



MPX 500 Version 2 Software Upgrade

Installation Instructions & Release Notes



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MPX 500 Version 2 Software Upgrade

Software Installation Instructions

Note:

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- 1. Dump the System Parameters or User Bank into an external MIDI device before installing the upgrade. (These are two separate dumps.)*
- 2. Install the Version 2 software upgrade.*
- 3. Send the previously saved System Parameter or User Bank dump back to the MPX 500.*

WARNING

THESE SERVICE INSTRUCTIONS ARE FOR USE BY QUALIFIED PERSONNEL ONLY.
DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THESE
INSTRUCTIONS UNLESS QUALIFIED TO DO SO. REFER TO SAFETY
SUMMARY PRIOR TO PERFORMING ANY SERVICE.

SAFETY SUMMARY

The following general safety precautions must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in these instructions violates safety standards of design manufacture and intended use of the instrument.

Lexicon, Inc. assumes no liability for failure to comply with these requirements.

GROUND THE INSTRUMENT

To minimize shock hazard, the instrument chassis and cabinet must be connected to an electrical ground. The instrument is equipped with a 3-conductor AC power cable. The power cable must be either plugged into an approved 3-contact electrical outlet or used with a 3-contact to 2-contact adapter with the grounding wire (green) firmly connected to an electrical ground (safety ground) at the power outlet. The power jack and mating plug of the power cable meet International Electrotechnical Commission (IEC) safety standards.

DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE

Do not operate the instrument in the presence of flammable gases or fumes. Operation of any electrical instrument in such an environment constitutes a definite safety hazard.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must not remove instrument covers. Component replacement and internal adjustments must be made by qualified maintenance personnel. Do not replace components with power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

DO NOT SERVICE OR ADJUST ALONE

Do not attempt internal service or adjustment unless another person capable of rendering first aid and resuscitation is present.

DO NOT SUBSTITUTE PARTS OR MODIFY INSTRUMENT

Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the instrument.

DANGEROUS PROCEDURE WARNINGS

Warnings such as the example below precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed.

WARNING

Dangerous voltages capable of causing death are present in this instrument. Use extreme caution when handling, testing, and adjusting.

SAFETY SYMBOLS

Following are general definitions of safety symbols used on equipment or in manuals:



Instruction manual symbol: the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual in order to protect against damage to the instrument.



Indicates dangerous voltage. (Terminals fed from the interior by voltage exceeding 1000V must be so marked.)

WARNING

Denotes a hazard. It calls attention to a procedure, practice, condition, or the like which, if not correctly performed or adhered to, could result in injury or death to personnel.

CAUTION

Denotes a hazard. It calls attention to an operating procedure, practice, condition, or the like which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product.

Note: Denotes important information. It calls attention to a procedure, practice, condition, or the like which is essential to highlight.



CAUTION

ELECTROSTATIC DISCHARGE (ESD) PRECAUTIONS

The following practices minimize possible damage to EPROMs resulting from electrostatic discharge or improper insertion:

- Keep parts in original containers until ready for use.
- Avoid having plastic, vinyl, or styrofoam in the work area.
- Wear an anti-static wrist strap.
- Discharge personal static before handling devices.
- Remove and insert boards with care.
- When removing boards, handle only by non-conductive surfaces and never touch open-edge connectors except at a static-free workstation.*
- Minimize handling of EPROMs.
- Handle each EPROM by its body.
- Do not slide EPROMs or boards over any surface.
- Insert EPROMs with the proper orientation, and watch for bent pins on EPROMs.
- Use anti-static containers for handling and transport.

* To make a plastic-laminated workbench anti-static, wash with a solution of Lux liquid detergent, and allow to dry without rinsing.

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Contents

This update kit includes:

- 1 MPX 500 EPROM
- 1 EPROM Extractor Tool
- Installation and Release Notes (this document)
- 1 Anti-static wrist strap

This kit does not include two Phillips head screwdrivers (sizes 0 and 1) and a wrench or nut driver, which are also needed.

