

DELAY MODELER – QUICK REFERENCE CHART FOR MODEL-SPECIFIC FUNCTIONS

Rhythmic Delays



MODEL	TWEAK	TWEEZ
Tube Echo	Wow & Flutter	Drive
Tape Echo	Bass	Treble
Multi-head	Heads 1/2	Heads 3/4
Sweep Echo	Sweep Speed	Sweep Depth
Analog Echo	Bass	Treble
Analog w/ Mod	Modulation Speed	Modulation Depth
Lo Res Delay	Tone	Resolution
Digital Delay	Bass	Treble
Digital w/ Mod	Modulation Speed	Modulation Depth
Rhythmic Delays	Modulation Speed	Modulation Depth
Stereo Delays	Right Delay Time	Right Delay Repeats
Ping Pong	Delay Time Offset	Stereo Spread
Reverse	Modulation Speed	Modulation Depth
Dynamic Delay	Threshold	Ducking
Auto-volume Echo	Modulation Depth	Swell Time
Loop Sampler	Echo Modulation	Echo Volume

DELAY MODELER DETAILS

The following pages rundown the details of the loop sampler, and the 15 other models of the Delay Modeler. As the pages describe, these models were created as the result of our in-depth studies of a dream collection of classic delay stomp boxes and rack units. We've included some historical information, as well as a sample setting for each model, to let you know how each of the units we studied made its mark on the world of guitar tone, and earned a spot on our modeling "hit list." The models of your Delay Modeler are designed to capture the sonic spirit of these classics, and bring it to you with the powerful new advantages of programmability and versatility – and 2.5 seconds of delay time! We hope you'll enjoy them.

Alternate Bypass for Delay Trail Remain

The Stomp Box Modelers include mechanically switching relays that route your signal directly from input jack to output jack and around all circuitry while in bypass.

There's also an alternate bypass mode available that keeps the DSP engaged while bypassed, so your delays can trail away when you kick the pedal off. If you want this Alternate Bypass mode, hold the first and third (from the left) stomp switches while plugging in the left/mono guitar input. (When the left/mono input is unplugged, your pedal is powered off.) Your pedal will remember to stay in this Alternate Bypass mode until you re-enable True Bypass.

LOOP SAMPLER – KNOB FUNCTIONS

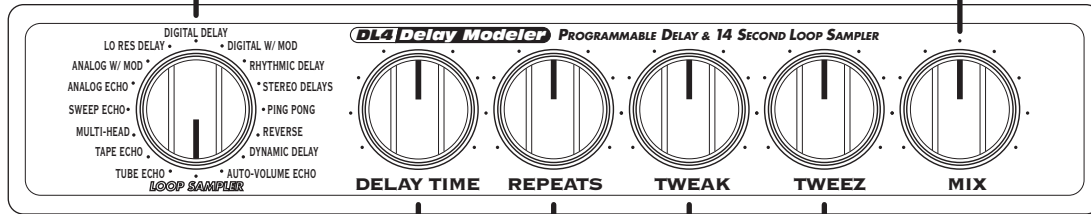
Model Selector

This is where you select the special Loop Sampler mode of operation. While using the Loop Sampler, the knobs and switches have special functions; true bypass is also disabled. The Loop Sampler remembers the knob positions you set here and recalls them when you come back to it. You can also use the optional expression pedal to control the knob settings. Your loop can be up to 14 seconds long. (28 seconds at half speed!)

Mix

Controls the volume of your loop playback.

DL4 Delay Modeler



Delay Time (for Pre-Loop Echo)

We've provided you with an echo unit in front of your loop sampler. It's got a maximum delay time of 800 milliseconds, set by this knob. This echo unit is *before* the loop sampler, so when you record, you will record the echoes as well. Then, when you play back the loop audio, it will play with the recorded echoes. You can then turn the echoes off while you play over the loop, or you can choose a different echo time to play and overdub with.

Repeats (for Pre-Loop Echo)

This sets the number of repeats for the Pre-Loop Echo.

