

# ***ECHO PRO***

***Programmable Delay & Loop Sampler with MIDI Sync***

## **Pilot's Handbook**

An in-depth exploration of the revolutionary technologies  
and the pulsing tonal pleasures that power your Echo Pro.

The serial number can be found on the back panel of your Echo Pro. Please note it here for future reference:

**SERIAL NO:** \_\_\_\_\_

**WARNING:** To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

**CAUTION:** This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**CAUTION:** To reduce the risk of fire or electric shock, do not remove screws. No user-serviceable parts inside. Refer servicing to qualified service personnel.



The lightning symbol within a triangle means “electrical caution!” It indicates the presence of information about operating voltage and potential risks of electrical shock.



The exclamation point within a triangle means “caution!” Please read the information next to all caution signs.

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## **YOU SHOULD READ THESE IMPORTANT SAFETY INSTRUCTIONS**

**Before using your Echo Pro, be sure to carefully read the applicable items of these operating instructions and the safety suggestions.**



1. Obey all warnings on the Echo Pro and in this Pilot’s Handbook.
2. Do not place near heat sources, such as radiators, heat registers, or appliances which produce heat.
3. Guard against objects or liquids entering the enclosure.
4. Connect only to AC power outlets rated 100-120V or 230V 47-63Hz (depending on the voltage range of the unit; refer to the back panel). Current ratings should be 400mA for the 120V range and 200mA for the 230V range.
5. Do not step on power cords. Do not place items on top of power cords so that they are pinched or leaned on. Pay particular attention to the cord at the plug end and the point where it connects to the amp.
6. Unplug your Echo Pro when not in use for extended periods of time.
7. Do not perform service operations beyond those described in the Echo Pro Pilot’s Handbook. In the following circumstances, repairs should be performed only by qualified service personnel:
  - liquid is spilled into the unit
  - an object falls into the unit
  - the unit does not operate normally or changes in performance in a significant way
  - the fuse is blown (replace with 400mA timed fuse for 120V, and 200mA timed fuse for 230V)
  - the unit is dropped or the enclosure is damaged
8. Prolonged listening at high volume levels may cause irreparable hearing loss and/or damage. Always be sure to practice “safe listening.”

**Please Note:**

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# INTRODUCTION

## Thanks and what the heck did you just buy, anyway?

Thanks for your purchase, and congratulations on being the proud new owner of an Echo Pro, part of Line 6's Studio Modeler line of products. We hope that your new toy will make your musical and creative life more fun, exciting, fulfilling, and will stop the awful drip under the bathroom sink (although we suspect you're gonna have to break down and call a plumber for that one).

If you're familiar with Line 6's award-winning series of Stompbox Modelers—the DL4 Delay Modeler, MM4 Modulation Modeler, and FM4 Filter Modeler—you've already got a pretty good idea of some of what your new Echo Pro can do. We've added a lot of new features and capabilities to the Studio Modelers, though, so you'll want to give this manual at least a quick once-over, if not a thorough reading before diving in. Don't worry, we'll try and make it as painless as possible. If you're not yet familiar with Line 6 products, let's start with a brief introduction. But first, you've filled out that attractive registration card and put it in the outgoing mail, right? No? Well then, have you logged onto **www.line6.com** and filled out the online registration? If you haven't yet, that's okay, we'll wait here...

## Who is Line 6?

Hi! We're Line 6. As you may know, Line 6 first came on the scene with a new kind of guitar amplifier – the first to put digital software modeling technology to work in a combo amp for guitarists. In order to pioneer this technology, we focused our efforts on the vacuum tube, the little glass wonder that sat at the heart of most every great guitar amp in history – plus quite a few stomp boxes, effect processors, and other pieces of great audio gear. The Line 6 crew assembled a dream collection of amplifiers recognized by guitarists the world over as true “tone classics”, and, with a guitar in one hand and modern computer measuring gear in the other, put these amps through their paces and got them to give up their secrets—a guitar pickup output, after all, is an electronic signal, and tubes and the rest of the guitar amplifier electronics are really just a complex form of signal processing. These electronic explorers thus distilled the noble history of guitar tone heritage into a revolutionary, patented DSP (digital signal processing) software-based modeling technology which gave Line 6 the power to create super silicon-based life forms like our history-making amplifiers and POD.

## Introduction: Who is Line 6?

1 • 2

Well, it's been some years since the first Line 6 amp brought modeling to the combo amp world, followed by the Line 6 POD that revolutionized the world of guitar recording. During that time, our thoughts have often turned from our amps to our feet. We started thinking about all those great stompboxes that have been as much a part of the electric guitar experience as the amplifier. So, turning from our massive collection of vintage amps we had assembled for our first products, we began the task of assembling the most in-demand and hippest stompboxes ever made in order to put them through the same rigorous modeling procedures. Many a night we had to stay up late comparing different delay pedals, and on the weekends we had to haul vintage effects home for more testing in our personal studios. (Yes, it's a rough job, but someone has to do it.) When all was said and done, though, we had created a series of Stompbox Modelers, each one containing a dream collection of lovingly crafted digital software models of a whole carpet-full of some of the greatest effects in guitar history.

Once we'd accomplished that, our attention turned to guitarists who love rack gear, as well as keyboard players, recording engineers, home recordists, and other non-guitarist types. After all, they needed these sounds, too! One night, a vindaloo inspired dream came to us, in which a voice called out, "Rackmount! With serious MIDI functions, too!" Never ones to ignore visions brought on by amazingly hot, yet tasty food, we started work on what you now hold in your hands.

## Quick Start Guide

Hate long-winded manuals? Want to use your Echo Pro *RIGHT NOW* without having to worry about any details? Here's the important stuff to know:

**1. Hook It Up** – Plug the output of something into Echo Pro's rear panel **R/Mono** Input (for mono sources) or both **R/Mono** and **Left** inputs (for stereo). Connect the Echo Pro outputs to the input of whatever you're feeding the echo to – guitar amp, mixing board, etc. Chapter 3 gives details.

**2. Power It Up** – Turn the **Input** and **Output** knobs on your Echo Pro all the way down, press the **Power** button. Light show! Make sure the volume is turned up on whatever is receiving Echo Pro's output signal, so you'll hear what you're doing.

**3A. Crank It Up: Guitar Source** – If you're connecting a guitar directly to Echo Pro and running straight into the front of a guitar amp, turn the Echo Pro **Input** knob way up (probably to max). Don't expect to hit the yellow or red lights on the Echo Pro input meter; you'll only get the green. Don't set the Echo Pro **Output** level too high, since the Echo Pro can put out a much hotter signal than your guitar can and will overload the front end of your amp if you do. The ideal setting is to be at the same level as your guitar would be if it were plugged straight into the amp.

**3B. Crank It Up: Line Level Sources** – If you're feeding Echo Pro a signal from a line level source (keyboard, mixing board, etc.) do this: while sending a healthy signal to your Echo Pro, turn up the Echo Pro **Input** knob until the input meter is flashing red occasionally, then back it down just a hair so you're living in the yellow zone. *Avoid hitting the red in normal use.* Next, press the **Bypass** button on the Echo Pro and turn up the output volume until the meter on your mixer (or whatever) reads about the same as the input meter. Now, press the Bypass button again to let the echo through. If you made all your connections correctly, and remembered to turn up the Aux send and return and other levels on your board (D'oh! Been there, done that!) you should be hearing echo.

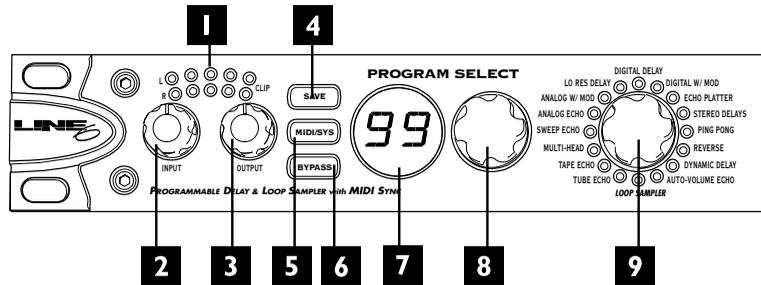
**4. Dial It Up** – The **Program Select** knob is 'velocity sensitive' – when you turn it slowly, the programs change one by one, but if you flip it fast, you'll jump ahead (or back) a number of programs at a time. See the included **Preset Chart** for details.

**5. Read Up** – Have fun for a while, then come back to this manual for more insights into the details....



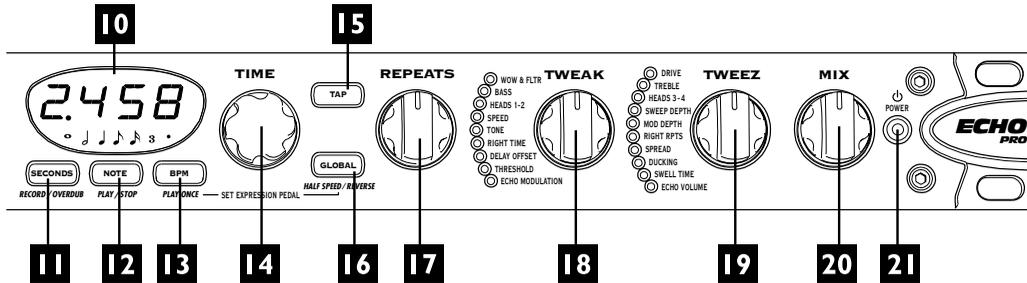
# GUIDED TOUR

*There are a few types of tourists. First, there are the ones who sign up with the tour group, read the itinerary in advance, hang on every word of the tour guide, and come home with a solid overall understanding of the new place they've visited, although they may have missed that neat little cafe that was just up the side street they rushed past on the way to another museum. Then, there are the adventurous types who just strike out on their own, wander around, find that little cafe – but who might wander into the wrong part of town and get into trouble. Finally there are the (in our opinion) wiser tourists who read the guide book before travelling, ask questions, use small tours to figure out where they want to come back and visit in more depth, and still leave themselves a chance for some adventure. In an attempt to join this last group, let's take this opportunity to look at all the controls and connections that your Echo Pro has, and give you a little bit of explanation of what they do, shall we? You've got a lot of control at your fingertips here, and you don't want to miss out on any of it.*

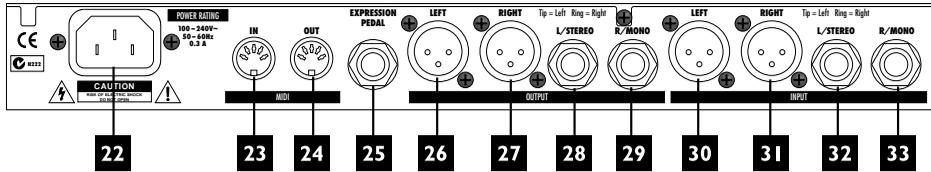


## Front Panel Controls

1. **Input Level Meters** – Shows you input levels and whether you're clipping the input of your Echo Pro (in which case you'll see red and should turn down).
2. **Input Level** – Set the input level here. While feeding a signal, turn up the input level until the input meter is flashing red occasionally, then back it down a hair.
3. **Output Level** – Set the output level here.
4. **Save button** – Press to save an edited program.
5. **MIDI/Sys button** – Press to access MIDI functions and other System editing functions like Bypass Mode, Mix Mode, or to recall factory programs. Flickers when there's incoming MIDI on the MIDI Channel Echo Pro is set to listen to.
6. **Bypass button** – Press to bypass effect processing.
7. **Program Display** – Shows which program you've selected. See later sections for detail on its use for Save, Compare and MIDI/Sys functions.
8. **Program Select knob** – Selects one of Echo Pro's programs. See later sections for detail on its use for MIDI/Sys functions.
9. **Model Select knob** – Selects model. (Kinda figures, doesn't it?)
10. **Time/Note Display** – Shows Delay Time in *Seconds* or *BPM*, depending on whether the Seconds or BPM buttons are lit. The Note Value is also always shown. See later sections for detail on the display's use for Saving and MIDI/Sys mode.



- 11. Seconds button** – Press to display current Time in Seconds. Also functions as Record/Overdub button for Loop Sampler.
- 12. Note button** – Sets Note Value to determine Delay Time. Also functions as Play/Stop for the Loop Sampler.
- 13. BPM button** – Press to display current Tempo in BPM (beats per minute). Also functions as Play Once button for the Loop Sampler.
- 14. Time knob** – Sets Delay Time in Seconds or BPM, whichever you’ve chosen.
- 15. Tap button** – Tap to set Tempo for Delay Value.
- 16. Global button** – Press to enable Global Time/Tempo Mode. Global overrides the time/tempo stored within each program with the current time/tempo. The Global button also functions as Half Speed/Reverse for the Loop Sampler.
- 17. Repeat knob** – Controls number of echo repeats (aka “feedback”).
- 18. Tweak knob** – Controls various functions depending on the model chosen. The lights to its immediate left show just what you're adjusting for each model.
- 19. Tweez knob** – Controls various functions depending on the model chosen. The lights to its immediate left show just what you're adjusting for each model.
- 20. Mix knob** – Sets Effect Mix from 0% to 100% Wet (or is that 100% to 0% dry?).
- 21. Power switch** – Makes all the pretty lights go on and off.



