

MOD PRO

Programmable Chorus • Flanger • Tremolo • Vibe • Rotary • Phaser with MIDI Sync

Pilot's Handbook

An in-depth exploration of the revolutionary technologies and pulsing tonal pleasures that lurk within your Mod Pro.

The serial number can be found on the back panel of your Mod 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 KEEP THESE INSTRUCTIONS IN A SAFE PLACE

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

1. Obey all warnings on the Mod 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. Current rating should be 2A.
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 Mod Pro when not in use for extended periods of time.
7. Do not perform service operations beyond those described in the Mod 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 2A timed fuse)
 - 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.”



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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 a Mod 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 Mod Pro can do. We've added a lot of new features and capabilities to the Studio Modelers, 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 the great effects of 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 vinaloo 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 Mod 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 Mod Pro's rear panel **R/Mono** Input (for mono sources) or both **R/Mono** and **Left** inputs (for stereo). Connect the Mod Pro outputs to the input of whatever you're feeding the Mod Pro to—guitar amp, mixing board, etc. Chapter 3 has more details.

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

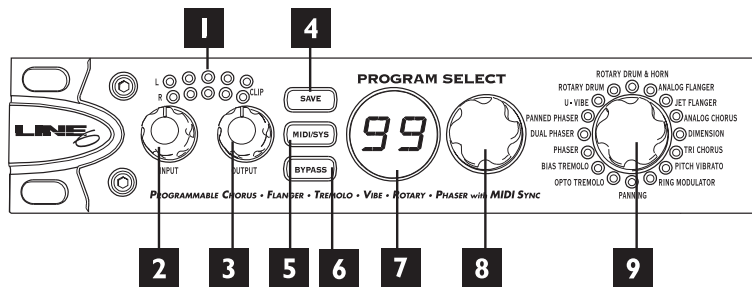
3A. Crank It Up: Guitar Source – If you're connecting a guitar directly to Mod Pro and running straight into the front of a guitar amp, turn the Mod Pro **Input** knob way up (probably to max if you're using standard passive pickups). Don't expect to hit the yellow or red lights on the Mod Pro input meter; you'll most likely only get to the green. Don't set the Mod Pro **Output** level too high, since the Mod Pro can put out a much hotter signal than your guitar can and will overload the front end of your amp if you do.

3B. Crank It Up: Line Level Sources – If you're feeding Mod Pro a signal from a line level source (keyboard, mixing board, etc.) do this: while sending a healthy signal to your Mod Pro, turn up the Mod 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 Mod Pro and turn up the output volume until the meter on your mixer (or whatever) reads about the same as the input meter. (Hint: With most line level signals, both the input and output knobs should be pointing at about 3 o'clock. It's not a hard and fast rule, but a good starting point.) Now, press the Bypass button again to let the Mod signal 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 Mod effects.

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.

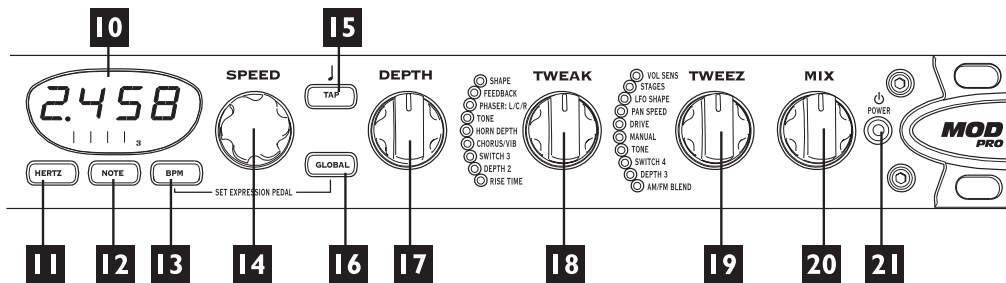
GUIDED TOUR

There are several 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 Mod 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.

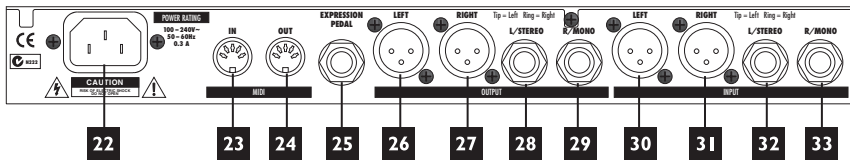


Front Panel Controls

1. **Input Level Meters** – Shows you input levels and whether you're clipping the input of your Mod 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 Mod 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 Mod 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. **Tempo Display** – Shows Tempo in *Hertz* or *BPM*, depending on whether the Hertz 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. **Hertz button** – Press to display current Tempo in Hertz.
12. **Note button** – Sets Note Value to determine Tempo division.
13. **BPM button** – Press to display current Tempo in BPM (beats per minute).
14. **Speed knob** – Sets Tempo in Hertz or BPM, whichever you've chosen.
15. **Tap button** – Tap twice to set Tempo. A unique feature of Mod Pro is that a single tap will reset the LFO to the beginning of the sweep.
16. **Global button** – Press to enable Global Speed/Tempo Mode. Global overrides the tempo stored within each program with the current tempo.
17. **Depth knob** – Controls the Frequency of the effect, but may set other parameters, as well, like the Start Vowel on the Voice Box or V-Tron effects.
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 Mod 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 a MIDI/Sys setting.
- 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-inch Out Left/Stereo** – When you connect a 1/4-inch *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-inch TRS connections for its loop, use a 1/4-inch 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-inch 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 the rest of your system. The 1/4-inch connectors are set up to run strictly unbalanced. And what, pray tell, happens when you plug a mono balanced 1/4-inch TRS mono cable into the “stereo” out of the Studio Modeler? Well, the middle of the stereo field may disappear, or if you’re less lucky, the right channel may go AWOL altogether —pretty scary! So for balanced hookups, be sure to use the XLRs.