WARNING

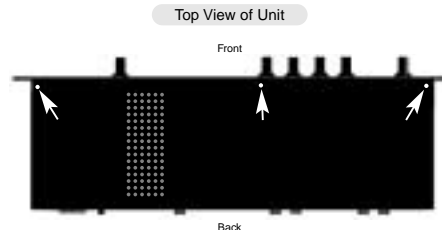
TURN OFF AND DISCONNECT ALL POWER TO THE UNIT PRIOR TO INSTALLING THE SOFTWARE UPGRADE.

Instructions

Performing this upgrade is an easy process. But to avoid problems, please follow these instructions carefully. Pay particular attention to the precautions listed in the safety summary, and those that appear throughout these instructions. Any damage caused during installation is not covered under warranty.

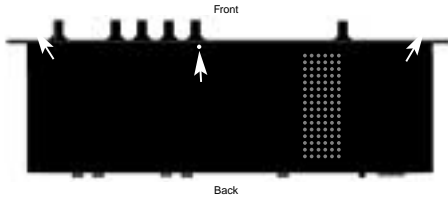
STEP 1 - OPEN THE UNIT

1. Using a size 1 Phillips head screwdriver, remove the screws (Lexicon Part No. 640-02812) on the top and bottom of the unit (three on top, three on bottom).



MPX 500 Version 2 Software Installation Instructions

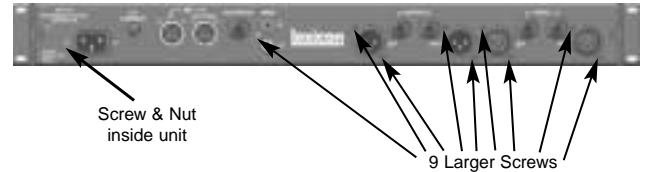
Bottom View of Unit



- Carefully remove the side panels by pulling them out. Begin pulling at the end closest to the front panel.



- Remove the screw (Lexicon Part No. 640-02812) and nut (Lexicon Part No. 643-01732) closest to the AC receptacle. This is the only screw with a nut attached.

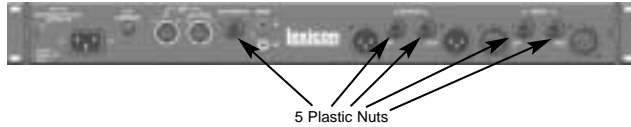


- Remove the nine larger screws (Lexicon Part No. 641-11466) on the back panel.

- Using a size 0 Phillips head screwdriver, remove the four smaller screws (Lexicon Part No. 641-12759) near the MIDI IN & OUT/THRU ports.



- Using a wrench or nut driver, remove the five plastic nuts (Lexicon Part No. 643-11682) attached to the 1/4-in. connectors.



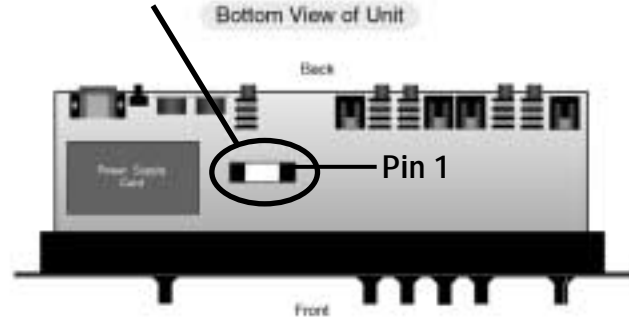
- Remove the U-shaped chassis cover by gently pulling it straight back, away from the front panel.



- Put the anti-static wrist strap on before proceeding to the next step.

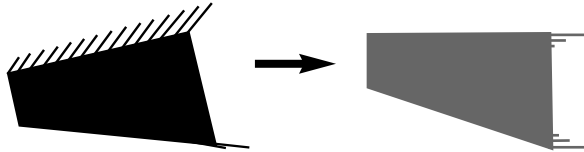
STEP TWO - INSTALL THE EPROM

- Refer to the illustration below to locate the EPROM on the MPX 500 main board (location U9).