## Rear Panel Connections

- 22. Power** – Where the end of the power cord that doesn't plug into the wall goes.
- 23. MIDI In** – Connect the MIDI Out from your sequencer, synthesizer, or other MIDI Device to the MIDI In here.
- 24. MIDI Out/Thru** – Connect the MIDI Out on the Echo Pro to the MIDI In of your sequencer, synthesizer, or other MIDI Device. You can switch this to function as a MIDI Out or a MIDI Thru via the MIDI/Sys Menu.
- 25. Expression Pedal Input** – Plug the optional EX-1 expression pedal in here.
- 26. +4dBu Balanced XLR Out Left** – This audio connection keeps ground separate from the signal by running 3 lines; two conductors (+ and –) and a ground/shield. This type of connection significantly reduces noise with longer cable runs, and enables hotter levels to be transmitted (which is a good thing). There's a certain amount of controversy about which pin should be “positive” or “hot”, so it's always a good idea to check. (Some manufacturers have staked their claim to pin 2, others to pin 3. We come down firmly on the pin 2 side.)
- 27. +4dBu Balanced XLR Out Right**
- 28.–10dBV Unbalanced 1/4" Out Left/Stereo** – When you connect a 1/4" unbalanced cable (like a guitar cable) this functions as the left output. To connect to the FX Return of a POD Pro, Flextone II, or other Line 6 product that uses 1/4" TRS connections for its loop, use a 1/4" TRS cable and connect to the loop's return jack. “TRS” means Tip, Ring, Sleeve and you'll see that this type of connector has an extra ring carved out on it that a standard mono 1/4" cable (like the ones normally used for guitar) lacks. See the pretty pictures in Chapter 3.

**Very Important Note:** if you want to run balanced signals, please use the XLR jacks to connect the Studio Modeler to your rest of your system. The 1/4" connectors are set up to run strictly unbalanced.

**29. -10dBV Unbalanced 1/4" Out Right/Mono** – Mono Out unless something's plugged into the Left/Stereo Out, in which case it's the Right Channel.

**30. +4dBu Balanced XLR In Left**

**31. +4dBu Balanced XLR In Right**

**32. -10dBV Unbalanced 1/4" In Left/Stereo** – With a 1/4" unbalanced cable this is the left input. To connect the Stereo Effects Send of a POD Pro or Flextone II to the Echo Pro, use a 1/4" TRS cable to connect to this input.

**33. -10dBV Unbalanced 1/4" In Right/Mono** – Mono In unless something's plugged into the Left/Stereo In, in which case it's the Right Channel.



# BASIC OPERATION

## Audio Hookup Options

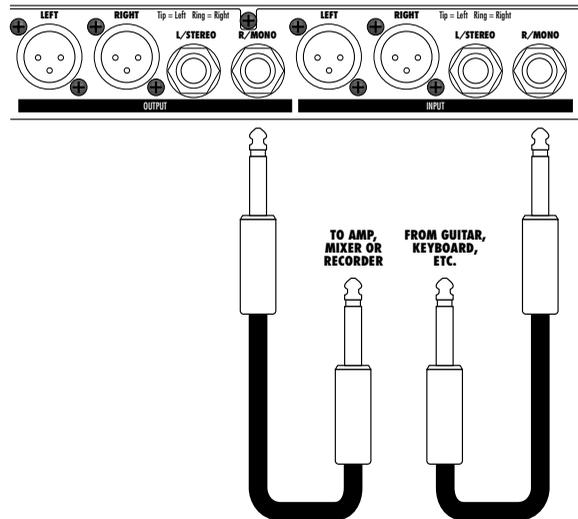
Note that you'll want to get the best cables you can afford. Although we'd avoid claims that the cables are packed with Australian air or any such audiophile voodoo, good cables can make a difference. Really. And if you've got one of those setups with five different adapters plugged into each other to make the gazinta-gazoutas\* match up (and we've been there, believe me!), we'd suggest actually going out and buying or making the correct cables. But it's just a suggestion....

Here's our first contestant in the Audio Hookup Diagram Regional Finals:

### I Mono In & Out

Connect the output of a guitar, keyboard, etc. to the R/MONO input of the Studio Modeler.

Connect the R/MONO output of the Studio Modeler to the input of your amp, mixer or recorder.

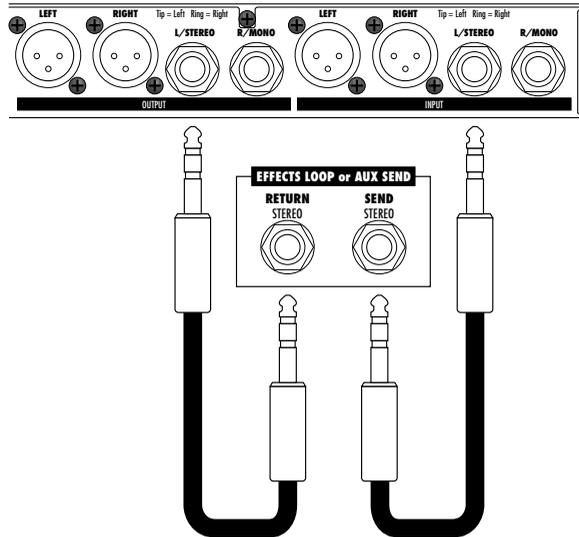


\* Or, as translated from audio technician speak: goes in to's and goes out of's

## 2 Using with a Line 6 Flextone II or POD Pro

Connect the Stereo Effects Loop Send to the Stereo input of the Studio Modeler using a 1/4" TRS cable.

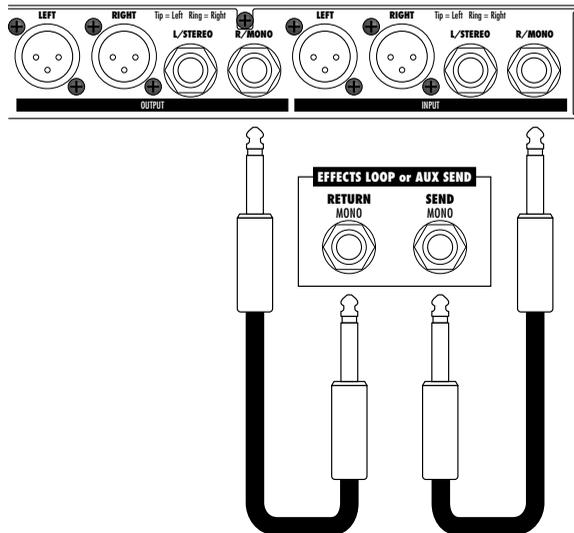
Connect the Stereo output of the Studio Modeler to the Stereo Effects Loop Return on your Flextone II or POD Pro using a 1/4" TRS cable.



## 3 Connecting to an Amp with a Mono Effects Loop

Connect the Effects Loop Send on your amp to the R/MONO input on the Studio Modeler.

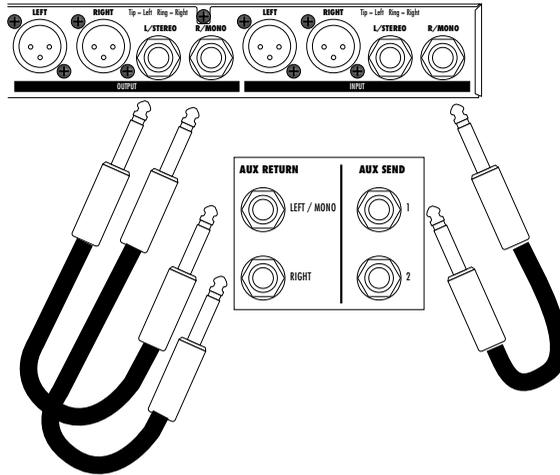
Connect the mono output of the Studio Modeler to the Effects Loop Return on your Amp. If your amp has an Effects Loop Mix control, set it to 100% wet.



#### 4 Connecting to a Mixer - Mono Send, Stereo Return

Connect an Aux Send from your mixer to the R/MONO input of the Studio Modeler.

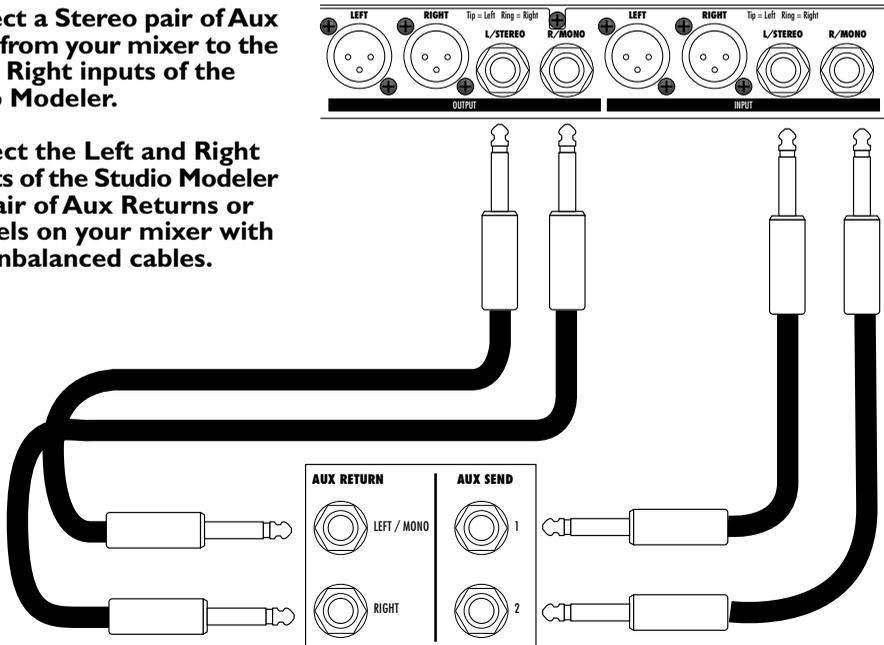
Connect the Left and Right outputs of the Studio Modeler to a pair of Aux Returns or channels on your mixer with 1/4" unbalanced cables.



#### 5 Connecting to a Mixer - Stereo Send, Stereo Return

Connect a Stereo pair of Aux Sends from your mixer to the Left & Right inputs of the Studio Modeler.

Connect the Left and Right outputs of the Studio Modeler to a pair of Aux Returns or channels on your mixer with 1/4" unbalanced cables.



## Selecting a Program

There are two methods of selecting a program:

First, you can dial it up from the Program Select knob. Remember that the Program Select knob is 'velocity sensitive'. The faster you spin it, the further it jumps, so if you need to get from program 1 to program 99 in a hurry, just twirl it quickly. A slow spin moves you one program at a time.

If you're using MIDI with the Echo Pro, send a MIDI Program change message from any MIDI controller to change the program. And because we were thinking ahead, you can actually call up the basic models as Programs, giving you a total of 115 available programs. MIDI Program Changes also control looper functions like record/overdub, play/stop, reverse, etc. See the MIDI Program Change Chart in the Appendix.

## Editing a Program

Just call up a program or select a model with the Model Select knob and start twisting and tweaking. You can tell that you've edited a program by the hypnotic, slow flashing of the Save button (just don't stare at it for too long, or you may start clucking like a chicken).

## Setting Delay Time/Tempo

When digital delays first hit the market back in the late 70's, long before Tap Tempo hit the scene, calculators and stop watches were standard issue in most studios. Engineers would calculate the correct delay time for the tempo of a song by dividing 60,000 into the tempo. This would give them the 1/4 note delay value, and from there they could calculate all of the wonderful possible rhythmic divisions like a dotted 8th or a 1/2 note triplet by using the a multiplier table like the one on the next page:

**1/4 Note Delay Time Multiplier Table**

<b>Note Value</b>	<b>Multiplier</b>	<b>Note Value</b>	<b>Multiplier</b>
Whole Note	4	Dotted 1/8	.75
Dotted 1/2	3	1/8 Note	.5
1/2 Note	2	Triplet 1/8	.333
Triplet 1/2	1.333	Dotted 1/16	.375
Dotted 1/4	1.5	1/16 Note	.250
1/4 Note	1	Triplet 1/16	.167
Triplet 1/4	.667		

With the Echo Pro, you get to bypass the math and just press buttons:

### **Setting Delay Time in BPM**

To set the delay time in terms of tempo and rhythm:

1. Press BPM to see the delay time expressed as a tempo.
2. Tap a tempo with the TAP button. (Tap on the 1/4 notes along with the music that you're adding echo to.)
3. Press the NOTE button as needed to select the note division you'd like for your echo effect.

## Setting Delay Time in Seconds

To set the delay time in seconds:

1) Press SECONDS

2) Use the TIME knob to set the delay time. The Time knob is velocity sensitive. Twist it quickly for coarse adjustments, and slowly for finer adjustments.



Now let's talk a little bit about the Time/Note display and its related buttons, since that's where you'll get a lot of your information about what's going on. This display shows you the delay time in either Seconds or in Beats Per Minute (BPM). The buttons underneath it let you determine which of those two options you get, as well as select what rhythmic value you want the delay to have. Bear in mind, though, that we're not trying to force you into anything – if you don't want to have a specific note value for a delay, just press the Seconds button and use the seconds display and the Time knob to dial up a delay value and ignore the whole BPM/note thing.