29. **-10dBV Unbalanced 1/4-inch Out Right/Mono** – Mono Out unless something's plugged into the Left/Stereo Out, in which case you've got the Right Channel here.
30. **+4dBu Balanced XLR In Left**
31. **+4dBu Balanced XLR In Right**
32. **-10dBV Unbalanced 1/4-inch In Left/Stereo** – With a 1/4-inch unbalanced cable this is the left input. To connect the Stereo Effects Send of a POD Pro or Flextone II to the Mod Pro, use a 1/4-inch TRS cable to connect to this input.
33. **-10dBV Unbalanced 1/4-inch 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

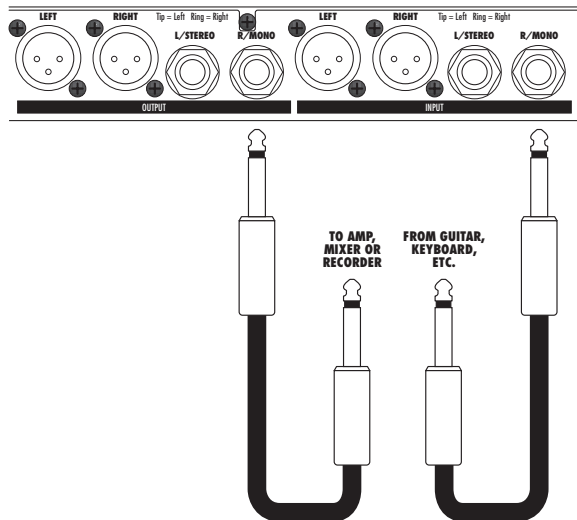
Note that you'll want to get the best cables you can afford. Although we'd avoid claims that the cables are packed with Australian air or any such audiophile voodoo, good cables can make a difference. Really. And if you've got one of those setups with five different adapters plugged into each other to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

As you may have noticed in the Guided Tour chapter, Mod Pro's back panel has a extensive (and possibly confusing) array of jacks you can plug stuff into (aka I/O). To attempt to help you along, here are diagrams of some typical hookups:

1 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.

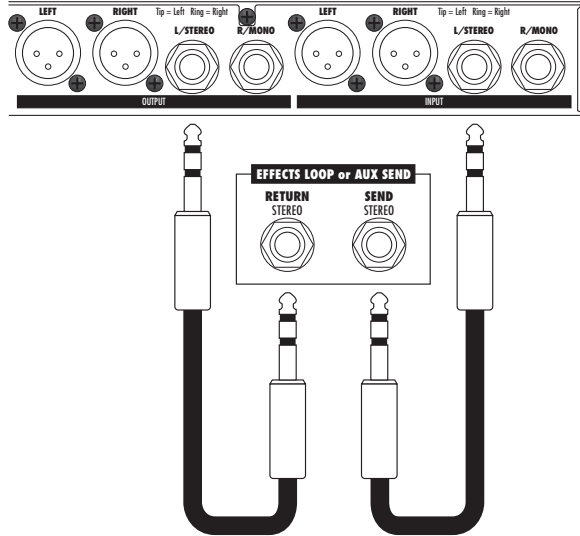


* Or, as translated from audio technician speak: goes in to's and goes out of's

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.

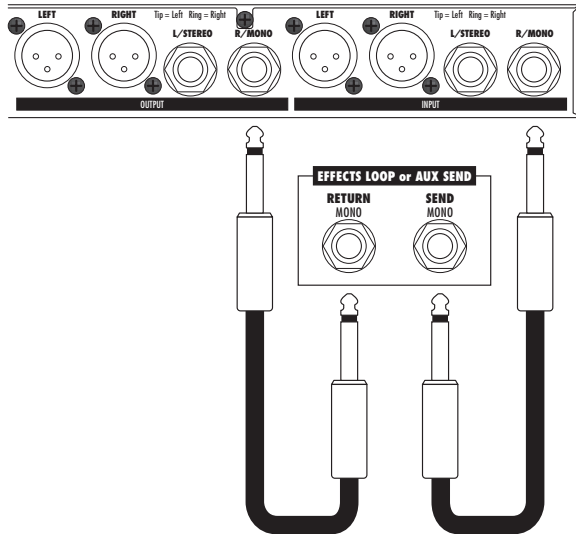
Connect the Stereo output of the Studio Modeler to the Stereo Effects Loop Return on your Flextone II or POD Pro using a 1/4" TRS cable.



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.

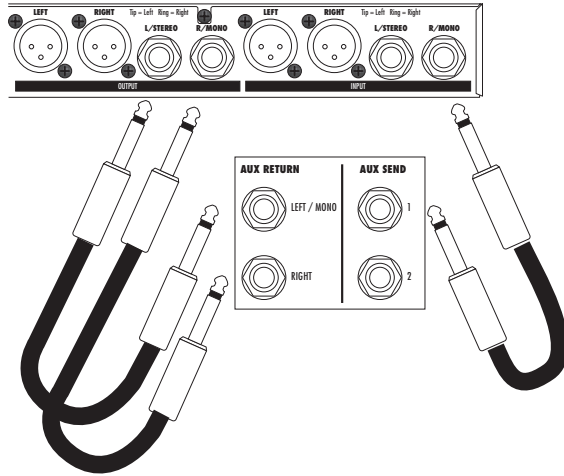
Connect the mono output of the Studio Modeler to the Effects Loop Return on your Amp. If your amp has an Effects Loop Mix control, set it to 100% wet.



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.

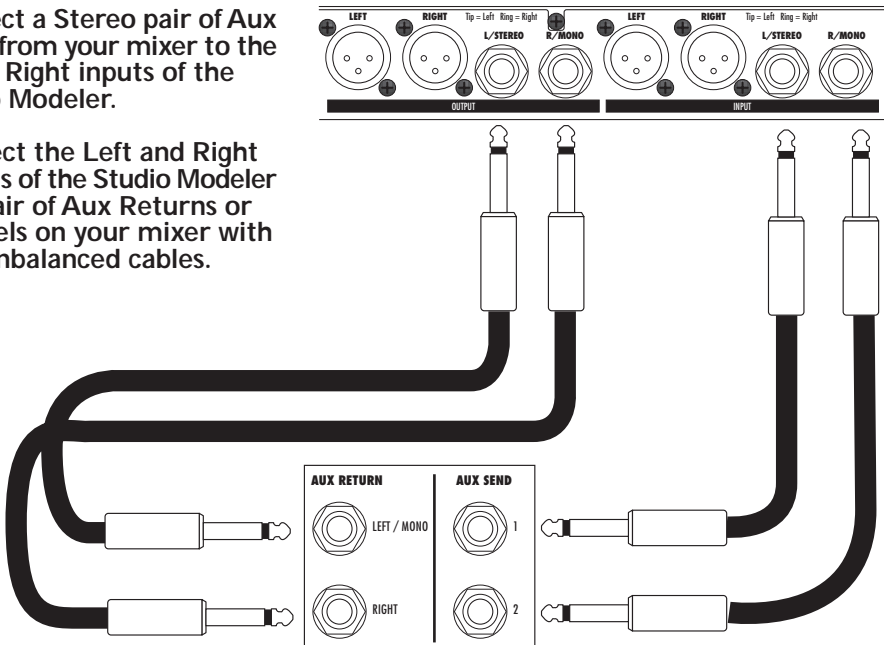
Connect the Left and Right outputs of the Studio Modeler to a pair of Aux Returns or channels on your mixer with 1/4" unbalanced cables.