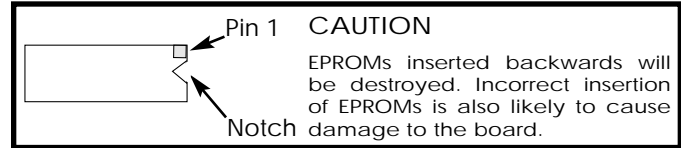


- Check the EPROM provided with the upgrade kit. Because the manufacturing process leaves the pins angled out slightly from the body of the EPROM, the pins must be straightened before insertion. Use the following procedure to straighten the pins:
 - Place the EPROM on its side on a static-free, flat surface.

- B. Hold the body of the EPROM and, exerting gentle pressure downward, roll it slightly to force the pins into a position parallel to the work surface (see diagram below).



3. Using the EPROM extractor tool (see diagram below) remove the EPROM at location U9 and insert the new EPROM in its place. Be careful to align the EPROM correctly to avoid bending any pins. When the EPROM is inserted, carefully inspect each pin to ensure that it has not been bent.



Note:

To reassemble the unit, follow instructions 1-7 under the heading "Step 1 - Open the Unit" (pages 6-8) in reverse order.

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-

Using the Documentation

This document contains information specific to the MPX 500 Version 2 Software Upgrade. It does not replace the MPX 500 User Guide. Rather, these installation instructions and release notes are designed for use with the guide.

About the Upgrade

This section describes the enhancements contained in the MPX 500 Version 2 Software Upgrade.

THE COMPRESSOR

The new software contains a compressor that is available with all presets. It sits in the Wet component of the signal path in front of the effect(s) for the current preset. It is controlled with four new parameters: Compression Ratio, Threshold, Attack Time, and Release Time, which are available on a new Edit page in each preset.

Available ratio values are: 1:1 (Off), 2:1, 3:1, 4:1, 5:1, and 10:1. Threshold values range from 0dB to -32dB and are relative to 0dBFS (meaning digital saturation). The compressor is disabled (turned off) if either the Ratio is set to 1:1 or the Threshold is set high enough to prevent the incoming signal from crossing the compression threshold.

Attack and Release Times are approximate indicators of how quickly the compressor responds, within 3dB of the final output level dictated by the incoming signal. For most music material, Release should be about four times longer than Attack. Both must be long enough to accommodate the bass content of the music. If the compressor is set to react faster than the waveform of the music itself, the resulting changes in output level will re-shape the waveform enough to generate undesirable audio effects. For example, 80Hz has a period of 12ms. If this is a dominant component in the music material, set both Attack and Release to be at least 12ms, even longer for better results.

The compressor is a stereo effect that acts on both L and R channels simultaneously, using the sum of the two channels as its trigger. Because the compressor is a separate "device" that acts on the entire Wet signal path, it is available with all of the MPX 500's effect combinations. Compression-only effects are obtained by sending the compressor's output into a Dly/Eko program set with zero delay. (A Compressor Bank with a selection of presets is described on page 12.) Since the compressor acts with zero delay (in addition to the normal < 2ms delay produced by the A/D and D/A converters), it is suitable for use in a live performance. The MPX 500 can be operated as a single-channel compressor with a side-chain trigger by selecting a dual-mono effect configuration, using only one side to carry the audio signal and feeding the other channel a signal that is at least 6dB higher than the audio program. The higher signal will dominate the compressor's behavior.

A System Parameter called Compressor Mode has been added. Its values are Global and Program. Like Tempo Mode and Mix Mode, it determines whether new compressor settings should be loaded with each program load or whether current Global values should be maintained. (If the MPX 500 is powered up with Compressor Mode set to Global, the compressor powers up "off.") The factory-default for Compressor Mode is Program.

As with other Edit parameters, the four Compressor parameters can be controlled via MIDI commands. The default MIDI patchings for these parameters are Continuous Controllers 19, 20, 21, and 22.