But, just in case you do want to do something cool with note values, here's an example: Let's say you're writing a new Drum'n'Bass dance hit, with the leisurely tempo of 183 bpm. Let's also say that you want the sample of Mark McGwire hitting #70 that you're using as a snare to have a synced delay of a quarter note triplet. There's no need to get out the calculator (or boot up that special piece of software you have) to figure out what the millisecond value would need to be. You simply press the button labeled "BPM", turn the Time knob until the display reads "183" and press the Note button until "♩ 3" is lit, and you're there. If your curiosity gets the better of you (or you're working on the project with a friend and he needs to know 'cause he hasn't bought his own Echo Pro yet) and you decide you really *need* to know what the millisecond value is for that, just hit the Seconds button. Ta-da! The display switches back to milliseconds, and you haven't even had to *think* about that math stuff.

## Global (Time/Tempo)

Global Time/Tempo determines whether models and programs will load with their stored delay time or ignore that and use a Global delay time or BPM value. Just press the Global button to toggle it on and off.

**Hint:** *It's on when the button is lit.*

## Set Expression Pedal

Pedal Assign mode lets you create two different versions (kind of like 2 snapshots of the front panel controls) of a program and morph between them with an expression pedal (like the Line 6 EX-1) connected to the 1/4" jack on the rear of the Echo Pro. This is great for controlling single parameters on the fly like the wet/dry mix, or exploring more radical soundscapes like adjusting delay time and feedback in tandem on the Tape Echo model. The expression pedal is a key performance tool for both live and studio work. You can also do the same thing via MIDI using MIDI continuous controller # 4.

If you're one of those types who's used to the way an Expression Pedal works with the Line 6 DL4 Delay Modeler stompbox, you'll want to listen carefully. The Echo Pro works a little differently, but the concept remains the same. You may also want to check out page 15 in this chapter which describes the intricacies of the Pedal Update Mode options. But for now, here's the basics:

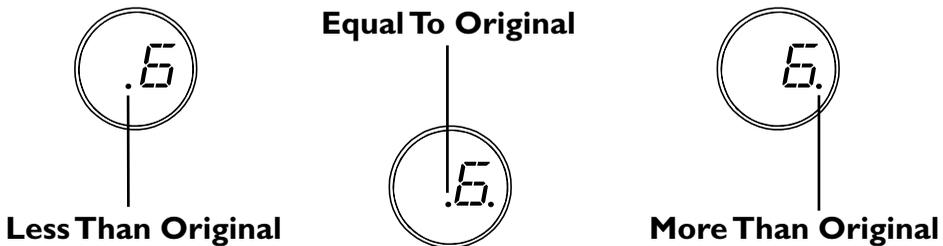
1. Make sure that your EX-1 is plugged into the correct jack on the back of your Echo Pro. From Program Select Mode, press and hold the Global button and then press the BPM button at the same time.
2. With the EX-1 in the heel down position, set up your basic program (model, time, repeats, tweak, tweeze, etc.).
3. Move the EX-1 to the toe down position and set up a variation on the same program (note: you can change any knob but model).
4. Move the EX-1 from heel to toe and back while feeding a signal through your Echo Pro so you can make sure that the program is working the way you want.
5. Store the program (if you like what you've done and want to keep it), or press BPM and Global at the same time. Either one will exit Pedal Assign mode.

## Mix Control

The Mix control has been optimized for each model to give you the most usable range of mix variation. Watch the display as you adjust the knob. 50% Dry/50% Wet will not always be at 12 O'Clock like you might be expecting. We've used our ears to set this up intuitively, giving you the best balance of delay vs. dry signal range, so close your eyes if you have to and dial away.

## Compare

Wonder exactly what edits you've made? Do you want to get back to the original program settings? Did you increase or decrease the wow and flutter and now wonder what it was when you started out? It's easy to tell! Whenever you're editing a Program, you've also got some handy Compare information available. Just look at the Program display while you turn a knob. You'll see that when you turn any knob to edit the program, one or more dots in the Program display will turn on, depending on whether you've turned the knob up or down versus the saved settings for the Program. As illustrated by the images below, there are three possibilities: If the left dot is lit, the current value is less than the stored version of the program. If the dot to the right is lit, it's greater than the stored version. If both dots are lit, the value matches the stored program. Pretty simple, huh?



## Saving a Program

Okay, so you've edited a program and come up with your ultimate Multi-Head setting. Now what do you do? You save it so you can always amaze your friends with your impression of a six-armed guitar player, of course! There are a couple of different ways to save a program, so here goes with the explanation type stuff:

### Regular Save

If you want to save your edits as a regular program, overwriting the program you started from, simply press the Save button twice. That's it, no muss, no fuss, you're done. If, on the other hand, you like the original program and want to keep it, but also like your edited version, you'll need to save it to a new location. To do this, press Save once. The Save Button will start flashing quickly. (If you have never saved your own program to this location before, the display will show "FACT" to let you know that you're saving over a factory setting. If you have saved to that location before, it will show "USER".) Now, use the Program Select knob to choose the location where you want to save your new sound and press Save a second time.

**Hint:** *It's probably a good idea to go through all the presets and figure out which ones you like, which ones you could live without, and make a list of both. The best time to figure that one out isn't when you're trying to save a fabulous new program. And what if you blow it and overwrite one that you loved? Not to worry, just skip ahead a couple of pages to the section on Restoring Factory Settings.*

### Custom Save

Here we come to one of the very cool features of Echo Pro. If you love your new edited program so much that you just want it to pop up every time you select that model with the Model Select knob, you can do that, too. Just press Save once, so the button begins to flash. Then turn the Program Select knob all the way down. This will take you to an extra setting below 1 that shows up on the display as "FX". When you see "FX" in the program display, press Save a second time, and your edited program will overwrite the default sound on the Model Select knob. Now, whenever you twirl that Model Select knob to "Multi-Head" it's your very own, custom, amazing sound that pops up. It may not be quite as cool as a major label recording contract, but it's getting there.

## MIDI/Sys Functions

MIDI/Sys Mode is where you set different system defaults and determine how your Echo Pro should respond to MIDI program change and controller information, handle information from expression pedals, initiate bulk dumps of MIDI system exclusive information, and various other housekeeping tasks. You get there by, surprisingly enough, pressing the MIDI/Sys button. Once you're in MIDI/Sys mode, you use the Program Select knob to choose which stuff you want to change, and then the Time knob to change it. It's pretty simple, and here's a list of what you can do:

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### Mix Mode



Mix Mode lets you decide whether you want to use the mix (wet/dry) ratio that's stored with the individual programs (PROG), “globally” override the mix ratio for each program in your Echo Pro (GLOB), or eliminate any dry signal altogether for using Echo Pro in a parallel effects loop as is typical with a mixing board (LOOP). To set your desired Mix type:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob down until the Program display shows “MX” if it's not showing already.
3. Turn the Time knob to select which Mix type you want. Bang, you're done!

“PROG” Mix Mode stores the mix (wet/dry) ratio with each individual program.

“GLOB” Mix Mode sets the front panel mix knob (or the corresponding MIDI Continuous Controller) to “globally” override the mix ratio for every program in your Echo Pro as determined by the front panel Mix control. This Global Mix Mode doesn't rewrite your programs; it only applies the Global mix value temporarily. It's especially handy when you've set the delay time/tempo you want, and you then want to surf the models for just the right echo flavor to go with it.

“LOOP” Mix Mode eliminates the dry signal altogether (100% Wet) for using Echo Pro in a parallel effects loop, as with a typical mixing board hookup.

## Bypass Mode



There are several different types of bypass available in your Echo Pro. Which one you'll want to use is going to depend on your application and personal taste. To select or change Bypass Mode:

1. Press the MIDI/Sys button to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows “BY”.
3. Turn the Time knob to select the bypass mode you want. The options are:

### **Bypass Mode: Dry**

When bypassed, this mode routes the dry signal only from the inputs, through the DSP, directly to the outputs, regardless of current Mix settings. It's equivalent to setting the Mix knob to 0% Wet. It like Analog Bypass mode, with the advantage that the pop or click that sometimes happens with ANALOG BYPASS is eliminated in DRY mode.

### **Bypass Mode: Input Mute (IMUT)**

When bypassed, this mode cuts off, (mutes) the input to the effect, but not the output. This enables your effect to “ring out” or decay naturally.

### **Bypass Mode: All Mute (AMUT)**

When bypassed, this cuts off both input and output, so no audio at all is passed through.

### **Bypass Mode: Analog Bypass (ANLG)**

This mode gives you a straight, buffered analog path (with no analog-to-digital conversion) between the inputs and outputs of the Echo Pro when you are in bypass.

## MIDI Channel



Here's where you select which MIDI channel you want your Echo Pro to communicate on. The choices are 1-16 and Omni (which, in MIDI-speak means, "I don't care, I'll listen to every channel"). The default is MIDI channel 1, but if you want to change it:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows "CH".
3. Turn the Time knob to select the MIDI channel of your dreams.

## Program Format



For those of you who own other Line 6 gear like POD, POD Pro, Flextone II, etc., and have gotten used to seeing your program numbers displayed in the Bank/Channel format, we provide the Program Format mode selection. You can choose to have your programs numbered 1-99 (1-99) or 1A-9D (BANK). Since POD and Flextone have only 36 channel locations, programs 37-99 will be displayed normally, regardless of which program format you choose. To choose which you'd prefer, simply:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows "PF".
3. Turn the Time knob to select which Program display type you want.

## MIDI Clock Mode



This one tells the product whether to listen to MIDI Clock Sync or not. For more information about using MIDI Clock, see the chapter on MIDI control. In the meantime:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows “CL”.
3. Turn the Time knob to select “ON” or “OFF”.

Note: When MIDI Clock is enabled, tapping the Tap Tempo button or adjusting the time knob will have no effect on the tempo/delay time. If you wish to regain manual control of these parameters, de-activate MIDI Clock.

## MIDI Map Mode



This one turns MIDI Mapping on and off. For more information about using MIDI Mapping, see the chapter on MIDI control. In the meantime:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows “MM”.
3. Turn the Time knob to select “ON” or “OFF”.

Note: if any change is made to the MIDI Map, this parameter is automatically set to ‘ON’.

## MIDI Out/Thru



The MIDI Out/Thru jack on the rear panel of your Echo Pro is software-configurable to be either a MIDI Out or a MIDI Thru. When set as MIDI Out, Echo Pro will send internally generated MIDI controllers and Program Changes (e.g. You select Program 58 and Echo Pro sends out a MIDI Program Change message telling other MIDI devices on the same channel to change to Program 58), but will not send any MIDI information that it receives. In MIDI Thru mode, it will simply pass along any MIDI messages it receives, but won't send any internally generated MIDI messages out. In either case, Echo Pro will still react appropriately to MIDI messages that are received at its MIDI In. The factory default is MIDI Out. To change it:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows “MO”.
3. Turn the Time knob to select “OUT” or “THRU”.

## MIDI Dump



Here's where you can send out either the current state of the running program (including any edits that you might have made, but not saved) or the entire contents of your Echo Pro as a MIDI System Exclusive Bulk Dump. If you need to know more about just what information is being sent (in other words, if you're some kind of MIDI freak who knows his F0 from his F7), all that's in the appendix on MIDI Implementation. To send data wildly scurrying from your Echo Pro:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows “DU”. You'll notice that when you do this, the Save button also starts blinking.
3. Turn the Time knob to select either “CURR” or “ALL”.
4. Make whatever preparations you need to with the sequencer, librarian, or MIDI utility that's going to be receiving the information (we're not gonna go into all that here), and press the Save button. When Echo Pro is finished Dumping the data the display will read “DONE”.

## Pedal Update Mode



This one toggles between Immediate and Delayed mode for the expression pedal or MIDI controller information. In the Immediate mode, when a new program is selected, the current position of the expression pedal, or the last received MIDI Continuous Controller #4 message will immediately affect the program by morphing its values as set in “SET EXPRESSION PEDAL” mode. (The MIDI controller messages will be ignored if an Expression Pedal is connected to the rear panel 1/4" jack.) In the Delayed mode, when a new program is selected, its settings will be loaded, and will not be affected by the Expression pedal or MIDI CC#4 until they are adjusted by you. Here’s how to set the Pedal Update mode:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows “PU”.
3. Turn the Time knob to select either Immediate “IMMD” or Delayed “DLYD”. The factory default is Immediate.

Why would you want to delay the expression pedal’s effect on your sound anyway? How about this: Let’s say your Program 1 utilizes the expression pedal to adjust the REPEATS of a model, while Program 2 uses the Expression Pedal to adjust the delay time. And now let’s say you want to be able to call up Program 1, pedal the REPEATS like crazy, and then switch to the Programmed state of Pedal 2 without having to worry what position you just left your Expression pedal in. DELAYED mode would insure that you could switch to Program 2, and have the Echo Pro wait for you to move the Expression Pedal again before morphing Program 2. Sound like a good idea? Well then congratulations, DELAYED mode is for you!

## MIDI Controller Assignments



You'll find an extensive discussion of MIDI Controller Assignments in the MIDI Control chapter under "Parameter Control". You'll also find a complete list of just what's controllable in the appendix on MIDI Implementation. Here are the basics to setting it up:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display starts blink between "CC" and a number of other cryptic TLAs (Two Letter Abbreviations). Keep turning the Program Select knob until you come to the controller you want to change (for a complete list of what you can change, including those TLAs, see the chapter on MIDI Control).
3. Either send your Echo Pro a controller message from the controller you want to use, or turn the Time knob to select the controller number you want to use.