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 Mod 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. 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).

Tap Tempo and Speed/Tempo Calculation

The effects in your Mod Pro vary (or modulate) some element of the sound in time. The different effects modulate different things, including volume, frequency, pitch, phase, and stereo placement. One of the handy features of the Mod Pro is that you can set and display the speed/time of this variation in a number of ways.

Setting Speed/Tempo

When digital effects 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 speed value in hertz for the tempo of a song by dividing the tempo by 60. This would give them the 1/4 note 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 a division table like the one here:

1/4 Note Time Division Table

Note Value	Divisor	Note Value	Divisor
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		

Fortunately, for the math-impaired, Mod Pro lets you bypass the math and just press buttons. It's also important to note that many of the effects available in the Mod Pro did not originally allow the user to dial in any kind of tempo relationship. Most only had a speed control which went from slow to fast and back, making it especially tricky to match the speed of the effect with the tempo of the song.

Setting Tempo in BPM

1. Press BPM to see the tempo expressed as beats per minute.
2. Tap a tempo with the TAP button. (Tap on the 1/4 notes along with the music that you're adding a Mod effect to.) Or, use the Speed knob to adjust the current tempo.
3. Press the NOTE button as needed to select the note division you'd like for your Mod effect.

You can also set the speed/time in Hertz:

Setting Tempo in Hertz

Hertz (abbreviated Hz, so we don't have to type quite so much) is a unit used to describe how often an event (say an Opto Tremolo sweep) happens. 1Hz is equivalent to one cycle (or sweep) per second, just in case you cared.

1. Press the Hertz button to see the speed expressed in Hertz.
2. Use the Speed knob to set the Speed in Hz. The Speed knob is also velocity sensitive. Twist it quickly for coarse adjustments, and slowly for finer adjustments. You can use the Tap Tempo button for quick changes.



Now let's talk a little bit about the Tempo 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 tempo in either Hertz 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 Mod effect to have. Bare 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 tempo, just press the Hertz button and use the Speed knob to dial up a 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 Drums'n'Bass goth hit, with the leisurely tempo of 183 BPM. Let's also say that you want the sample of your cat sneezing that you're using as a snare to have a synced Mod sweep 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 Hertz value would need to be. You simply press the button labeled "BPM", turn the Speed 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 Mod Pro

yet) and you decide you really *need* to know what the Hertz value is for that, just hit the Hertz button. Ta-da! The display switches back to Hertz, and you haven't even had to *think* about that math stuff.

Sweep Reset

Another of Mod Pro's cool features is the ability to reset the start of a modulation sweep by just tapping the Tap Tempo button once (tapping it twice, of course, recalculates your tempo). This means that you can control where the downbeat of a particular effect occurs.

Global (Speed/Tempo)

Global Speed/Tempo determines whether models and programs will load with their stored tempo or ignore that and use a Global Hertz 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 Mod Pro. This is great for controlling single parameters on the fly like the wet/dry mix, or exploring more radical soundscapes like adjusting Feedback and LFO Shape on the Dual Phaser 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.

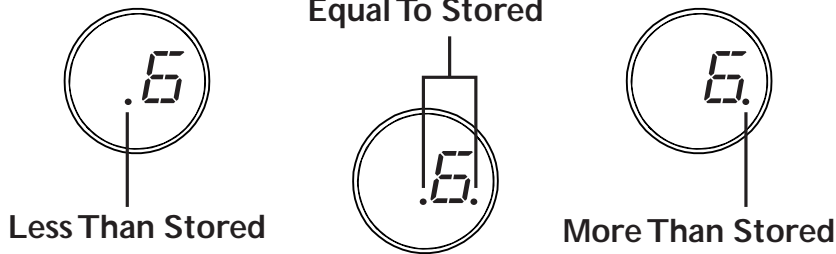
If you're one of those types who's used to the way an Expression Pedal works with the Line 6 MM4 Modulation Modeler stompbox, you'll want to listen carefully. The Mod Pro works a little differently, but the concept remains the same. You may also want to check out page 15 in this chapter which describes the intricacies of the Pedal Update Mode options. But for now, here are the basics:

Basic Operation: Set Expression Pedal

1. Make sure that your EX-1 is plugged into the correct jack on the back of your Mod 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, Speed, Depth, Tweak, Tweez, 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 Mod 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. If you decide that you've made a bad decision (like the time you had one beer too many at the Mousetrap Dancing Festival), just press MIDI/Sys, and it will cancel everything you've done in Pedal Assign.

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 Tremolo Depth 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. 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 Ring Mod setting. Now what do you do? You save it so you can always amaze your friends with a quick psychedelic trip into oblivion, 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 Mod 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 "Ring Mod" 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 Mod 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 Speed knob to change it. It's pretty simple, and here's a list of what you can do:

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 Mod Pro (GLOB), or eliminate any dry signal altogether for using Mod 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 Speed 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 Mod 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.

“LOOP” Mix Mode eliminates the dry signal altogether (100% Wet) for using Mod 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 Mod 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 Speed 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.

Bypass Mode: All Mute (MUTE)

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 Mod Pro when you are in bypass.

MIDI Channel



Here's where you select which MIDI channel you want your Mod 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 Speed 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 Speed 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 Speed knob to select “ON” or “OFF”.