THE LEVEL METERS

The input-level meters on the left side of the LCD display now show calibrated values, with 0dB indicating digital saturation. Markings on the open portion of each meter show -6, -18, and -32dB. The meters also have single-pixel precision in which each pixel represents 2dB. As the signal level rises to cover these markings, the lower portion of each meter shows marks at 6dB intervals.

Gain reduction from the compressor is indicated by a descending bar situated between the two input-level meters. Like the input-level meters, it is calibrated in 2dB increments per pixel.

NEW BANKS AND PRESETS

The MPX 500 Version 2 has 15 new presets in 2 new banks: Comprssr holds presets 240-249 and Live-FOH (Live Front Of House) holds presets 250-255.

THE COMPRSSR BANK

Presets 240, 241, 246, and 247 are compressor-only. Presets 242, 243, 244, 245, 248, and 249 are combination compressor and reverb with parallel (dual-stereo) routing.

240	2:1	a 2:1 compressor for subtle dynamic range reduction
241	3:1	moderate dynamic range reduction
242	3:1 Small	moderate compression and small-hall reverb
243	5:1 Medium	aggressive compression and medium-hall reverb
244	3:1 Large	moderate compression and large-hall reverb
245	5:1 Large	aggressive compression and large-hall reverb
246	GuitarComp	compression suitable for lead guitar
247	Limiters	severe compression with high threshold
248	Male Vocal	reverb and compression optimized for male voice
249	Female Vocal	reverb and compression optimized for female voice

In all of these presets, the Adjust knob (knob 1, Edit page 2) controls "gain make-up" within a range of 0dB (none) to 9.5dB. This can be used to match volumes between the Dry bypassed level and the compressed output level obtained with typical music material.

With these presets, Mix should normally be set fully Wet (100%) so the compressed Dry signal is the only output signal present. Of course, the user can experiment with Mix settings less than 100%. For example, if Mix is set to 75%, about 1/4 of the signal power will bypass the compressor. Thus as the signal crosses the threshold, only part of it will be compressed, resulting in an effective compression ratio somewhat less than the indicated ratio. However, when the gain-reduction increases to about 6dB, the compressed Wet portion drops relative to the Dry component and the compressor becomes less significant. This creates a subtle expansion effect until the final output returns to a normal 1:1 ratio.

The six Compressor/Reverb presets are constructed to offer both a reverb component and a zero-delay Dry component, with the compressor acting on both. Mix should be kept fully Wet and effective mix should be adjusted via the Efx/Bal control (knob 3, Edit page 2).

THE LIVE-FOH BANK

The Live-FOH Bank contains presets that are quicker and more intuitive for live-sound engineers to operate. These presets use dual-mono routings because many small-to-mid-sized venues own mono PAs with limited channels and only two mono aux sends available for effects.

250	Flange/Dly	Flange and Delay/Echo
251	Chorus/Dly	Chorus and Delay/Echo
252	Flange/Rvb	Flange and Reverb
253	Chorus/Rvb	Chorus and Reverb
254	Dly/Reverb	Delay and Reverb
255	Dly/Reverb	Delay and Reverb with alternate Edit pages

These presets have the following features:

- The Edit knobs have been re-mapped so that Edit page 1 always contains the four primary parameters for one of the effects; Edit page 2 always contains the four primary parameters for the other effect. Other Edit pages hold Mix and the less frequently used parameters from both effects.
- In the Delay programs, two delay level controls have been combined into one Adjust knob labelled Tap/Dly. These programs contain two delays: one controlled by the Tempo (generally used to create

longer echoes/delays) and one that can be set manually with a knob labelled Delay (generally used to create a "slap" of perhaps 60-135ms). The Tap/Dly knob provides an equal-power tradeoff of the delay levels. The default incorporates equal levels of each. Note that although the Tap delay is ideally suited for longer rhythm-sensitive effects and the manually-controlled delay is better for shorter times, both delays are capable of delivering a full range of delay times and can be cross fed into each other for more extreme effects.