Your Echo Pro shipped from our factory pre-configured with the following default MIDI Controller Assignments:

<b>CC# 4</b>	<b>Expression Pedal</b>	<b>CC# 76</b>	<b>Mix Knob</b>
<b>CC# 28</b>	<b>Play/Stop</b>	<b>CC# 77</b>	<b>Bypass Button</b>
<b>CC# 36</b>	<b>Half Speed</b>	<b>CC# 78</b>	<b>Effect Model Select</b>
<b>CC# 50</b>	<b>Record/Overdub</b>	<b>CC# 80</b>	<b>Play Once</b>
<b>CC# 64</b>	<b>Tap Button</b>	<b>CC# 81</b>	<b>Stop Only</b>
<b>CC# 65</b>	<b>Note Value</b>	<b>CC# 82</b>	<b>Overdub Only</b>
<b>CC# 66</b>	<b>Time Knob</b>	<b>CC# 83</b>	<b>Rec/Play/Stop/Play/Stop</b>
<b>CC# 67</b>	<b>Repeats Knob</b>	<b>CC# 84</b>	<b>Rec/Stop/Play/Stop/Play</b>
<b>CC# 68</b>	<b>Tweak Knob</b>	<b>CC# 85</b>	<b>Reverse</b>
<b>CC# 69</b>	<b>Tweez Knob</b>		

## Restoring Factory Settings



Made a mistake? Overwrote a factory preset you really loved? Never fear, we've given you a way to restore the factory settings, either all at once, or one at a time.

Press the MIDI/Sys button and use the Program Select knob to select "FR" (for Factory Recall, in case you were wondering).

Note that the Save button will be flashing quickly and the question mark in the Time Display will be flashing slowly.

### Individual Restore

At this point, you can restore any single program to its factory default by using the Time knob to select the program number you want to restore (since the display shows Program #1, we'll use that as an example), then pressing Save. At this point, the Time Display will prompt you to see if you're absolutely positive this is what you want to do. If you're sure and there's no changing your mind, just press Save a second time. The Echo Pro will restore the program to its factory setting, flash "Done" on the Time Display for a couple of seconds, then return to the display shown above. If you're finished, simply press MIDI/Sys to go back to Program mode. If you've got other programs you want to restore, you may (as they say in the shampoo biz) repeat as necessary.

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows "FR". You'll notice that the ol' Save button starts blinking, just awaiting your command.
3. Turn the Time knob to select Program 1-99. You'll notice a blinking question mark in the Time display, next to the program number.
4. Press Save. The Time Display will prompt you with "SURE" so you have ample opportunity to question your motives and reason for existence, as well as determining that this is, in fact, the program number you want to restore.
5. If you're sure, press Save a second time, and you'll be rewarded with the word "DONE" in the time display, and then...

## Basic Operation: Restoring Factory Settings

6. Press MIDI/Sys to exit MIDI/Sys mode.

### Global Restore

Let's say you decide that you want to wipe out all 99 Programs and start with a clean slate. You can set them all back to the factory defaults very easily. Simply follow the procedure we outlined above, but instead of selecting a program number, turn the Time knob all the way up. Keep going when you hit Program 99 and the Time Display will show "All". Press Save, and once again you'll be prompted to make sure this is what you want. If you've got your heart set on it, take a deep breath and press Save a second time, then press MIDI/Sys to return to Program Select mode. Presto, your Echo Pro now sounds as if it's been freshly removed from the box.





# MODEL DESCRIPTIONS

## TUBE ECHO – BASED ON MAESTRO EP-1



4 • 1

The classic 1963 Maestro EP-1 was the first of a series of “Echoplex” designs distributed by the company, and made by Harris-Teller in Chicago. As touted in a Maestro advertisement, the Echoplex’s “...special effects range all the way from a controlled high speed reverberation to a full, throbbing echo”!

The main feature of the Echoplex design is a special cartridge of looped 1/4" tape that wraps past separate record and playback heads. The position of the playback head can be moved to adjust the delay time from 60 to 650 milliseconds. Your Echo Pro's Tube Echo emulates the classic Echoplex tone with the extra advantage of up to 2.57 seconds of delay time.

**TWEAK** adjusts the emulated tape's wow and flutter from 0-100%

**TWEEZ** adjusts “drive,” which is the amount of distortion created by the unit's tube electronics and tape saturation. Range: 0-100%

This image is provided for the sole purpose of identifying the specific product that was studied during Line 6's sound model development, and does not imply any cooperation or endorsement.

## Model Descriptions: Tape Echo – based on Maestro EP-3

### TAPE ECHO – BASED ON MAESTRO EP-3

4 • 2



After the tube-based EP-1 and EP-2, Maestro introduced the solid state EP-3, with transistors instead of tubes for the sound electronics. The EP-3 uses the same basic mechanical design as the original Echoplex, including the looped 1/4" tape, but does not have the tube distortion sound of the EP-1.

EP-3s contributed to many classic recordings of the 70's. Eddie Van Halen and Jimmy Page were both avid EP-3 users.

Unlike the Tube Echo Model based on the EP-1, which gives you control of wow, flutter and distortion, our EP-3 emulation is designed to give you a less distorted tape emulation with adjustable tone controls.

**TWEAK** adjusts bass response. Range:  $-15.2\text{dB}$  to  $+8.8\text{dB}$ .

**TWEEZ** adjusts treble. Range:  $-15.2\text{dB}$  to  $+8.8\text{dB}$ .

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## MULTI-HEAD – BASED ON ROLAND RE-101 SPACE ECHO



4 • 3

Long before Boss pedals, the Space Echo was Roland's first venture into the world of effects processing. Instead of having one movable playback head (like the Echoplex) this machine has multiple stationary heads. You change delay times by switching amongst these heads, and then fine-tune delay time with a motor speed control. The groovy part is that you can play back on multiple heads at the same time to get multi-tap delay effects. Like the other effects in Echo Pro, Multi-Head has a maximum delay length of 2.57 seconds, however, the Multi-Head delay divides the selected delay time evenly between the 4 heads.

The TWEAK and TWEEZ knobs let you select combinations of the emulated tape heads. When you're adjusting Tweak and Tweez, the display will look something like this:

You can always tell which heads are turned on and off from this display, since, if the head's not on, you'll see a dash, instead of the head number.

**TWEAK** turns heads 1 & 2 on and off.

**TWEEZ** turns heads 3 & 4 on and off.

## **SWEEP ECHO**

This Model is a Line 6 original. Starting with the basic tone of our EP-1 tape delay emulation, we added a sweeping filter effect to the delay repeats to give you unique new creative possibilities for adjusting the tone of your delays.

In technical terms, the **TWEAK** and **TWEEZ** knobs adjust the speed and depth of a sine wave used to modulate the tone of the tape emulation. You can use these controls to create and explore your own shifting landscape of tonal possibilities. Grab a hold of your guitar and your Echo Pro's knobs and see where you end up.

With the optional Line 6 expression pedal, you can set things up so that the pedal takes you from no modulation (**TWEEZ** at its minimum value) at the heel-down position to swimming modulation when you pedal forward, so you can bring out the Sweep part of the Sweep Echo for your big solo.

**TWEAK** adjusts the sweep speed from 0.1 to 20 Hz.

**TWEEZ** adjusts the sweep depth from 0% to 100%.

## ANALOG ECHO – BASED ON THE BOSS DM-2



4 • 5

Analog echo units like the DM-2 were designed as improvements over the tape echoes that came before them, using “bucket brigade” electronics to give guitarists echo units that were more reliable than the tape-based delays, with the added advantage of a low power circuit that can be run on batteries.

Analog delays are treasured for the warm, distorted tones they produce, and are also great for creating more experimental sounds. Try this, for instance: set the DELAY TIME to 1 second and the REPEAT knob to max and play in some guitar, so the delay circuit “overloads.” Now spin the DELAY TIME knob quickly to get something like the sound of a space-aged speeding race car imploding on itself.

**TWEAK** adjusts bass. Range: -15.2dB to +8.8dB.

**TWEEZ** adjusts treble. Range: -15.2dB to +8.8dB.

**Model Descriptions:** Analog Echo w/ Mod – based on Deluxe MemoryMan

## **ANALOG ECHO W/ MOD – BASED ON DELUXE MEMORYMAN**



4 • 6

This model is based on the Electro-Harmonix Deluxe Memoryman. This pedal uses the “bucket brigade” electronics of other analog echoes, and adds a chorus circuit. This adjustable chorus is applied to the echoes only, leaving the direct sound unaffected.

This popular pedal, with its warm, distorted tone and swimming echoes, became an important tool for many guitarists, and was an essential part of the guitar sounds for the first U2 album.

Part of the Deluxe in Deluxe Memoryman was the increased delay time of 500 milliseconds. Your Echo Pro’s Analog Echo emulates classic Memoryman tone with the added advantage of 2.5 seconds of delay time.

**TWEAK** adjusts modulation speed from 0.05 to 9.40 Hz.

**TWEEZ** adjusts modulation depth from 0% to 100%.

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## LO RES DELAY

The first digital delay units were introduced in the early 80's. These pedals and rack boxes took advantage of emerging digital technology to provide guitarists with longer delay times. Unlike the 16 bit digital of today's CDs, and the even higher resolution provided by some audio gear (like the 24 Bit processing of your Line 6 Echo Pro), these early digital units generally had only 8 bit resolution.

Low bit resolution can create a unique sort of grunge and noise that is sometimes just the sound you're looking for, and that's why these old delays are still used to give a particular shape to the sounds that are run through them. Early model digital samplers are sometimes used in modern-day industrial and electronica to achieve these effects. Try this model on a low resolution setting to get that characteristic digital grunge.

Use the TWEEZ knob with this model to adjust the Echo Pro's processing anywhere from its normal 24 bit resolution down to as little as 6 bits. Your direct sound, of course, will not be affected. Tone control of the delay is also provided, via the TWEAK knob.

**TWEAK** adjusts tone with a lowpass filter ranging from 0.3kHz to 12.0kHz

**TWEEZ** adjusts digital resolution from 24 down to 6 bits.

## Model Descriptions: Digital Delay

### DIGITAL DELAY

This model is a digital delay with bass and treble tone controls. The 24 bit processing and true stereo audio path of the Line 6 Echo Pro series make it one of the best digital delays you'll find.

**TWEAK** adjusts bass. Range: -15.2dB to +8.8dB.

**TWEEZ** adjusts treble. Range: -15.2dB to +8.8dB.

4 • 8

### DIGITAL DELAY WITH MODULATION

Choose this model to add a chorus effect to your digital delays. Like the chorus of the Analog Delay w/ Mod, this modulation is applied to the delay repeats only, leaving your direct sound unaffected.

**TWEAK** adjusts modulation speed from 0.05 to 9.40 Hz.

**TWEEZ** adjusts modulation depth from 0% to 100%

## ECHO PLATTER



4 • 9

Another Line 6 original, Echo Platter was inspired by magnetic platter echos similar to the Binson Echorec used by psychedelic clinicians like Pink Floyd. At the heart of these units is a spinning metal platter and a record/playback head that floated on the platter (hey, it's kinda like a real primitive hard drive!). This delay is somewhere between the tube and solid-state Echoplexes in tone, with a very interesting wow and flutter that you can dial up to suit your mood. See you on the dark side of the moon...

TWEAK adjusts Wow and Flutter from 0% to 100%.

TWEEZ adjusts Drive from 0% to 100%.

## **STEREO DELAYS**

Ever asked yourself, “How did The Edge (U2) get that groovy sound on Where the Streets Have No Name”? (Check out Preset #11)

Stereo delays, my friend. It’s the secret to many a U2 song, as well as the “Big L.A. Solo” sound of the late ’80s. Set one side as a fast echo with many repeats, and the other as a slow delay with just a few repeats. Voila, you’re famous!

4 • 10

This model highlights one of the features of your Echo Pro – the True Stereo nature of both the direct path and the delay processing. Signals that come in the left and right inputs are kept discrete, processed separately, and passed out the left and right outputs separately (for a mono in/out hookup, left and right delays are both sent to the left/mono out).

Thus, any stereo signals that you process with your Echo Pro will retain their stereo separation, rather than collapsing to mono, as happens with lesser effect units that offer left and right inputs, but simply sum these together for processing. This means that your delay signal shows up in your mix with the same stereo placement as the direct sound, instead of your delay signal showing up right in the center of your mix.

**TIME** sets Delay Time for left channel.

**REPEATS** sets number of Repeats for left channel.

**TWEAK** sets Delay Time for right channel.

**TWEEZ** sets number of Repeats for right channel.

## PING PONG



4 • 11

The Ping Pong Delay has two separate channels of delay, with the output of each channel flowing into the other, going back and forth like a game of ping pong.

The DELAY TIME knob sets the time for the right side delay line, and the TWEAK knob sets the time for the left side delay line, as a percentage of the Main Delay Time. Sound too tricky? Just turn DELAY TIME to set the longer delay time you hear, and turn TWEAK to adjust the shorter delay time. If you set TWEAK straight up at 12 o'clock, your left and right delays are evenly spaced.

**TWEAK** adjusts the offset between the two delays from 0% - 98%

**TWEEZ** adjusts stereo spread from 0% to 100% (at minimum, signal is mono).

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## **REVERSE**

!seltaeB eht dna xirdneH imiJ ekil tsuJ – Take a step back in time with your cool new reverse delay. Whatever you play in comes back at you backwards, delayed by the time you set with the DELAY TIME knob.

To use this little wonder most effectively, try playing a legato lick, ignoring the reverse playback as well as you can. Longer licks can translate into very cool reverse phrases.

