gate Reverbs - Delay - Chorus - Flanger - Phaser - Rotary - Pitch Shift
Controls	3-DIGIT 7-segment display with rotary DIAL MACHINE A & B selector EDIT buttons REVERB, DEALY & MODULATION + PARAMETER selector MIX selector for IN/OUT LEVEL and BALANCE GLOBAL and MIDI selectors RECALL and STORE buttons for PRESETS and GLOBALS SIGNAL/PEAK LEDs BYPASS switch and MUTE FOOTSWITCH connector (rear panel)
General Specifications	
Frequency response	20 Hz - 20 kHz
Dynamic range	102 dB
Distortion (THD)	0.06% @ 1 kHz (dry)
Power supply	see label on the unit rear panel
Dimensions	483 x 44 x 300 mm (W x H x D)
Weight	4.0 kg

Notes