- Some of the non-essential parameters (i.e. Efx/Bal and HF Rloff) have been removed from the Edit pages. Because most live engineers control these with the return channels of the system mixer, their presence on the MPX 500 Edit pages was considered distracting.
- The most commonly used dual mono combination is Delay and Reverb, so there is a preset (#255) with an alternative knob mapping for this combination. Its first two Edit pages are arranged with delay parameters on the left (knobs 1 and 2) and reverb parameters on the right (knobs 3 and 4). This arrangement splits the effects' controls left to right rather than by page.

THE USER BANK

The Version 2 Software expands the User Bank to hold 64 programs, instead of the original 30. Programs are stored and recalled exactly the same way as in the Version 1 Software of the MPX 500. However, User Bank dumps to MIDI (accomplished on the System page) are performed differently. Dumps are now performed in groups of 16 programs rather than the entire User Bank at once. When "Dump User Bank" on the System page is selected, the display asks which group to dump, either 1-16, 17-32, 33-48, or 49-64. Use Knob 3 (the same knob used to change other System Parameters) to change selections. When one of these dumps is sent back to the MPX 500 from an external MIDI storage device, the MPX 500 recognizes which set it contains and automatically stores it in the appropriate User Bank locations.

The MPX 500 Version 2 software will also recognize and accept User Bank dumps made from Version 1, and will automatically store these programs in User Bank locations 1-30. Since the new User Bank programs contain Compressor settings, default values representing "off" will be inserted into each program.

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Note:

Some of the Plate, Chamber, and Room presets have been changed slightly, and the Ambience presets have been improved. The characters of all the presets have been preserved in Version 2, with minor exceptions. If the User Bank contains programs that were based on these, they may not sound exactly the same. This is especially true if significant edits were made via the Adjust parameter.

MISCELLANEOUS

- Version 2 is designed to recognize Version 1 System Parameter and User Bank dumps. This feature allows users to preserve System Parameter settings, User Bank programs, and MIDI patches.

Note:

Do not attempt to send Current Program dumps from Version 1 to Version 2.

- In Version 2, the factory-default for Mix Mode, Tempo Mode, and Compressor Mode is Program - not Global. This change is intended to make using the Compressor presets easier since they generally require a Wet (i.e. 100%) Mix. (Other effects such as Tremolo and Rotary also require a Wet Mix. But with these, if Mix is not set correctly because the Global value is not Wet, the problem will be evident immediately.)
- The Tap button responds to consecutive rather than alternate presses.
- The program knob is less sensitive.

Errata Notes

- On page 19, the MPX 500 User Guide incorrectly states that Memory Protect Mode prevents changes to the User Bank or the System Parameters. When enabled, Memory Protect Mode does prevent changes to the User Bank. But it does not prevent changes to the System Parameters, nor does it prevent restoration of the MPX 500 factory-default settings. This means that Factory Init will erase any stored programs in the User Bank.
- Paragraph four of the original Release Notes for the MPX 500 contained a list of presets from which the Tempo patch was removed after the original User Guide was prepared. That list had a few omissions. Following is a correct version: 3, 5, 6, 7, 63, 64, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 210, 215, 236, 237, 238.
- A Tempo patch was added to preset #12.

Parameter Descriptions

The tables on pages 16-22 provide a comprehensive list of the MPX 500 parameters. Brief descriptions of each are also included.

Reverb Parameters	
Adjust	Function varies from preset to preset. Adjust usually controls several parameters but may also provide a set of special values for a single control (for example "Fast" and "Slow" for a parameter that can also be set to any value via another control). Adjust has a range of 0 to 127 to provide a convenient attachment point for a MIDI controller.
Decay, MidRT	Controls reverb time for mid-frequency signals. In Ambience, Decay controls the length of the ambience "tail."
HF Rloff	Sets the high-frequency roll off of a low-pass filter.
Mix	Controls the ratio of direct (Dry) vs. effect (Wet) signal output. When the MPX 500 is patched into a console, this control should almost always be set to Wet (i.e. 100%).
PreDelay	Controls the time delay between the input signal and the onset reverberation.
BassMult	Controls the reverb time for low-frequency signals. It works as a multiplier of the Decay (MidRT) parameter. For example, if BassMult is set to 2x, and Decay is set to 2s, the low-frequency reverb time will be 4s. For a natural-sounding hall ambience, BassMult should usually fall between 1x and 2x.
BassXvr	Sets the frequency below which BassMult applies.
Rt HC	Sets the frequency above which high frequencies are rolled off in the reverberated signal. This causes reverberated signals to grow progressively softer and results in a more natural sound as it simulates the effect of air absorption in a real hall. Setting a low frequency for this parameter can actually shorten the reverb time because it dampens the audio as it re-circulates.