4 • 12

When using Reverse, try setting MIX fully-clockwise (100% wetness) so all you hear is the reversed sound – instant backwards guitar solo fun.

If you have an expression pedal connected (directions for using the optional Line 6 expression pedal are in the early pages of this handbook), try setting the toe position to a very short delay time – this will give you a weird “resonant filter” effect. Set the heel position to a nice long reverse time. Then start playing and sweep the pedal back from toe to heel for the hippest time warp ever available for guitar.

**TWEAK** adjusts speed for a modulation of the delay from 0.05 Hz to 9.40 Hz.

**TWEEZ** adjusts depth for a modulation of the delay from 0% to 100%.

## DYNAMIC DELAY

This effect was made popular by the tc electronic 2290 Dynamic Digital Delay. This is a sort of “smart” volume control for your delay effect’s echoes, and sets the loudness of the delay echoes based on how hard you play.

While you play, the Dynamic Delay keeps the volume of the echoes turned down, so that the echoes don’t overwhelm what you’re doing. Then, when you stop playing for a moment, the volume level of the repeats turns up to allow the echoes to be heard. The TWEAK knob sets the threshold – the breakpoint where this automatic volume control stops working and lets the echoes through at full volume. The TWEEZ knob adjusts the level of the “ducked” repeats – higher settings will duck the delay level down more.

Try setting TWEAK and TWEEZ to reasonably high values, and hear how the delay effect gets partially muted while you play, helping to avoid that unwanted “muddy” sound.

**TWEAK** adjusts threshold from -20dB to -60dB.

**TWEEZ** adjusts ducking from 0 to -138dB

## AUTO-VOLUME ECHO

This model gives you two effects in one. The Auto Volume part of the equation is a volume fade-in swell, like the attack time on a synthesizer’s envelope generator. Since, unlike other effects in Echo Pro, the swell affects your dry signal, this can be used for a bowing effect, like the one you get by turning the volume knob on your guitar quickly up from zero just after you pick a note. Higher settings for the TWEEZ knob will give you a longer swell time, so that the sound slowly fades in, like a wave.

The other effect is an echo, complete with tape-style wow & flutter modulation, adjustable via the TWEAK knob.

**TWEAK** sets modulation depth from 0% to 100%.

**TWEEZ** sets ramp time for the auto-volume swell. Range: 0.030-1.900 seconds

## **LOOP SAMPLER**

One of our favorites, the Loop Sampler lets you layer yourself until you've become a virtual orchestra. Inspired by everything from the venerable Electro-Harmonix 16 Second Delay to Robert Fripp's odd arrangement of reel-to-reel tape machines, it can give you a fascinating new place to get lost in the convolutions of your own musical brain. We've even given it its own internal 800ms delay. For a more complete breakdown see the chapter "Some Real Life Examples".

4 • 14

**RECORD/OVERDUB (SECONDS)** Press it to start Recording. The button will light. If you press this button a second time while recording, the recording will finish, loop playback will immediately begin, and you'll be in Overdub mode.

**PLAY/STOP (NOTE)** Once you've recorded the loop you like, you can start and stop it any time you like by pressing this button.

**PLAY ONCE (BPM)** This button allows "one shot" playback (the **Play Once** and **Play/Stop** lights come on during one shot playback). From Stop, press this button to play your loop one time and stop.

**HALF SPEED/REVERSE (GLOBAL)** This is a dual function switch. One tap gets you half speed, and a double-tap will give you reverse. You can even use them both at the same time.

**DELAY** sets the internal delay time from 0 to 800 ms

**REPEATS** sets the number of repeats (feedback) of the internal delay.

**TWEAK** sets the internal Echo Modulation from 0% to 100%

**TWEEZ** sets the internal Echo Level from 0%-100%.





# MIDI CONTROL

By this point, you should have a pretty good idea of how all this stuff works when you're just spinning knobs on the front panel of the unit. But there's a whole other world available here. Just look at the rear panel and you'll notice those two funny looking 5 pin jacks labeled MIDI In and MIDI Out. This is where the fun starts! Controlling your Echo Pro via MIDI is the best way to really make it start jumping through hoops. If you're already familiar with MIDI, you can skip to the next section of this manual, but if you're a MIDI neophyte, let's take a moment for a brief history lesson.

## What Is MIDI, Anyway?

MIDI (pronounced Mih-dee) stands for Musical Instrument Digital Interface. When you come right down to it, it's simply a way for one device to communicate with another. (And it's not restricted to musical instruments, either. Practically anything can be controlled from MIDI with the proper accessories. A number of amusement parks even use MIDI to do motion control on various rides and attractions. Crazy, huh?) So, how did this MIDI come to be? That's the next part of our story.

In the mid-1970s, when synthesizers were first starting to make an impact on the sound of mainstream music, there was no convenient way for one synthesizer to "talk" to another. Say you had 5 different synths, and you wanted to play the same note on all of them, but using different sounds, by pressing only one key. Couldn't happen! Different manufacturers used different control voltages to represent different notes, so even if you could hook one keyboard up to control all 5 units, there was no guarantee that they'd all sound the same note when you pressed that key. In 1981, some manufacturers started talking about the bright idea of creating a communications standard so that you could connect a synth from Company A into a synth made by Company B, press a key, and get the same note out, with the same dynamics, sustain, modulation, etc. In early 1983, the initial MIDI standard debuted and NAMM show attendees marveled at seeing one keyboard control another. That was the original idea of MIDI, but it soon began to get more complicated.

It didn't take long for engineers to realize that digital information passing from one keyboard to another could also be stored and played back at a later time, just like a tape deck, by something called a sequencer (because it records a sequence of MIDI events). Early sequencers were stand alone hardware devices that had a limited resolution.

## MIDI Control: Why Should I Care?

(Some only could deal with 24 divisions of a single beat and would force a note to the nearest one of those divisions making things like playing a little behind or in front of the beat, not to mention playing triplets smaller than eighth notes, a bit of a problem.) These early sequencers didn't have a lot of memory either, so there were also restrictions on the length of a song. Once someone figured that you could build a small hardware interface and write a software program that could do the same thing with a desktop computer, things really started to roll. A big plus was that once you got the information in the computer, you could play with the data. You could fluff a note and fix it afterwards without having to retake the whole song or punch in and out and hope that you didn't inadvertently erase something that you wanted to keep. You could even add information (called continuous controllers) about the expression of the note after the fact. MIDI also has channels, 16 of 'em, so that you can even direct certain notes to a specific MIDI device by simply telling it to listen to only one channel, and ignore others. This means that you can, in theory, have 16 different devices connected to a single MIDI connector (or port, as they're frequently called), each playing different parts.

Another big plus for MIDI is that certain types of information are left fairly unstructured, so manufacturers can support device specific features easily. This type of data is called System Exclusive (or Sysex). Sysex is not just channel specific, it's *device* specific. Even with more than one device assigned to a specific MIDI channel, sysex data will only affect the specific device for which it's intended. With the Echo Pros, controller and Sysex information can both be put to work controlling your sound.

## Why Should I Care?

Well, even if you're only going to be using your Echo Pro in a stage rack, and not with a whole MIDI studio setup, its MIDI capabilities can make your life much simpler and more fulfilling (and isn't that what we're all after, anyway?). Even just something as simple as being able to have a program change on another device (like the amazing Line 6 Flexitone II or POD), call up any program on your Echo Pro (or even have several program changes call up the same program), can make your performance or recording life far easier.

## General Usage

There are three general things that you'll probably be using MIDI for with your Echo Pro: Program Changes, Parameter Control, and Tempo/Speed Control. (Sorry, we just couldn't think of a third "P" word that would work.)

### Program Change

Much of the time, when you're using MIDI with your Echo Pro, you'll be sending "Program Change" messages. These are the commands that tell a MIDI device to switch from one program to another. While there are 128 different MIDI program numbers and the Echo Pros only have 99, we haven't let those other 29 program numbers go to waste, as you will see.

Sending a program change is just like using the "Program Select" knob on the Echo Pro front panel. If you've got the Echo Pro MIDI'd up to a sequencer, you can use the sequencer's program change (usually a drop down menu or the like) to select which program you'd like to bring up. If an Echo Pro's slaved to a MIDI keyboard, MIDI Floor Controller, or guitar amp/preamp with MIDI, when you select a program on the first device, your Echo Pro can switch to the same program number you've chosen on the master unit. Much of the time this will be all you need, but what happens if you want to use the same Echo Pro program (let's just say a specific Tape Echo program) with more than one of your synth programs? Does this mean that you have to have the same settings stored in more than one program location? Well, you could do it that way, but enough of that type of situation and you'd start to run out of program locations, even though you've got 99 of 'em to work with. Fortunately, there's....

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## MIDI Mapping



MIDI Mapping is the ability to assign (or map) a received MIDI Program Change message to a specific program in your Echo Pro, regardless of what the internal program number happens to be. This means that you can easily set things up so that programs 12, 48, and 127 on your synth all call up program 33 on your Echo Pro. In fact, you're not restricted to mapping program change messages to program numbers. You can also map a program change to call up a specific Effect Model or even run the Loop Sampler controls on the Echo Pro!

So how do we do this? Well, let's look at how we would go about mapping MIDI Program Change message 26 to the Echo Pro's program 14.

## MIDI Control: MIDI Mapping

1. Press and hold the MIDI/Sys button for two seconds to enter MIDI Map mode (you'll know you're there when the display flashes MIDI... Map).
2. Use the Time knob to select MIDI Program Change 26. (You can also send MIDI Program Change 26 from your master unit to set this.)
3. Use the Program Select knob to choose Program 14 on your Echo Pro.
4. Press "Save" to save the changes.
5. To test, select various Programs on your MIDI Controller. The program numbers on the Echo Pro should mirror the program number on your controller until you select Program 26. At this point, the Echo Pro should change to Program 14.

Okay, pretty simple, no? Now, if you wanted other program change messages to point at the same Echo Pro Program, you would simply perform steps 1-4 above, then, instead of hitting MIDI/Sys to go back to Program Select mode, you would just twirl the Time knob to the other Program Change numbers you wanted to map to program 14 (or send those program change messages directly from your MIDI Master Controller), pressing "Save" after selecting each one, until you were done, then you'd proceed to step 5. You can even have all 127 Program Change messages select the same program on the Echo Pro, but that would be more than a little silly. Not that there's anything wrong with that.

With the Echo Pro's Custom Save feature, you've actually got an extra 16 user definable programs available on your Echo Pro, cleverly concealed beneath the Model Select knob. Thanks to MIDI Mapping, and a little forethought from those clever engineers at Line 6, you can assign MIDI Program Changes to those and treat them just like other programs. (See, we told you we weren't gonna let those extra 29 Program Change Messages go to waste.) In order to map these, here's what you do:

Press and hold the MIDI/Sys button for 2 seconds to enter MIDI Map Mode.

1. Turn the Program Select knob to 99, but don't stop there, keep on turning. You'll notice that the Program Display now reads "FX" and the LEDs around the Model Select knob start to light up in order as you spin the knob. Enjoy the light show for a moment or two, then decide which model you want to map a program change to. (Let's assume you choose Analog w/Mod.)

2. Use the Time knob to select the MIDI Program Change number of your choice. (Once again, you can also send a MIDI Program Change from your master unit to set this.)
3. Press “Save” to save the changes.
4. Press “MIDI/Sys” to return to Program Select mode and test the same way we tested above.

If you keep turning the Program Select knob while in MIDI Map mode, you’ll notice that the Program Display will change from “FX” to “LP”, and the buttons for the Looper controls will light up, in order, one by one. Guess what? This means that you can also map MIDI Program Changes to control those functions (Record/Overdub, Play/Stop, Play Once, Reverse, and Half Speed).

**Note: If MIDI Mapping is turned off in the MIDI/SYS menu, (See MIDI/SYS functions) it will automatically turn back on when you edit the MIDI map.**

## Parameter Control



Another feature of using MIDI with your Echo Pro is the ability to control virtually every parameter of each effect in real-time using MIDI Continuous Controllers (henceforth referred to as MIDI CC#). There are actually 127 of these little devils to go around, which is more than enough to control everything your Echo Pro can do (and then some!).

This means that, for instance, you could create a sequencer track that controlled the number of repeats on an echo, the time, and/or the Tweak parameter of a particular model and have these change from section of a song. There are a number of different ways to do this, and it will vary from one keyboard or sequencer to the next.

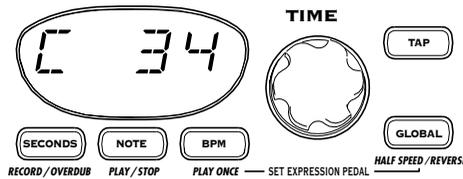
For example, your keyboard may allow you to assign different controller numbers to the mod wheel or a slider or knob on the keyboard, or your sequencer may have some sort of virtual control surface that you can configure to send different controllers. Say you wanted to control the Mix parameter remotely. You'd simply assign MIDI CC#76 (which is the default assignment for the Mix control) to whichever control type you have available and control away. Obviously, there's enough variation in how this is done that we're going to have to refer you to the owner's manual for your keyboard, sequencer, or control surface.

There's a complete listing of MIDI Controller assignments in the Appendix at the end of this manual, but one of the great things about the Echo Pro is that all those MIDI CC#, like Program Changes, can be reassigned. You can even use the same MIDI CC# to control multiple parameters simultaneously (although you'll want to think that through carefully before you start ganging 'em up. While some controllers will work together nicely, there will be some combinations that may be somewhat less than desirable. Remember, just because you *can*, doesn't mean you *have to*).