Note: When MIDI Clock is enabled, tapping the Tap Tempo button or adjusting the Speed knob will have no effect on the tempo. 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 Speed 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 Mod Pro is software-configurable to be either a MIDI Out or a MIDI Thru. When set as MIDI Out, Mod Pro will send internally generated MIDI controllers and Program Changes (e.g. You select Program 58 and Mod 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, Mod 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 Speed 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 Mod 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 Mod 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 Speed 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 Mod 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 Speed 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 Depth of a model, while Program 2 uses the Expression Pedal to adjust the tempo. And now let’s say you want to be able to call up Program 1, pedal the Depth 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 Mod 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 Mod Pro a controller message from the controller you want to use, or turn the Speed knob to select the controller number you want to use.

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

CC# 88	Expression Pedal	EX	CC# 31	Tweak Knob	TK
CC# 64	Tap Button	TP	CC# 33	Tweez Knob	TZ
CC# 11	Note Value	NT	CC# 35	Mix Knob	MX
CC# 66	Speed Knob	SP	CC# 48	Bypass Button	BY
CC# 29	Depth Knob	DE	CC# 75	Effect Model Select	FX

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 Tempo Display will be flashing slowly.

Individual Restore

At this point, you can restore any single program to its factory default by using the Speed 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 Tempo 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 Mod Pro will restore the program to its factory setting, flash "Done" on the Tempo 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 Speed knob to select Program 1-99. You'll notice a blinking question mark in the Tempo Display, next to the program number.
4. Press Save. The Tempo 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 Tempo Display, and then...
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 Speed knob all the way up. Keep going when you hit Program 99 and the Tempo 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 Mod Pro now sounds as if it's been freshly removed from the box.

Model Descriptions: Opto Tremolo – based on the tremolo circuitry of the 1965 Fender Deluxe Reverb amplifier.

MODEL DESCRIPTIONS

Opto Tremolo – based on the tremolo circuitry of the 1965 Fender Deluxe Reverb amplifier.



4 • 1

The classic Fender “blackface era” ’65 Deluxe Reverb – as well as most boutique tremolo pedals – features a tremolo circuit that works by pulsing a light source directed at a photo resistor. Players everywhere love the smooth, round, and gentle pulse that optical tremolo is known for.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK adjusts the shape from classic gentle tremolo (Sine) all the way to dramatic sci-fi throb (Square).

TWEEZ gives you a “peak follower,” making the tremolo rate sensitive to input level, so that a louder input signal speeds up the tremolo, and a lower volume input slows it down. The range is from 1 to 64.

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Model Descriptions: Bias Tremolo – based on the tremolo circuitry of the 1960 Vox AC15 amplifier.

Bias Tremolo – based on the tremolo circuitry of the 1960 Vox AC15 amplifier.



4 • 2

Vintage tremolo came in two flavors: Opto and Bias. Our Bias Model emulates a classic Vox tremolo circuit design. Bias tremolo produces a deep, 3-dimensional, kinda phasey tremolo that's sure to keep you warm and cozy all through the night.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK adjusts the shape of the waveform and you'll find that your MM4 can take you places you've never heard before. The control ranges from Sine to Square.

TWEEZ gives you a "peak follower," making the tremolo rate sensitive to input level, so that a louder input signal speeds up the tremolo, and a lower volume input slows it down. The range is from 1 to 64.

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Phaser – based on the MXR Phase 90.



Our Phaser model is based on the phaser that changed the world – the MXR Phase 90. The Phase 90 is relatively subtle compared to other phasers, and becomes part of the overall tone. Its lush, organic, and groovy swirl can be heard all over the first two Van Halen albums, as well as Jimmy Page’s work on Physical Graffiti. The Phase 90 is a four stage phaser; its single knob controls only speed. Our model stays true to the original when all controls (except Speed) are like the setting below. But, being the flexibility freaks we are, we also let you explore destinations unknown.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK controls Feedback. The range is from 0% to 100%.

TWEEZ selects 4, 8, 12 or 16 Phase Stages (thus controlling the degree of out-of-phase-ness).

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Model Descriptions: Dual Phaser – Mu-Tron Bi-Phase.

Dual Phaser – Mu-Tron Bi-Phase.



4 • 4

What could be better than one really cool phaser? Why, two of course! The Dual Phaser is our model of the innovative Mu-Tron Bi-Phase. This multi-stage phaser is known for its big jet sound and its sheer physical size. The Bi-Phase featured controls for waveform, Speed and Depth – and was the first phaser to hit the market with a variable Feedback control. Our Dual Phaser model gives you the lush, offset phasing that make the Bi-Phase a treasured classic.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK recreates that innovative variable feedback control. The range is from 0% to 100%.

TWEEZ allows you to select the waveform shape – sine or square wave. So dial up some swirl and get down with your bad self.

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Panned Phaser – based on Ibanez Flying Pan.



Modeled from the Ibanez Flying Pan, the Panned Phaser embodies the mantra of many '70s pedals designers: “If you like them separate, why not both together?” You can bet your bell-bottom jeans that the Flying Pan kept heads spinning around the dance floor when they heard this four-stage phase shifter with a panner built in. It’s all that and a bag of chips. The Flying Pan featured controls for phase speed, pan speed and a three position switch to assign the phaser to the left, right or both channels. Being the make-it-a-whole-lot-like-the-original kind of crazies we are, the Panned Phaser features all of these same controls. Plug in and take 'em for a spin.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK assigns the phaser to the Left, Right or both channels (Center).

TWEEZ adjusts the speed of the panning effect. The control covers all of the available note values ranging from Whole note to sixteenth note triplet.

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U-Vibe – Based on Uni-Vibe



4 • 6

The now-legendary Uni-Vibe was put on the map in 1969 by Jimi Hendrix. Essentially a four-stage phase shifter, the Uni-Vibe is best known for its watery texture and sultry tones. One listen to “Machine Gun” and you’ll know what we mean. For an authentic Uni-Vibe type experience, use the optional Line 6 expression pedal to sweep speed. To recreate the effect of the Uni-Vibe vibrato switch, turn the mix control to 100% wet. (That’s what the switch did on the original.)

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK gives you an extra feedback control. The range is from 0% to 100%.

TWEEZ adjusts the sensitivity of a “peak follower” which makes the speed sensitive to input level (so louder input signals speed up the effect, and lower volume inputs slow it down).