MPX 500 Version 2 Software Release Notes

Diffusion	Controls the degree to which initial echo density increases over time. High settings of Diffusion result in high initial buildup of echo density. (Echo density is also affected by Size, with smaller spaces sounding denser.)
Size	Sets the rate of echo density buildup after the initial period (which is controlled by Diffusion). It also acts as a master control for Decay. Size changes a reverb sound from very small to very large. Generally, Size control should be set to approximately the size of the acoustic space being created before other controls are adjusted. The size in meters is roughly equal to the longest dimension of the space. (Adjusting Size causes the program to re-load.)
Attack	Controls the sharpness of the initial response to an input signal. High settings cause an explosive sound, while low settings cause the sound to increase more slowly with time. Attack affects the level of sound only within the first 50ms or so.
Level	Determines the amount of Wet signal present in output. It functions similar to the Mix control except it affects only the Wet component. It is generally used to balance the overall output of two or more programs when Mix is set to Wet.
EkoDly L, EkoDly R	Control the timing of single reflections that occur early in the Decay in the reverb (Plate, Hall, Chamber, etc.) programs. These reflections simulate the sound resonating off the back wall of a stage or other reflective surface
EkoFbk L, EkoFbk R	Control the amount of repeating echo that simulates a flutter echo between parallel walls in the reverb programs. The range of these parameters is -100% to 100%, with negative values producing a polarity reversal. High values can cause signal overload.

Inverse Parameters	
Duration	Determines the length of time in milliseconds that passes before output cutoff occurs.
LowSlope, HighSlope	Found only in the Inverse programs. LowSlope determines the shape of the reverb envelope for low frequencies. When set to zero, the level of low reverb remains unchanged over its Duration, then cuts off abruptly. Setting LowSlope above zero causes the level of low frequency reverb to rise smoothly from soft to loud until the sound is cut off. The greater the slope, the softer the initial reverberation and the more pronounced its rise. With negative values, the low-frequency reverb drops from its initial level to a quieter one before cutoff. HighSlope is similar to LowSlope, but applies to mid and high frequencies.
Shape	Controls the buildup of those early reflections that most audibly create the sound of a real room (similar to Attack in the reverbs).
Spread	Controls the timing between the initial reflections that most audibly create the sound of a real room (along with Size). Shape and Spread work together; if either is set to zero, the other has no effect.
Ambience Parameters	
Rvb Lvl	Controls the amount of "extra" longer-decay reverb added to the, short-decay early reflections that create a real room sound in Ambience.
Tremolo Parameters	
Phase	Determines the relative timing between the L and R channels.
Rate	Controls the speed of volume modulation.

Depth	Controls volume modulation.
Waveform	Determines how the volume is modulated with time. Values are Sine (smooth modulation with polarity reversal), Rectified Sine (smooth modulation with no polarity reversal), Triangle (linear ramp up and down), Sawtooth (linear ramp up with sudden reduction), and Square (level modulations between maximum and minimum).
Rotary Parameters	
MstrRate	A master rate control that affects both the Horn and Drum rates.
Width	Determines the effective separation between L and R channels.
Balance	Determines the volume balance between the Horn and Drum.
Drum Dep, Horn Dep	Determine the amount of modulation produced by the Drum and Horn.
Drum Res, Horn Res	Determine the amount of resonance, i.e. signal fed back into the effect.
Chorus Parameters	
Speed 1, Speed 2	Control the rates at which various voices sweep through frequency.
Sweep 1, Sweep 2	Control the amount of frequency variation for two different collections of voices. (The Chorus effect simulates six voices with slightly varying pitch. The user has separate controls over two sets of three voices each.)
Spread	Controls the initial time differences between the six moving voices.
Res 1, Res 2	Control the amount of feedback signal.
Diffusion	Creates a time-smoothing effect similar to diffusion in reverb.