Let's assume for a moment that you're one of those *serious* MIDI geeks who's got an old breath controller and you want to assign MIDI CC#34 (which is reserved for the breath controller) to the Tweez knob on your Echo Pro. This would give you the ability to control the Sweep Depth of the Sweep Delay model by blowing into the breath controller and the prospect makes you so excited that you can barely sleep (hey, it could happen). All you would have to do is:

1. Press MIDI/SYS to enter MIDI/SYS mode.

2. Turn the Program Select knob until the Program display is blinking back and forth between "CC" and "TZ".
3. At this point, you can either simply use the breath controller (assuming you've got it hooked up via MIDI to your Echo Pro) and the Echo Pro will automatically learn the controller number, or spin the Time knob until the desired controller number (34) shows in the display. In either case, your display should now look like this:



4. Press MIDI/SYS to return to Program mode. Your changes are automatically saved.

These parameters are available for Parameter Control via MIDI:



**Delay Time**



**Delay Repeats**



**Note Value**



**Bypass**



**Tweak Knob**



**Tweez Knob**



**Expression Pedal**



**Effect Model Select**



**Mix Knob**



**Tap Button**

## **Immediate vs. Delayed Controller response**

When you're using your Echo Pro with either the optional EX-1 Expression Pedal or sending MIDI Controllers to dynamically change a program, you've got a couple of decisions to make regarding how it should respond when a program loads. One choice is to have a new program load using the current controller value for the Expression Pedal (or the last known controller value if no pedal is connected or controller information is not currently being received). The other is to have programs always load as if there were no expression pedal connected and not update until they receive a controller message or see the expression pedal move. Why? Well, if you were to set up two different programs, with the Expression Pedal set to control the note value of the delay time, and wanted to switch between the two and still have the delays set to the same note value, regardless of what was stored in the programs, you'd want to use the Immediate mode for maximum flexibility. On the other hand, if you want programs to always load with exactly the programmed sound, regardless of where the Expression Pedal or external controller is happens to be set positioned right now, you would want to use Delayed mode. It's easy to change:

1. Press MIDI/Sys to enter MIDI/Sys mode.
2. Turn the Program Select knob until the Program display shows "PU".
3. Turn the Time knob to select either Immediate "IMMD" or Delayed "DLYD". The factory default is Immediate.

## MIDI Clock and Delay Time Control



One of the coolest things you can do with delay and echo effects is sync them up to your music (something we like to call the “Follow The Bouncing Ball Effect”). The note value parameter of the Echo Pro makes this very easy to do, once you’ve tapped in the tempo. But there’s an even easier way. If you’re in the studio, and you’re using a MIDI sequencer, all you have to do is set that sequencer to transmit MIDI Clock to the Echo Pro, and tell the Echo Pro to pay attention to MIDI Clock. Once Echo Pro receives that MIDI Clock from the sequencer (or other device, like a drum machine), it will lock right up to it. How can *you* do this, you ask?

1. Press the MIDI/SYS button to get into MIDI/SYS mode.
2. Turn the Program Select Knob until the display shows: “CL”.
3. Turn the Time knob until you see: “ON”.
4. Press MIDI/SYS to go back to Program mode.

When MIDI Clock is on, the Global Button will light, and will blink once a second to indicate that your Echo Pro is not yet locked to MIDI Clock pulses if that is the case. (Since most sequencers only send clock pulses while the sequence is actually running, it is normal for this to be the case when the sequencer is stopped.) Once your Echo Pro sees valid incoming MIDI clock, the Global button will light solid, and the Tap Tempo button will start to flash at the current tempo of the sequencer. When you stop the sequence, or if the Echo Pro loses the clock for more than two seconds, the Global button will once again start to blink, but the Tap Tempo will stay at its last received value.

## **MIDI Out/Thru (and what it means to you)**

As we touched on briefly in the previous chapter section on MIDI/Sys modes, your Echo Pro's MIDI Out jack can be set to function as either MIDI Out or MIDI Thru. If you're new to MIDI, this might seem a tad strange, since going through something would tend to imply that it's going in and then coming out, right? In the world of MIDI, this isn't always the case.

When a device is set up to function as MIDI Thru, it will look at the MIDI data stream to see if there's a message that means anything to it, but otherwise simply pass the data along to its "Out" port, without changing it, so that another MIDI device connected to this "Thru" port will see exactly the same thing as the "Thru-ing" device. This can be a good thing if you're running a sequencer or MIDI controller device that you want to have several devices listening to at once. And, yes, we did make up the word Thru-ing just then, but sometimes that's what it takes to get the job done.

When a device is set up for MIDI Out, by contrast, it's still looking at the MIDI data stream, but it becomes selfish and doesn't pass along any information. It will only send out messages that it has generated itself (kinda like living in a Dilbert comic strip, working for a pointy haired boss), keeping any devices after it in the dark about what data it's received. This is the mode that you would use if you wanted your Echo Pro to be a Master unit, with other devices in a MIDI chain slaved to it (and thus the workplace metaphor is getting really dark at this point).

So, which mode you're going to use will be completely dependent on what you're trying to accomplish (and it's important to set goals, isn't it?), what else might be in your MIDI setup, and what you want taking orders from what. We just make the tools; it's up to you to put 'em to work.





# SOME REAL LIFE EXAMPLES

## Syncing to MIDI Clock

If you're using your Echo Pro with MIDI equipment, whether live or in the studio, you're in for a lot of fun. Echo Pro's ability to assign note values as delay times and then sync to MIDI Clock will enable you to quickly achieve great time synchronized effects that otherwise would be a royal pain to manually calculate.

### In The Studio

If you're in the Studio, using your Echo Pro with MIDI tracks that you've sequenced, or audio that you've tracked in sync with the click generated by your software, it doesn't get much simpler. Just make sure that your sequencer/audio application is sending MIDI Clock, set Echo pro to listen to MIDI Clock (see Chapter 3) and let 'er rip.

**NOTE:** Most devices only send MIDI Clock when they're actually playing back the music. When you stop the device, it stops sending clock and Echo Pro will remain at the last tempo, flashing its Global Button to indicate the absence of MIDI Clock.

The tricky part comes when you've got a track you've recorded that wasn't sequenced or played to a click, but instead was played in 'free time' (especially if your drummer doesn't have the world's steadiest tempo!). Luckily, modern technology offers a strategy to deal with just that.

If you've tracked your tune to a computer-based or stand-alone hard disk recorder without playing to a click or sequence, set up a tempo map so that the software can generate the correct MIDI Clock to jive along with the track. Most hardware hard disk recorders and software sequencing programs do this; check your product's manual for details, since every system does this slightly differently. Most often, it involves selecting the whole song, telling the program/device "This is (x number) of bars", and letting it do the math to figure out the tempo. Then, since your drummer's not perfect, you find where the bars don't match up anymore, select smaller sections, recalculate the tempo,

## Some Real Life Examples: Syncing to MIDI Clock

find where the bars don't match up, select an even smaller section, etc. Well, we told you there'd be some work involved, didn't we? When you're done, you'll have a sequence where the bar numbers match up to the audio track.

If you want to keep your tracks on tape or a hard disk recorder that doesn't support tempo maps and MIDI Clock, but you want the advantages of MIDI Clock syncing of Echo Pro, the process is a bit more involved. Once again, we'll give you the quick basics here. Start by surrounding yourself with your machine that has your recorded tracks and a computer running a recording/sequencer program. You will also need a MIDI interface that can deal with SMPTE or MTC (see below), or a separate MIDI/SMPTE synchronizer plus MIDI interface. Once you've got the gear, follow these steps:

- 1a If you're using a Modular Digital Multitrack (MDM) or hard disk recorder unit that generates MTC (which stands for MIDI Time Code, and which is different from MIDI Time Clock, just to keep things challenging), set it to transmit MTC to the MIDI interface connected to your computer system, and put your sequencing program into External sync mode, with the sequencer set to start at 1:00:00:00. Hit play on your tape/disk machine, and it and the computer should now be locked together in time.
- 1b If you aren't able make the system you recorded on generate MTC (heck, maybe you're recording on an analog 24 track), you'll need to establish sync the old-fashioned way: record a track of SMPTE Time Code on your source audio system, from a bit before the beginning of the tune that you're working on through to its end, following the directions that came with your SMPTE reader/generator. We advise following the standard of starting the time code at 1:00:00:00. Play your tape/disk machine so it's playing out this SMPTE track, feed the SMPTE signal into the SMPTE synchronizer/MIDI interface you've got hooked to your computer, put your sequencing software into External sync mode, set the sequencer to start at 1:00:00:00, and your source audio system and computer should now be marching in lock step.
2. Now that you've got your computer running in sync with your audio source, dump a rough mix (or even just a couple of tracks that you can use for reference) of your recording over to the computer's sequencing program.
3. Using your sequencing program, create a 'tempo map' for the song. Unfortunately, as we explained above, we can't give you a whole lot more detailed instruction than that, since every program does this slightly differently. Like we said, most often it

involves selecting the whole song, telling the program “Hey, this is (x number) of bars”, and letting it do the math to figure out the tempo. Then, since your drummer’s not perfect, you find where the bars don’t match up anymore, and drop in some beat markers.

4. At this point, you can play the track on tape, with the sequencer locking to the SMPTE Time Code and sending MIDI clock to the Echo Pro. You now should be able to get perfectly timed quarter note triplet stereo delays at any point in the song, no matter how much the band was making the tempo ‘breathe’.

### Syncing Live

Lots of performers are using sequencers live these days, especially in the dance and electronica world. Sometimes it’s just to automate program changes for the band, so that they can avoid comments about their avant garde choreography going into the bridge, when they’re all really just changing patches, channels, and such. Sometimes it’s to add orchestration without having to hire a full orchestra to play a club gig. Sometimes, it’s to sync up multimedia. For whatever purpose, we don’t have a problem with it. If you’re doing the MIDI shuffle live, though, there are a couple of considerations.

1. If you’re using a computer sequencer live, you’ll want to invest in a multi-port MIDI interface, so you can send MIDI data to multiple devices without having to chain them all together (more than 3 or 4 MIDI devices chained together can start to develop latency delays. Line 6 products have a fairly minimal amount of latency on their MIDI ports, but some stuff out there isn’t as quick). It also makes it easier to hook up cabling if you don’t have to run In and Out of everything.
2. By the same token, if you’re using a hardware based sequencer, you’ll want to invest in a multi-port MIDI Thru box. If you’re going this way, pay particular attention to the MIDI channel assignments of everything you’re hooking up, since a program change intended for the keyboard player that ends up selecting a Reverse Delay program in the Echo Pro could really spoil the mood of a sensitive ballad.

If you do start using MIDI sequencing live, Echo Pro will be glad to sync up to MIDI clock for ya as well as automatically change programs. In addition, the MIDI Mapping feature of the Echo Pro can come in very handy, since several songs might all use the same delay program, even though other instruments are using different patches. No

## Some Real Life Examples: Other Live Performance Hints

problem, just go in and set up your MIDI Map (you can also play cruel jokes with this feature, like mapping Mute to that incredibly dated, tired old electronic piano sound that your keyboard player uses way too much. But you didn't hear that from us).

### Other Live Performance Hints

If you should decide to run your Echo Pro in front of an amplifier, as if it were a stompbox (and why not? If you're using two amps, not only can you get great stereo effects, but Echo Pro acts as a real high quality buffered Line splitter), you'll want to be sure to check your settings of Echo Pro's Input and Output levels both with and without whatever stompboxes you might be using in line and turned on. Because Echo Pro can put out a signal that can seriously overload a guitar amp or instrument level device like a stompbox, you may have to do some tweaking before you find the level settings that work best in all situations.

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You'll also want to pay attention to what your Bypass Mode settings are if you're running in front of an amplifier. Modes like All Mute, that are great for parallel effects loops and standalone usage, can really freak you out live when your guitar disappears completely when all you wanted to do was just stop the delay.

## Using Multiple Studio Modelers

Want to develop the ultimate guitar rack to impress your friends and colleagues? Consider chaining together a rack full of Studio Modelers for total effects mayhem. MIDI will give you the power to remotely select Programs with a MIDI footswitch or, if you're already using a FlexTone II or POD, match Programs to the channels you already have set up on your amp.

If that doesn't float your boat you could employ the first unit in the chain to control the others. As a matter of fact, we kinda designed them to work that way. While there are so many possibilities that we can't even begin to go into all of them here, we'll give you a couple of basic examples to help you kick off your particular voyage of self-discovery.