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Rotary Drum – based on Fender Vibratone



What goes around comes around with our model of the Fender Vibratone. The famous sound of the Vibratone can be heard on Stevie Ray Vaughan’s “Cold Shot,” and was created by a rotating drum surrounding a 10" speaker. The Styrofoam drum has two slots, and the cabinet has three (left, right and top). The drum rotates with a vertical motion, sending sound spinning in all directions. It’s a great sound, but to get it you had to have your main amp, a Vibratone, and another amplifier to drive the Vibratone. That’s quite a commitment of space and back strength! Our Rotary Drum model delivers all of the tone and none of the hassle – simply dial up the settings you need and your Studio Modeler will spin you into a sonic frenzy.

SPEED in this model sets whether the Vibratone runs Slow or Fast.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK adjusts the tone of the effect. The range is from 1 to 64.

TWEEZ adjusts the amount of Drive in the effect. The range is from 0% to 100%.

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Rotary Drum & Horn – based on Leslie 145



4 • 8

It's legendary, it's furniture, it's way too heavy to move... and it inspired our Rotary Drum & Horn model – it's the Leslie model 145! Originally the mainstay for B3 organ players, the Leslie 145 also brings guitar players or any instrument a huge, three-dimensional swirl-fest of sound. The 145 features two sound sources: the lower part of the cabinet has a 12" speaker surrounded by a motorized rotary drum, and the upper enclosure houses a spinning horn. Whether clean or overdriven, this is one of those signature sounds you could only get from the original – until now! Needless to say, your Studio Modeler is designed to produce every nuance of grind and spin without the investment of space or Endust.

SPEED in this model sets whether the Leslie runs Slow or Fast.

DEPTH adjusts the depth of the spinning Drum. The range is from 0% to 100%.

TWEAK adjusts the depth of the spinning Horn. The range is from 0% to 100%.

TWEEZ adjusts the amount of Drive in the effect. The range is from 0% to 100%.

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Analog Flanger – Based on MXR Flanger



4 • 9

This is our model of the classic MXR Flanger. You've Probably heard it many times on Van Halen's Fair Warning, Women and Children First and "Unchained." It's a very warm-sounding flanger, and features a bucket brigade analog circuit design, as well as a uniquely-shaped waveform. Our Analog Flanger model features all of the control and great tone of its inspiration.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK knob controls feedback. The range is from 0% to 100%.

TWEEZ knob serves as the manual control – which lets you adjust the delay time for the flanging effect. The range is from 1 to 64.

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Model Descriptions: Jet Flanger – based on A/DA Flanger.

Jet Flanger – based on A/DA Flanger.



4 • 10

This is our model of the A/DA “studio quiet” Flanger. Introduced in 1977, this stomp box has a sweep range of 35-to-1 and a built-in compressor that work together with the tone circuitry to give the A/DA its signature jet-like sweep. It’s a bit more dramatic than the MXR, and has a different wave shape – and that’s why ya gotta have both.

DEPTH knob controls the sweep range. The range is from 0% to 100%.

TWEAK adjusts feedback. The range is from 0% to 100%.

TWEEZ knob emulates the A/DA flanger’s “Manual” knob. Plug in, spin up the depth and feedback, and get ready for take-off. The range is from 1 to 64.

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Model Descriptions: Analog Chorus – based on Boss CE-1 Chorus Ensemble.

Analog Chorus – based on Boss CE-1 Chorus Ensemble.



4 • 11

The Mod Pro wouldn't be complete without paying homage to the original stomp box chorus, the Boss CE-1. The CE-1 came onto the music scene in 1977 and made waves with its big, warm and groovy chorus tones. Quickly, it found its way onto Andy Summers' pedal board and then into our homes via The Police. Controls included Speed, Depth and a switch to go from chorus to vibrato mode. The CE-1 is spacious, and sounds great into a distorted amp. The Analog Chorus model is every bit as warm and gooey as its inspiration. Dial up some lush landscape and enter into chorus heaven.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK knob acts like a 2-position switch to select either the Chorus or Vibe effect.

TWEEZ adjusts the tone of the effect. The range is from 1 to 64.

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Model Descriptions: Dimension – based on Roland Dimension D.

Dimension – based on Roland Dimension D.



4 • 12

This unique effect is based on the classic Roland Dimension D which was one of the first true-stereo chorus units and featured two separate delay lines working off the same oscillator. These independent chorus effects were then panned between the stereo outputs, with a resulting stereo image that's broader than a double-wide trailer. Relatively subtle in its nature, the Dimension D became an industry standard for double-track effects.

For the Dimension model, the **SPEED**, **DEPTH**, **TWEAK**, and **TWEEZ** knobs each act as a two position switch. Speed and Depth were preset on the Dimension D, and could be recalled by pressing one of the four front panel push-button switches. Different combinations of on and off for the various switches gave different speed and depth settings. Try a variety of knob settings for the Dimension model and get a range of shimmering lushness.

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Tri Chorus – based on Tri-Stereo Chorus.



This model is based on the elusive Song Bird / DyTronics Tri-Stereo Chorus. You may have never seen one, but you've heard it hundreds of times – this was the definitive chorus of Michael Landau, Tim Pierce, Steve Lukather, Dann Huff and most of the L.A. Studio scene. This analog chorus featured 3 chorus circuits working off of 12(!) low frequency oscillators and three separate delay lines. Nothing produced a wider, more spacious stereo image than this. And if you had one in your rack-system, you probably paid dearly for this holy grail of chorus tone. For the Tri-Stereo model, our crafty scientists faithfully recreated the tone of this legendary circuit and double-wide stereo image – plug in and bliss out!

DEPTH adjusts the depth of chorus circuit 1. The range is from 0% to 100%.

TWEAK adjusts the depth of chorus circuit 2. The range is from 0% to 100%.

TWEEZ adjusts the depth of chorus circuit 3. The range is from 0% to 100%.

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Model Descriptions: Pitch Vibrato – based on Boss VB-2

Pitch Vibrato – based on Boss VB-2



4 • 14

This model is based on one of those really cool effects you’ve always wanted to use, but could never justify buying—the Boss VB-2 vibrato. The VB-2 featured a bucket brigade circuit that produced bubbly vibrato, but its big claim to fame was the “rise time” control. Thanks to this clever circuit, each time you kicked it on, it sped up to where you last had it set. Pretty keen, right? We figured it deserved a place here in your stuffed-full magic box of musical modulations.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK controls the rise time speed. The range is from 0.10 to 4.97 seconds.