Flange Parameters	
Speed	Controls how rapidly the two Flange voices move.
Depth	Controls how much Flange effect is created by adjusting the level of the two Flange voices.
Sweep	Determines the maximum amount of time-delay applied to each voice.
Phase	Determines the relative timing between the speed modulation of the two voices.
Detune Parameters	
Tune 1, Tune 2	Determines the amount of detuned signal mixed into output.
Pitch Parameters	
Pch, Intrvl	Controls the amount of pitch shift applied. Interval values are in semitones, Pitch values are in Cents (1/100th of a semitone). These values are additive.
PDly	Used to control the amount of "look-ahead" required by the pitchshift algorithm. Good performance requires some amount of predelay, so this control cannot actually set the PreDelay to zero.
Pch Fbk	Controls the level of feedback looping around the pitch algorithm, allowing for manipulation of pitch shifts to create dynamic special effects.
-L-, -R/S- <i>continued on next page</i>	Designations on the Pitch parameters that mean "Left" or "Right/Stereo". Pitch shifting requires some time shifting. A true stereo (not merely dual-mono) signal contains components that are common to L and R. A proper stereo image is maintained only if the phase relationship between these signals is maintained, which requires that the exact same computations be applied to both channels.

-L-, -R/S- continued	This is more demanding, and will often achieve better performance with a mono pitch shift than with a stereo pitch shift. Thus the MPX 500 contains programs for both. The Edit pages for the mono mode programs offer both "Left" and "Right" versions of key parameters. The stereo mode programs provide only "Stereo" versions (labeled R/S). (In a mono-mode program the L and R parameters can be adjusted to be the same, but it will not maintain the stereo image.)
Dly/Eko Parameters	
Dly Lvl	Controls the overall level of the signal fed into the Delay/Echo effect.
Dly Fbk	A master control that determines the feedback of L into L and R into R.
Dly XFbk	A master control that determines the feedback of L into R and R into L.
L Dly 1, R Dly 1	A manual control that sets the delay time (in milliseconds) of the L voice #1 and R voice #1. The Dly/Eko effect has three independent voices on each side. The non-Tap programs provide independent control over the delay times of each. In the Tap delays, those times controlled by Tap are displayed but cannot be changed manually.
Dly Lvl 1	Controls the levels of voice #1 for both L and R.
L Dly 2, R Dly 2, etc.	Controls the delay time of voice #2.
Dly Lvl 2, etc.	Controls the levels of voice set #2.

Miscellaneous	
Efx Bal	Controls the relative amounts of these two effects in the dual effects programs. In a parallel, mono split, or dual mono routing configuration, this simply splits the signal feeding into the two effects. In a cascade configuration, it also allows some of the signal to bypass either of the two effects.
DlyTapLvl	This is used in dual effects programs in which one of the effects is Dly/Eko and one (or more) of the delay voices is controlled by Tap, allowing the user to control the level of that voice mixed into output of the Dly/Eko effect.
Delay, Dly Lvl	These are provided as a bonus in dual-effects programs in which one of the effects is Dly/Eko and one (or more) of the delay voices are controlled by Tap. These provide manual control over the delay time and level of non-Tap delay voices, one L and one R. (In the dual mono configurations, only one of these voices is heard.) The level is generally set to off, but turning it up will create a non-Tap-controlled delay.
Dly HiCut	A high-cut filter similar to HF Rloff, except that it applies only to the Dly/Eko effect. It is provided in dual-effects programs in which one of the effects is Dly/Eko, allowing independent control over Dly/Eko high-frequency output.

Lexicon

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