Tweak

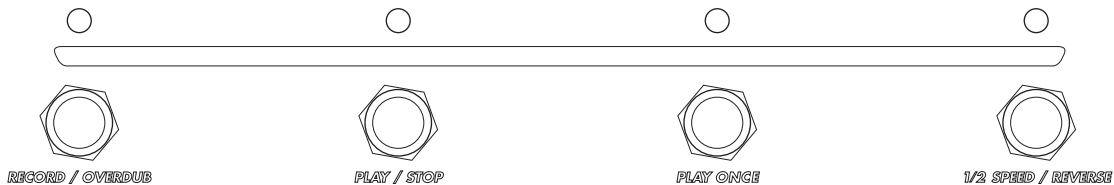
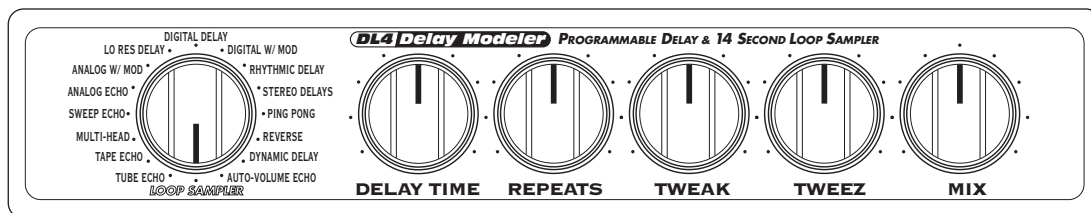
Turn this up to add some modulation for the Pre-Loop Echo.

Tweez

A volume control for the Pre-Loop Echo.

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LOOP SAMPLER – RECORD/OVERDUB & PLAY/STOP FOOT SWITCHES



RECORD/OVERDUB

Press to start **Recording** (light comes on solid). If you press this switch a second time while recording, the recording will finish, loop playback will immediately begin, and you'll be in **Overdub** mode (light flashes). With each pass of recording in overdub mode, the already-recorded sound gets a little quieter, fading away entirely after many overdub passes.

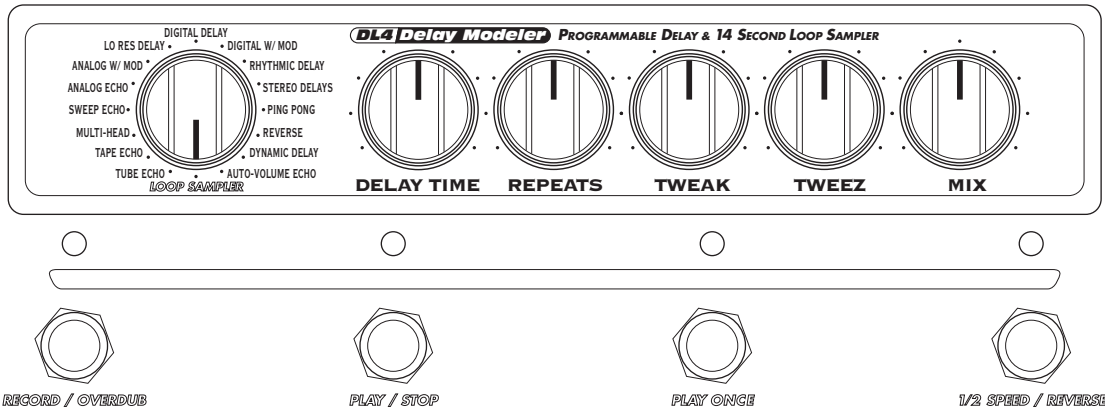
PLAY/STOP

Once you've recorded the loop you like, you can start and stop it any time you like by jumping on this switch. **From Stop**, pressing this starts playback from the beginning of the loop (light comes on solid). **From Play or Overdub**, pressing it stops playback/overdub. You can also step on this switch **while Recording** to stop the recording and start immediate loop playback.

DL4 Delay Modeler

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LOOP SAMPLER – PLAY ONCE & 1/2 SPEED/REVERSE FOOT SWITCHES



PLAY ONCE

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

1/2 SPEED/REVERSE

This is a dual function switch. **One tap** gets you **half speed**, and a **double-tap** will give you **reverse**. You can even use them both at the same time. Flip to the next page for all the details.

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LOOP SAMPLER – DETAILS FOR THE 1/2 SPEED/REVERSE FOOT SWITCH

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

From Play: When a loop is playing forward and at normal speed, press this switch once and the loop drops down one octave and plays at half the tempo. Press this switch a second time to return the loop to normal speed. You can “arm” 1/2 Speed before hitting play.

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

Overdub works just like Record. Play with it; you’ll like it.