TWEEZ knob gives you a “peak follower” control, allowing you to make the vibrato rate sensitive to input level, so that a louder input signal speeds up the vibrato, and a lower volume input slows it down. Knock yourself out. The range is from 1 to 64.

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Ring Modulator



4 • 15

It's out there somewhere between Plan Nine From Outer Space and Phantom Menace. Ring modulators are for those special times when you want different, weird, distinctive, strange and otherwise nontraditional sounds. It's a very percussive sounding effect, and sounds almost like you're messing with your signal in a twistedly mathematical, torturing-the-computer sort of way.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK adjusts the shape from Sine all the way to Square.

TWEEZ gives you a choice of modulation flavors—AM (amplitude modulation), FM (frequency modulation), or somewhere in between.

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Panner



4 • 16

From here to there and back again, what can you say about a panner? Well, I guess you can say this: a panner makes your sound constantly pan back and forth between left and right channels. If you're looking for something to keep you up late nights with your headphones on, this is it. This effect is only gonna work for you in stereo, by the way; if you try and run it in mono, it's basically tremolo.

DEPTH adjusts the depth of the effect. The range is from 0% to 100%.

TWEAK knob lets you choose the waveform that controls the movement of your sound from left to right. The Sine waveform (fully counterclockwise) slides your sound smoothly from side to side. The Square wave (fully clockwise) gives you that extreme bouncing-from-left-to-right sort of experience.

TWEEZ adjusts the sensitivity of a “peak follower” which makes the speed sensitive to input level (so louder input signals speed up the effect, and lower volume inputs slow it down).

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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 Mod 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?

5 • 1

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 Mod 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 Mod 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 FlexTone II or POD), call up any program on your Mod 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 Mod 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 Mod 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 Mod 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 Mod Pro front panel. If you've got the Mod 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 Mod 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 Mod 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 Mod Pro program (let's just say a specific Jet Flanger 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....

MIDI Mapping



MIDI Mapping is the ability to assign (or map) a received MIDI Program Change message to a specific program in your Mod 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 Mod 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 specific Effect Models on the Mod 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 Mod 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 Speed 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 Mod Pro.
4. Press "Save" to save the changes.
5. To test, select various Programs on your MIDI Controller. The program numbers on the Mod Pro should mirror the program number on your controller until you select Program 26. At this point, the Mod Pro should change to Program 14.

Okay, pretty simple, no? Now, if you wanted other program change messages to point at the same Mod 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 Speed 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 Mod Pro, but that would be more than a little silly. Not that there's anything wrong with that.

With the Mod Pro's Custom Save feature, you've actually got an extra 16 user definable programs available on your Mod 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. Use the Speed 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.)

2. 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 Chorus.)
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.

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 Mod 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 Mod Pro can do (and then some!).

This means that, for instance, you could create a sequencer track that controlled the number of phase stages on a Phaser, the tempo, 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.

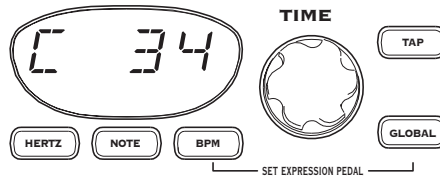
For example, your keyboard may allow you to assign different controller numbers to the mod wheel or a slider or knob on the keyboard, or your sequencer may have some sort of virtual control surface that you can configure to send different controllers. Say you wanted to control the Mix parameter remotely. You'd simply assign MIDI CC#35 (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 Mod Pro is that all those MIDI CC#s, 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 them 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 Mod Pro. This would give you the ability to control the Bandpass of the Obi-Wah 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.

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



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

These parameters are available for Parameter Control via MIDI:



Speed Knob



Depth Knob



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 Mod 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 tempo, and wanted to switch between the two and still have the effects 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 Speed knob to select either Immediate "IMMD" or Delayed "DLYD". The factory default is Delayed.

MIDI Clock and Tempo Control



One of the coolest things you can do with Mod 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 Mod 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 Mod Pro, and tell the Mod Pro to pay attention to MIDI Clock. Once Mod 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 Mod 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 Mod 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 Mod 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 Mod 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 Mod 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. For example, to do MIDI Dumps, you'll need to set your Mod Pro for 'Out' 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 Mod Pro with MIDI equipment, whether live or in the studio, you're in for a lot of fun. Mod Pro's ability to assign note values to tempos 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 Mod 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 Mod 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 Mod 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, 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.

Some Real Life Examples: Syncing to MIDI Clock

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 Mod 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 Mod Pro. You now should be able to get perfectly timed quarter note triplet filtrations 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 an Octisynth program in the Mod Pro could really spoil the mood of a sensitive ballad.

If you do start using MIDI sequencing live, Mod Pro will be glad to sync up to MIDI clock for you as well as automatically change programs. In addition, the MIDI Mapping feature of the Mod Pro can come in very handy, since several songs might all use the same modulation program, even though other instruments are using different patches. No 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 Mod 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 Mod Pro acts as a real high quality buffered Line splitter), you'll want to be sure to check your settings of Mod Pro's Input and Output levels both with and without whatever stompboxes you might be using in line and turned on. Because Mod 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.

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 modulation effect.

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

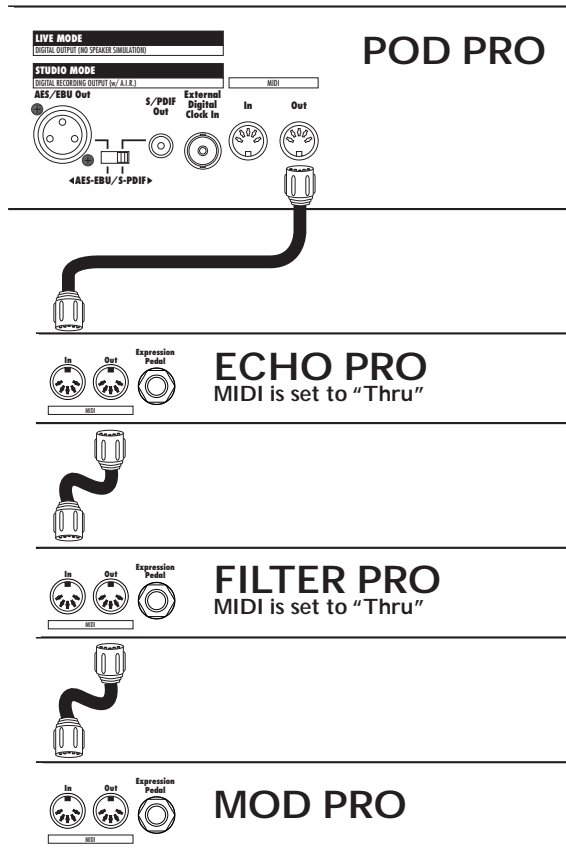
If you're chaining multiple units and want to have them slaved together via MIDI, there are two things you may want to keep in mind:

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



Using another MIDI Device as Master Controller

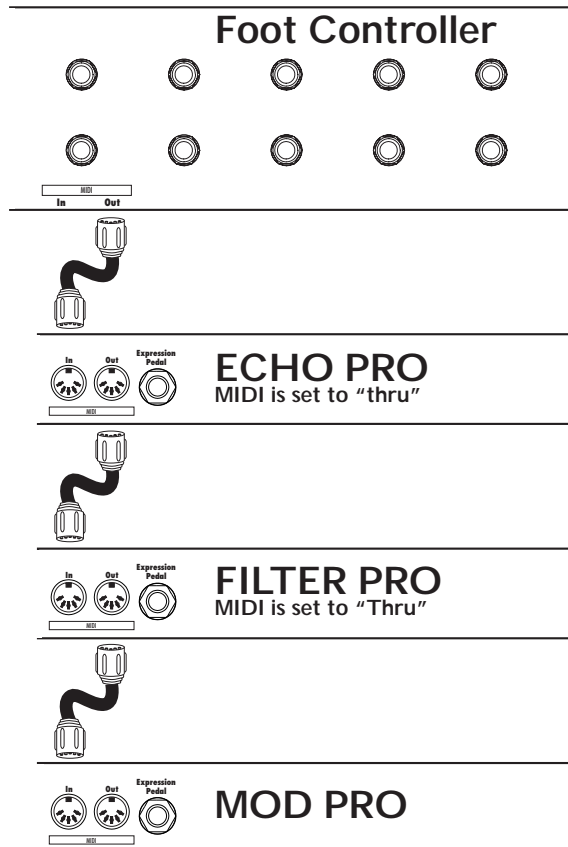
This one's the simplest. Just set the MIDI Out/Thru of each Studio Modeler to Thru (See Chapter 3), and they'll all take their cue from whatever you do on your Master Controller (in the case of this particular diagram, a POD Pro). When you select a channel from your Floor Board hooked to the POD Pro, 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 Mod Pro, all at the same time!).

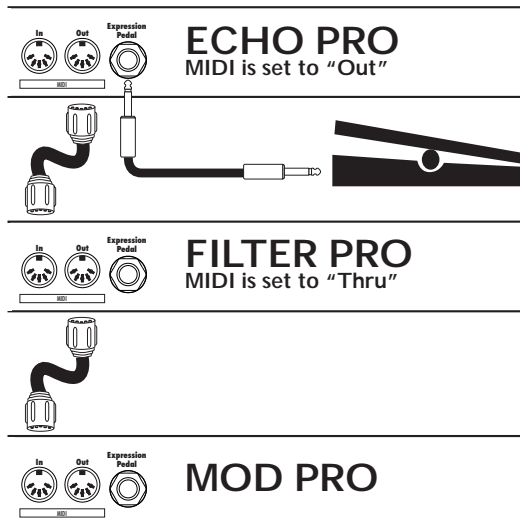
Using a Foot Controller

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).



APPENDICES

Model Chart

Model	Knob 1 = Speed	Knob 2 = Depth	Knob 3 = Tweak	Knob 4 = Tweez
Opto Tremolo	Speed	Depth	Shape	Volume Sens
Bias Tremolo	Speed	Depth	Shape	Volume Sens
Phaser	Speed	Depth	Feedback	Stages
Dual Phaser	Speed	Depth	Feedback	LFO Shape
Panned Phaser	Speed	Depth	Phaser: L/C/R	Pan Speed
U-Vibe	Speed	Depth	Feedback	Volume Sens
Rotary Drum	Slow / Fast	Depth	Tone	Drive
Rotary Drum & Horn	Slow / Fast	Drum Depth	Horn Depth	Drive
Analog Flanger	Speed	Depth	Feedback	Manual
Jet Flanger	Speed	Depth	Feedback	Manual
Analog Chorus	Speed	Depth	Chorus / VIB	Tone
Dimension	Switch 1	Switch 2	Switch 3	Switch 4
Tri Chorus	Speed	Depth	Depth 2	Depth 3
Pitch Vibrato	Speed	Depth	Rise Time	Volume Sens
Ring Modulator	Note	Depth	Shape	AM / FM Blend
Panning	Speed	Depth	Shape	Volume Sens

MIDI Implementation - Program Change

Program Change	Program Change Assignment
000	Enable Bypass
001	Program 1
...	...
099	Program 99
100-110	Ignored
111	Opto Tremolo
112	Bias Tremolo
113	Phaser
114	Dual Phaser
115	Panned Phaser
116	U-Vibe
117	Rotary Drum
118	Rotary Drum & Horn
119	Analog Flanger
120	Jet Flanger
121	Analog Chorus
122	Dimension
123	Tri Chorus
124	Pitch Vibrato
125	Ring Modulator
126	Panning
127	Ignored

MIDI Implementation - Continuous Controller & Note Functions

Cont. Controller	MIDI Note Number	Echo Pro Control	Received Value Range	Transmitted Value Range
CC# 88	N/A	Expression Pedal	0 - 127	0 to 127
CC# 64	N/A	Tap Button	Tap = 127	Tap = 127
CC# 11	N/A	Note Value	0 - 127	0 to 127
CC# 10	N/A	Speed Knob	0 - 127	0 to 127
CC# 29	N/A	Depth Knob	0 - 127	0 to 127
CC# 31	N/A	Tweak Knob	0 - 127	0 to 127
CC# 33	N/A	Tweez Knob	0 - 127	0 to 127
CC# 35	N/A	Mix Knob	0 - 127	0 to 127
CC# 48	N/A	Bypass Button	0 - 127	0 to 127
CC# 75	N/A	Effect Model Select	0-15	0-15