### Basic Chain Hookup

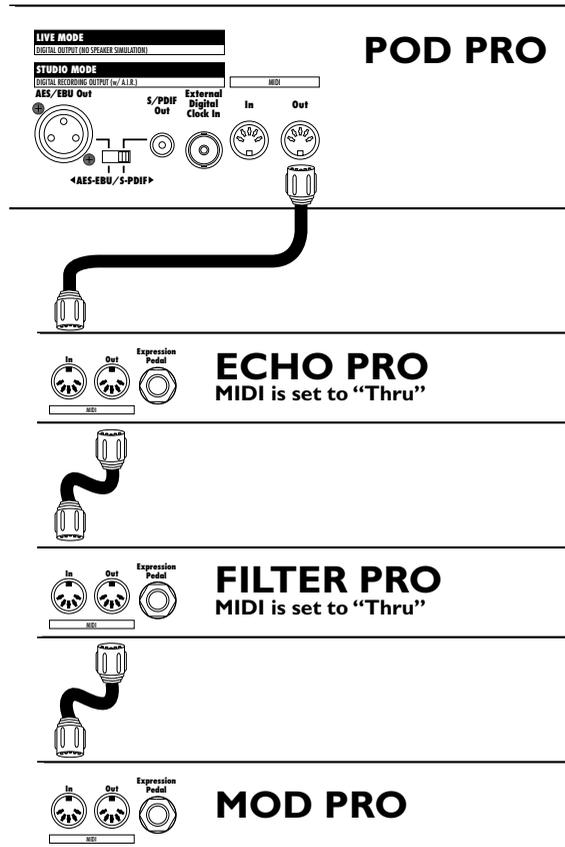
If you're chaining multiple units and want to have them slaved together via MIDI, there are two things you may want to keep in mind:

First, if we can wax philosophical for a moment, MIDI is like a river of data flowing through a series of villages. It flows Out of the first village and In to the second village. Passing Out of that village, it meanders past a lovely pastoral scene on the bank, flows In to a third village, and so on. So remember to hook up your MIDI cables from "Out" to "In" (not Out to Out or In to In) as you hook devices together, or the datafish have no place to swim, and the villagers starve, revolt, and rampage through the countryside laying waste to all that's in their path, and we wouldn't want that, would we?

Secondly, it makes a difference whether your Studio Modeler is set to MIDI Out mode or MIDI Thru mode (see MIDI Out/Thru section in Chapter 3). There are reasons for both, but having this set incorrectly for your particular application can lead to a frustrating journey through "MIDI Hell", as it's become fondly known.

**For the purposes of the following examples, note that it's essential to properly set the status of the MIDI Out/Thru to determine just how everything's going to behave.** Let's assume that you're running 3 Studio Modelers together with some other equipment. To keep from getting hopelessly confused (and we're talking about us, not you), let's deal with them one at a time, starting with:

## Some Real Life Examples: Using Multiple Studio Modelers



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### Using another MIDI Device as Master Controller

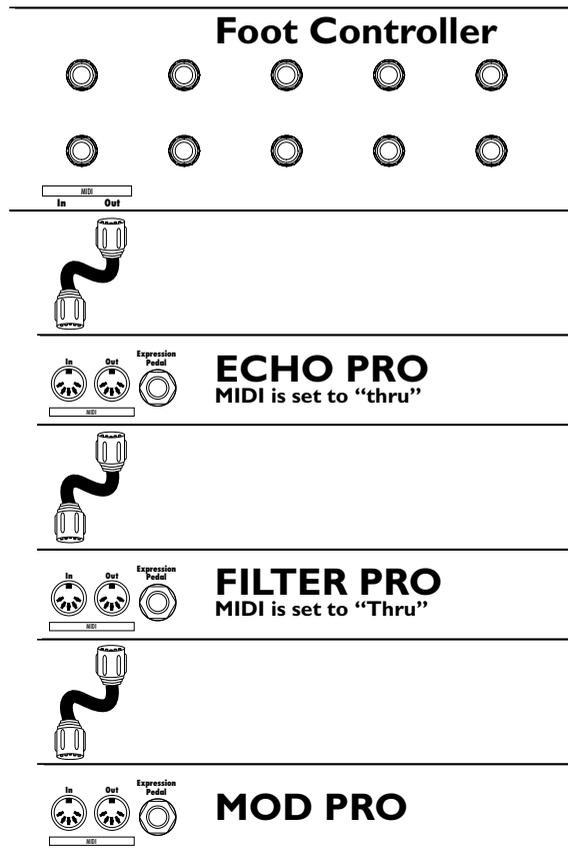
This one's the simplest. Just set the MIDI Out/Thru of each Studio Modeler to Thru (See Chapter 3), and they'll all take their cue from whatever you do on your Master Controller (in the case of this particular diagram, a POD Pro). When you select a channel from your Floor Board hooked to the POD Pro, or select a channel on the POD Pro itself, a corresponding program change message will be sent via the POD Pro's MIDI Out, and will flow Thru to all the Studio Modelers. By the same token, any other MIDI messages, like Tap Tempo or continuous controllers, will pass down the chain and be interpreted by each device as applicable (this is where the MIDI mapping and controller reassignment features come in real handy. You can set your Studio Modelers

## Some Real Life Examples: Using Multiple Studio Modelers

up so that the same controller message could change Repeats on an Echo Pro, Speed on a Mod Pro, and Depth on a Filter Pro, all at the same time!).

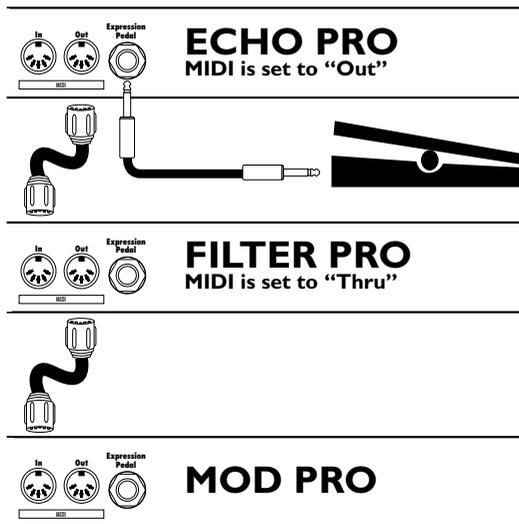
### Using a Foot Controller

This is great for those of you who are adding a Studio Modeler, or a number of them, to an existing rack system. Just like the previous example, set the MIDI Out/Thru of each Studio Modeler to Thru (See Chapter 3), and they'll all take their cue from whatever you do on your Foot Controller. Use the MIDI Map function to map the correct Program to the appropriate MIDI Program Change message.



## Controlling From A Studio Modeler

For this setup, you'll want to set the MIDI Out/Thru of the first Studio Modeler to Out and set the others to Thru. Program changes and Tap Tempo events will act like they did before, but only the first Studio Modeler will respond to other MIDI messages. However, if you change knob settings on the first Studio Modeler, it will send the appropriate controller message to the others. If you have an Expression Pedal connected to the first Studio Modeler, it will send out MIDI CC#4 messages for the other Studio Modelers to act on as well. The only exception is if you also have an Expression Pedal plugged into one of the other Studio Modelers, in which case that unit will only respond to its own pedal and ignore the pedal messages that come from the first unit (although it will continue to respond to all other MIDI messages.) Once again, the MIDI mapping and controller reassignment features of your Studio Modelers will come in very handy here, as will the Pedal Assign mode (for which, see Chapter 3: Basic Operations).



## Using The Looper

We've saved the most fun for last. One of the coolest things about the Echo Pro is that, in addition to having all those great vintage, classic, and modern delay models, it has a looper built in with 60 second of sampling time (which can be 120 seconds, if you use Half Speed). If you're feeling loopy, select the Loop Sampler model 'cause here comes a quick overview and some ideas for getting loopalicious.

### The Basic Run Down...

If you're already familiar with the Line 6 DL4 Delay Modeler, you've got a pretty good grasp of the way the looper in Echo Pro works. But there are a few differences, so you'll want to pay attention here.

The Loop Sampler has its own set of controls that take over when you select it. Some of the buttons you've used for other Echo Pro functions with other models suddenly do something different with the looper. Of course, like almost every control on your Echo Pro, you can set the loop controls to work with whatever MIDI Controller you're using.

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### RECORD/OVERDUB

When you enter Looper Mode, the Seconds button magically becomes Record/Overdub (as you might have guessed from reading the front panel). Press it to start Recording. The button will light. If you press this button a second time while recording, that recording will finish, loop playback will immediately begin, and you'll be in Overdub mode. With each pass of recording in overdub mode, the already-recorded sound gets a little quieter, fading away entirely after many overdub passes. The **Record/Overdub** button flashes to indicate that the Echo Pro is in Overdub record mode.

**NOTE:** Any time **Record/Overdub** is pressed while not playing back a loop, the Echo Pro will start recording a new loop and erase whatever was previously recorded.

### PLAY/STOP

Once you've recorded the loop you like, you can start and stop it any time you like by pressing the **Play** button. Once again, the button will light. From Stop, it starts playback from the beginning of the loop. From Play or Overdub, pressing it stops playback/overdub. You can also press this button while Recording to stop the recording and start immediate loop playback with overdubbing.

## **PLAY ONCE**

This button allows “one shot” playback (the Play Once and Play/Stop lights come on during one shot playback). From Stop, press this button to play your loop one time and stop. The button will, as you may have guessed by now, light. From Record, press **Play Once** to stop recording and start one shot playback immediately. From Play, this button will turn on Once mode, meaning the loop will continue playing to the end of the loop and stop. If Play Once is already turned on, pressing this button will re-trigger the start of the loop. (You can get classic “stuttering” effects with this.) From Overdub, things are the same as from Play: press the button, and loop playback (and the Overdub) will stop at the end of the loop.

## **1/2 SPEED/REVERSE**

This is a dual function switch. One tap gets you half speed, and a double-tap will give you reverse. You can even use them both at the same time:

**1/2 Speed:** One tap puts you in 1/2 Speed, or returns you to normal speed. Once you’ve turned 1/2 Speed on, it stays on until you turn it off again. The light will turn on to show that 1/2 Speed is on.

When a loop is playing forward and at normal speed, press this button once and the loop drops down one octave and plays at half the tempo. Press this button a second time to return the loop to normal speed.

For Recording, you can “arm” 1/2 Speed with a tap on this button before you start. Hit the **Record/Overdub** button to start recording your loop at half speed. Then, when you first play back, remember you’re still in half speed – so your loop sounds just like what you recorded. Once you turn off half speed (by tapping the **1/2 SPEED / REVERSE** button) the loop will be playing at double speed. Now that’s easy, isn’t it? Just give it a try and you’ll get the hang of it.

Overdub works with 1/2 Speed just like Record does. Play with it; you’ll like it.

**Reverse:** A double-tap of this button activates/deactivates Reverse. The light will flash slowly when Reverse is on.

Double-tapping this button while the loop is playing reverses playback. Double-tap again to get back to forward play. You can “arm” Reverse before hitting play.

## Some Real Life Examples: Configuring controllers for the Looper

Reverse doesn't work while Recording. Double-tapping the button will be ignored.

Once you've got a loop recorded, you can start overdubbing, and then double-tap the **1/2 SPEED / REVERSE** button to reverse your recorded loop and dub over it.

You can use 1/2 Speed and Reverse at the same time. The light will flash quickly.

## Configuring controllers for the Looper

At this point, you're probably saying to yourself, "How can I possibly play and hit those buttons at the same time? This is stupid!" Well, stupid is as stupid does, and our mommas didn't raise no dummies. You can also control the Looper with MIDI Program Changes, MIDI Continuous Controllers, or MIDI Notes, so that, with pretty much whatever controller you're using, you can use it to start, stop, and otherwise mess about with your Echo Pro's Looper. There's a complete list of what controls what in the Appendix at the back of this manual.

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## Looping 101

OK, for this bit, we invite you to get set up comfortably with your guitar and the Echo Pro set for Loop Sampler operation, and a foot controller set to control the loop functions. Turn **TWEEZ** to minimum to turn off the Pre-Echo, and set **MIX** straight up. Start chunking along on an up-tempo rhythm guitar part. Once you've got a groove, tap the foot control you've assigned to the **RECORD/OVERDUB** function at the downbeat of your measure, record two bars worth of rhythm, and then stomp on the footswitch that you've assigned to **PLAY/STOP** at the downbeat of what would be the third measure. You may need to try it a couple times to get the foot timing coordination down.

Once you're happy with the loop, your next assignment is to overdub a lead part. Turn up **TWEEZ** if you want some echo on your lead; **DELAY TIME** and **REPEATS** control the echoes, and **TWEAK** lets you add some modulation to the echoes, too. **MIX** lets you to turn down the volume of the loop playback.

If the loop's not already playing, start loop playback with the **PLAY/STOP** button, and get a feel for what you want to record. Once you're ready for your big moment, hit the **RECORD/OVERDUB** button as the loop plays and go wild for two bars. If you're

## Some Real Life Examples: Looping 101

really feeling fancy, you can keep the overdub running after the first loop through and record a second layer, for a doubled solo. Hit the **RECORD/OVERDUB** button at the end of your two bars to turn off overdub, and your loop will keep playing – now featuring the dual pleasures of rhythm plus solo.

Once the novelty of listening to this loop wears off, hit the **I/2 SPEED/REVERSE** button once and you'll hear the whole thing at half speed. Then, double-tap this button and you'll be playing backwards, and still at half speed.

As the loop plays, tap **RECORD/OVERDUB** and lay down some more guitar. Hit **RECORD/OVERDUB** to stop the overdubbing and play the whole shebang, and then double-tap the **I/2 SPEED/REVERSE** button. Now the loop is playing forward again, and the last part you recorded is backward in relation to everything else.

One more tap on **I/2 SPEED/REVERSE** and half speed turns off. You can imagine where a half hour of this kind of thing could get you.

And If That's Not Exciting Enough For You...