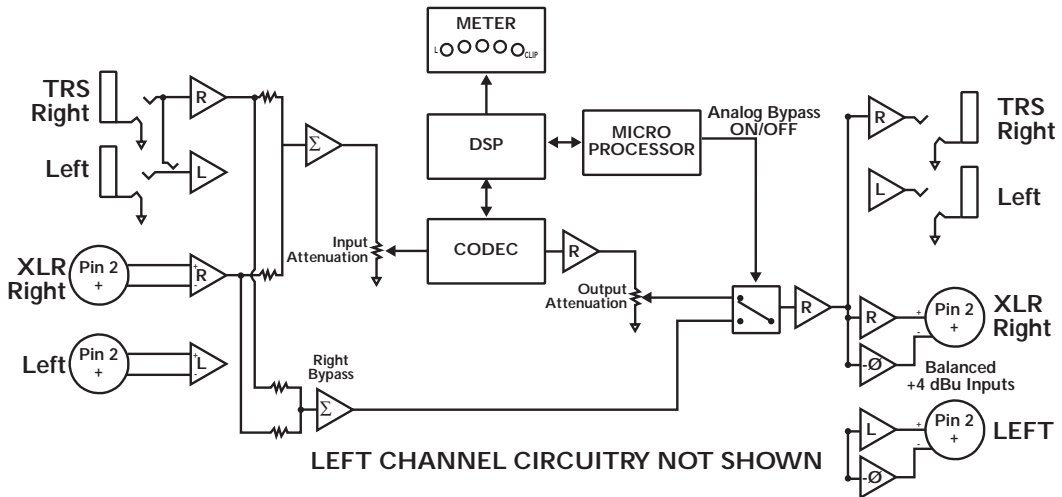
MIDI Continuous Controller Map for Note Values

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

Audio Performance Specifications	
Conversion	24 bit
Sample Rate	46.875 kHz
DSP	24 bit
S/N Ratio	105dB, A-weighted w/shorted inputs, XLR & TRS, Digital bypass enabled
Frequency response	+/-0.5dB, 20Hz to 20kHz, XLR connectors / Digital Bypass enabled +/- 0.03dB, 20Hz to 20kHz, XLR connectors / Analog Bypass enabled
Input Impedance	1 Meg Ohm

Signal Flow Chart



Customer Service

Before contacting the Line 6 Customer Service team, please take the time to look through this publication to see if it can answer your questions. Additional helpful information is on the Support page of the Line 6 web site (www.line6.com), including the searchable FAQTRAQ system which is often the fastest and easiest way to go answers. You can also email support@line6.com.

If you need to talk to an actual human on the Line 6 Customer Service team by phone, it will generally help to take some notes for yourself before you call, to insure that you remember everything you want to ask about. In the USA or Canada, you can contact Line 6 at (818) 575-3600, 8AM to 5PM Monday through Friday (Pacific Time). Outside the USA and Canada, please contact your distributor directly to arrange service. The list of Line 6 distributors is available on the Internet at www.line6.com.

To obtain factory service:

If a member of the Line 6 Customer Service Team determines that your Line 6 product needs to be sent to Line 6 for service, you will be given a return authorization (RA) number. Products returned without an RA number will be returned to you at your sole expense. Pack the product in its original shipping carton and attach a description of the problem along with your name and a phone number where Line 6 can contact you if necessary. Ship the product insured and freight prepaid to Line 6 Customer Service, 6033 De Soto Avenue, Woodland Hills, CA 91367.

LINE 6 LIMITED WARRANTY INFORMATION

Sending in your registration card allows us to register key information so that we may handle problems faster and inform you of advance information, upgrades, and other news. Thanks in advance for filling out your registration card and sending it to us. And good luck in your music!

Line 6, Inc., warrants this product when purchased at an Authorized Line 6 Dealer in the United States of America or Canada, to be free of defects in materials and workmanship for a period of one year from the date of original purchase only upon completion and return of the Line 6 Warranty Registration form within 30 days from date of purchase. Please contact your for information on warranty and service outside the USA and Canada.

During the warranty period Line 6 shall, at its option, either repair or replace any product that proves to be defective upon inspection by Line 6.

Line 6 reserves the right to update any unit returned for repair, and reserves the right to change or improve the design of the product at any time without notice.

This warranty is extended to the original retail purchaser. This warranty can be transferred to anyone who may subsequently purchase this product within the applicable warranty period by providing Line 6 with all Warranty Registration information for the new owner and proof of transfer within 30 days of the purchase. Final determination of warranty coverage lies solely with Line 6.

This is your sole warranty. Line 6 does not authorize any third party, including any dealer or sales representative, to assume any liability on behalf of Line 6 or to make any warranty for Line 6.

Line 6 may, at its option, require proof of the original date of purchase in the form of a dated copy of the original authorized dealer's invoice or sales receipt.

Service and repairs of Line 6 products are to be performed only at the factory (see below) unless otherwise authorized in advance by the Line 6 Service Department. Unauthorized service, repair or modification will void this warranty.

DISCLAIMER AND LIMITATION OF WARRANTY

THE FORGOING WARRANTY IS THE ONLY WARRANTY GIVEN BY LINE 6 AND IS IN LIEU OF ALL OTHER WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE, ARE HEREBY EXCLUDED. UPON EXPIRATION OF THE APPLICABLE EXPRESSED WARRANTY PERIOD, LINE 6 SHALL HAVE NO FURTHER WARRANTY OBLIGATION OF ANY KIND, EXPRESSED OR IMPLIED. LINE 6 SHALL IN NO EVENT BE OBLIGATED FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES THAT MAY RESULT FROM ANY DEFECT OR WARRANTY CLAIM, EXPRESSED OR IMPLIED. Some states do not allow the exclusion or limitation of incidental or consequential damages or limitation on how long implied warranties last, so some of the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This warranty only applies to products sold and used in the United States of America and Canada. Line 6 shall not be liable for damages or loss resulting from negligent or intentional acts of shipper or his contract affiliates. You should contact the shipper for proper claims procedures in the event of damage or loss resulting from shipment.