You might want to turn the lights down low for this next bit. We're going to record a new loop that highlights the opportunities for sonic experimentation that your new Loop Sampler provides:

From Stop, tap the **I/2 SPEED/REVERSE** button once to light it and "arm" half speed. Set **DELAY TIME, REPEATS,** and **TWEEZ** to 12 o'clock. Mute the strings of your guitar with your left hand, and begin tapping a rhythm quickly on your low strings with your right index finger. Hit **RECORD/OVERDUB** to record some of this, then hit **PLAY/STOP** to finish the recording and start playback. Tap **I/2 SPEED/REVERSE** to turn off half speed – the loop now plays back at twice the speed. Double-tap to put it in Reverse. Tap **RECORD/OVERDUB** while the loop plays and start overdubbing. Drag your pick on the low E string, immediately followed by a note with a strong attack and some sustain. Tap **RECORD/OVERDUB** (stops the overdub and keeps the loop playing) and then double-tap **I/2 SPEED/REVERSE**. Freak out.

One thing to keep in mind is that loops are not saved. Echo Pro is all about the here and now. So, when you power the Echo Pro down, it's bye bye musical masterpiece, so long inspiration, and hasta la vista sonic soundscapes. And, of course, next time you power the Echo Pro up, fresh inspiration awaits you.

## Advanced Looping

There are several cool “advanced” functions in Echo Pro’s Loop Sampler that aren’t in the DL4 Delay Modeler’s Loop Sampler. These greatly expand what you can do with loops. Here’s a breakdown, and some examples:

1. Program Change 101 = Looper Record/play/stop/play/stop/play/stop etc.
2. Program Change 102 = Looper Record/stop/play/stop/play/stop/play etc.

These first two new commands allow you to control the looper with a single foot switch! When you first send MIDI Program Change 101, it will put the Echo Pro Looper into its Record mode. Send it a second time, the Looper drops out of record mode, and starts playing back the loop immediately. A third Program Change 101 command stops the looper. After that, the same handy, dandy Program Change 101 will just toggle between Play and Stop, as long as there’s something recorded in the looper. Program Change 102 works the same way, except that the second program change stops recording and stops the loop as well. The third change then starts the cycle of Play, Stop, Play, Stop, etc. This second mode comes in handy if you want to do something like record an 8 bar phrase, play something different for a while (who can blame you if you’re fickle), then come back to that 8 bars, to play harmony over it. If your drummer is really solid, you could even use it to record the first verse and chorus of a song, play the bridge, then kick on the Loop Sampler and get yourself a beer while the rest of the band finishes playing the tune. They’ll never know you were gone. When you want to reset the Loop Sampler (like when the song is over) after this function has been engaged, you can either re-select the Loop Sampler from the front panel, or send MIDI Program Change 126 (Loop Sampler select). This will clear out the recorded loop and leave the Echo Pro patiently awaiting your next excursion into Loopland.

3. Program Change 103 = Looper overdub only

The Overdub only command, MIDI Program Change 103, can be used to record over any loop that is currently playing. This command will have no effect on a loop that is stopped. This can be especially handy if you have more than one Echo Pro.

4. Program Change 104 = Looper stop only

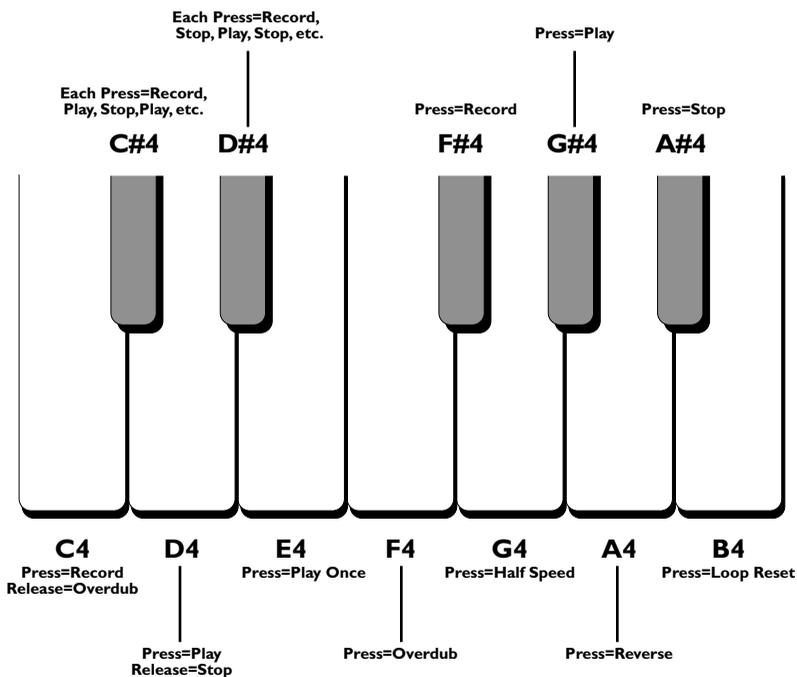
Unlike Play/Stop, this one obviously just stops.

## Some Real Life Examples: Advanced Looping

### Using a Keyboard

As if that wasn't enough, we've also assigned the functions of the Loop Sampler to MIDI note values so that keyboard players, friends of keyboard players, and those of us who use MIDI Bass pedals (Geddy Lee is the *man!*) could get in on the loop lovin' along with the rest of the crew...

Dial up the Echo Pro's MIDI Channel on your keyboard, and use the MIDI notes as illustrated below to activate the Loop Sampler functions:



## **Using two Echo Pros for more than one loop**

More than one Echo Pro, you say? Giving you the potential for running two Loop Samplers at a time? You betcha. If you get really serious about looping, you can run a bunch and turn yourself into a cult figure. You can access multiple Echo Pro Loop Samplers with one MIDI foot controller by using MIDI mapping.

The easiest way to do this is to set Echo Pro number 2 with opposite responses to the program change commands of looper one. Here is how you do it:

1. Hold the MIDI/sys button for two seconds on the front panel of looper number two to access its MIDI mapping functions.
2. Turn the Time knob to the MIDI Program Change message 101. The display will read M 101.
3. Turn the Program select knob clockwise to select LS (Loop Sampler Stop).
4. Turn the Time knob to the MIDI Program Change message 104. The display will read M 104.
5. Turn the Program select knob counter-clockwise to select LS (Loop Sampler).

Congratulations! You have just mapped looper two so that it will respond opposite to looper one for the MIDI Program Change messages of 101 and 104.

## **Dancing the Double Loop Fandango**

Plug the MIDI output of your MIDI foot controller into the MIDI input of Echo Pro one. Plug Echo Pro one MIDI out into Echo Pro two MIDI in.

Set Echo Pro one MIDI out to Thru: Press the MIDI/Sys button on Echo Pro one, turn the Program Select knob until the display shows MO, turn the Time knob so that the Time display shows THRU. While you're in MIDI mode, make sure that both Echo Pros and your MIDI foot controller are set to the same MIDI channel (generally this is defaulted to MIDI Channel 1)....

## Some Real Life Examples: Advanced Looping

Select Loop Sampler on both Echo Pros. You can save time if you set up a Loop Sampler program on both units and save them both to the same Program number. You should now be ready to try this wild looping ride:

Play the riff that you want looped, and send MIDI Program Change 101 from your MIDI foot controller. Looper one will start recording. At the end of the riff, send MIDI Program Change 101 again. Looper one starts playing back the loop. When you are ready for riff #2, start playing it and send MIDI Program Change 104 as you do. Looper two will start recording, and looper one will stop. This is because of the MIDI mapping that you set up earlier. As you reach the end of riff #2, send MIDI Program Change 104 (again). Looper two starts playing, and looper one remains in Stop mode. Now you can press MIDI Program Change 101 and 104 at any time to play whichever loop you want. Send MIDI Program Change 126 to reset both loopers. Take a deep breath, a moment of silence to appreciate your own uniqueness, and feel free to do it all over again.

# APPENDICES

## Model Chart

Model	Knob 1 = Time	Knob 2 = Repeats	Knob 3 = Tweak	Knob 4 = Tweez
Tube Echo	Delay Time	Repeats	Wow and Flutter	Drive
Tape Echo	Delay Time	Repeats	Bass	Treble
Multi-Head	Delay Time	Repeats	Heads 1 and/or 2	Heads 3 and/or 4
Sweep Echo	Delay Time	Repeats	Sweep Speed	Sweep Depth
Analog Echo	Delay Time	Repeats	Bass	Treble
Analog Echo w/Mod	Delay Time	Repeats	Mod Speed	Mod Depth
Lo Res Delay	Delay Time	Repeats	Tone	Bit Resolution
Digital Delay	Delay Time	Repeats	Bass	Treble
Digital Delay w/ Mod	Delay Time	Repeats	Mod Speed	Mod Depth
Echo Platter	Delay Time	Repeats	Wow and Flutter	Drive
Stereo Delay	left Delay Time	Repeats	Right Delay Time	Right Delay Repeats
Ping Pong	Left Delay Time	Repeats	Delay Time Offset	Stereo Spread
Reverse	Delay Time	Repeats	Mod Speed	Mod Depth
Dynamic Delay	Delay Time	Repeats	Threshold	Ducking Amount
Auto Volume Echo	Delay Time	Repeats	Depth	Swell Time
Loop Sampler	Loop Pre Echo Time	Pre Echo Repeats	Pre Echo Mod	Pre Echo Volume

## MIDI Implementation - Program Change

<b>Program Change</b>	<b>Program Change Assignment</b>
000	Enable Bypass
001	Program 1
...	...
099	Program 99
100	Ignored
101	Looper Rec/Play/Stop/Play/Stop
102	Looper Rec/Stop/Play/Stop/Play
103	Looper Record Only
104	Looper Overdub Only
105	Looper Stop Only
106	Looper Play/Stop
107	Looper Play Once
108	Looper Half Speed
109	Looper Reverse
110	Ignored
111	Tube Echo
112	Tape Echo
113	Multi-head
114	Sweep Echo
115	Analog Echo
116	Analog w/Mod
117	Lo Res Delay
118	Digital Delay
119	Digital w/Mod
120	Echo Platter
121	Stereo Delays
122	Ping Pong
123	Reverse
124	Dynamic Delay
125	Auto-Volume Echo
126	Loop Sampler (Reset)
127	Ignored

## MIDI Implementation - Continuous Controller & Note Functions

Cont. Controller	MIDI Note Number	Echo Pro Control	Received Value Range	Transmitted Value Range
CC# 04	N/A	Expression Pedal	0 - 127	0 to 127
CC# 28	62 (D4)	Play/Stop	0 - 63=Stop 64 - 127=Play	No Transmit
CC# 36	67 (G4)	Half Speed	0 - 63= Normal 64 - 127= Half	No Transmit
CC# 50	60 (C4)	Record/Overdub	0 - 63= Overdub 64 - 127= Record	No Transmit
CC# 64	N/A	Tap Button	Tap = 127	Tap = 127
CC# 65	N/A	Note Value	0 - 127	0 to 127
CC# 66	N/A	Time Knob	0 - 127	0 to 127
CC# 67	N/A	Repeats Knob	0 - 127	0 to 127
CC# 68	N/A	Tweak Knob	0 - 127	0 to 127
CC# 69	N/A	Tweez Knob	0 - 127	0 to 127
CC# 76	N/A	Mix Knob	0 - 127	0 to 127
CC# 77	N/A	Bypass Button	0 - 63	0 to 63
CC# 78	N/A	Effect Model Select	0-15	0-15
CC# 80	64 (E4)	Play Once	0 - 63= Normal 64 - 127= Once	No Transmit
CC# 81	70 (A#4)	Stop Only	Stop=127	No Transmit
CC# 82	65 (F4)	Overdub Only	Overdub=127	No Transmit
CC# 83	61 (C#4)	Rec/Play/Stop/Play/Stop	Advance=127	No Transmit
CC# 84		Rec/Stop/Play/Stop/Play	Advance=127	No Transmit
CC# 85	69 (A4)	Reverse	0 - 63= Normal 64 - 127= Reverse	No Transmit
N/A	66 (F#4)	Record Only	N/A	N/A
N/A	68 (G#4)	Play Only	N/A	N/A
N/A	71 (B4)	Loop Reset	N/A	N/A

## MIDI Continuous Controller Map for Note Values

Note Value	CC Value
Whole	120 to 127
Dotted Half	110 to 119
Half	100 to 109
Half Triplet	90 to 99
Dotted Quarter	80 to 89
Quarter (default)	70 to 79
Quarter Triplet	60 to 69
Dotted Eighth	50 to 59
Eighth	40 to 49
Eighth Triplet	30 to 39
Dotted Sixteenth	20 to 29
Sixteenth	10 to 19
Sixteenth Triplet	00 to 09

## Audio Specifications

<b>Audio Performance Specifications</b>	
<b>Conversion</b>	24 bit
<b>Sample Rate</b>	46.8kHz
<b>DSP</b>	24 bit
<b>Delay Memory Delay Product Only =</b>	24 bit x 64 Megabits 2.570 seconds in stereo Delay programs 59.94 seconds (mono) in Loop Sampler with 800ms Echo
<b>S/N Ratio</b>	105dB, A-weighted w/shorted inputs, XLR & TRS, Digital bypass enabled
<b>Frequency response</b>	+/- 0.5dB, 20Hz to 20kHz, XLR connectors / Digital Bypass enabled +/- 0.03dB, 20Hz to 20kHz, XLR connectors / Analog Bypass enabled
<b>Input Impedance</b>	1 Meg Ohm