- A double-tap activates/deactivates **Reverse**. The light will flash slowly.

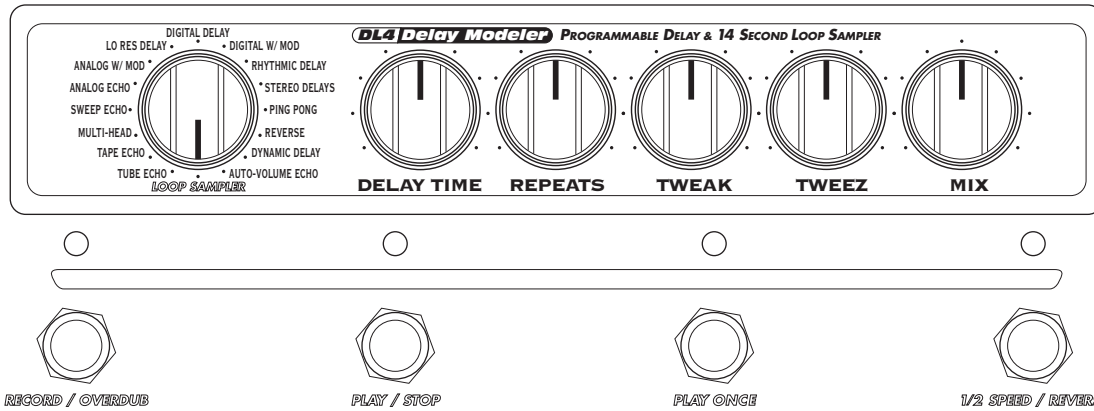
From Play: Double-tapping this switch while the loop is playing reverses playback. Double-tap again to switch back to forward play. You can “arm” reverse before hitting play.

From Recording: Reverse doesn’t work in Record. Double-tapping the switch will be ignored.

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

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

LOOP SAMPLER WACKINESS – A QUICK GLIMPSE INTO A STRANGE WORLD



The Basic Run Down...

Get set up comfortably with your guitar and the Delay Modeler. Turn TWEEZ to minimum to turn off the Pre-Loop Echo unit, and set MIX straight up. Start chunking along on an up-tempo rhythm guitar part. Once you've got a groove, tap the RECORD/OVERDUB switch at the downbeat of your measure, record two bars worth of rhythm, and then stomp on PLAY/STOP again at the downbeat of what would be the third measure. You may need to try it a couple times to get the foot timing coordination down.

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

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If the loop's not already playing, start loop playback with the PLAY/STOP switch, and get a feel for what you want to record. Once you're ready for your big moment, hit the RECORD/OVERDUB switch as the loop plays and go wild for two bars. If you're really feeling fancy, you can keep the overdub running after the first loop through and record a second layer, for a doubled solo. Hit the RECORD/OVERDUB switch at the end of your two bars to turn off overdub, and your loop will keep playing – rhythm plus solo.

Once the novelty of listening to this loop wears off, hit the 1/2 SPEED/REVERSE switch once and you'll hear the whole thing at half speed. Then, double-tap this switch and you'll be playing backwards, and still at half speed. As the loop plays, tap RECORD/OVERDUB and lay down some more guitar. Hit RECORD/OVERDUB to stop the overdubbing and play the whole shebang, and then double-tap the 1/2 SPEED/REVERSE switch. Now the loop is playing forward again, and the last part you recorded is backward in relation to everything else. One more tap on 1/2 SPEED/REVERSE and half speed turns off. You can imagine where a half hour of this kind of thing could get you.

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

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

From Stop, tap the 1/2 SPEED/REVERSE switch once to light it and "arm" half speed. Set DELAY TIME, REPEATS, and TWEEZ to 12 o'clock. Mute the strings of your guitar with your left hand, and begin tapping a rhythm quickly on your low strings with your right index finger. Hit RECORD/OVERDUB to record some of this, then hit PLAY/STOP to finish the recording and start playback. Tap 1/2 SPEED/REVERSE to turn off half speed – the loop now plays back at twice the speed. Double-tap to put it in Reverse. Tap RECORD/OVERDUB while the loop plays and start overdubbing. Drag your pick on the low E string, immediately followed by a note with a strong attack and some sustain. Tap RECORD/OVERDUB (stops the overdub and keeps the loop playing) and then double-tap 1/2 SPEED/REVERSE. Freak out.

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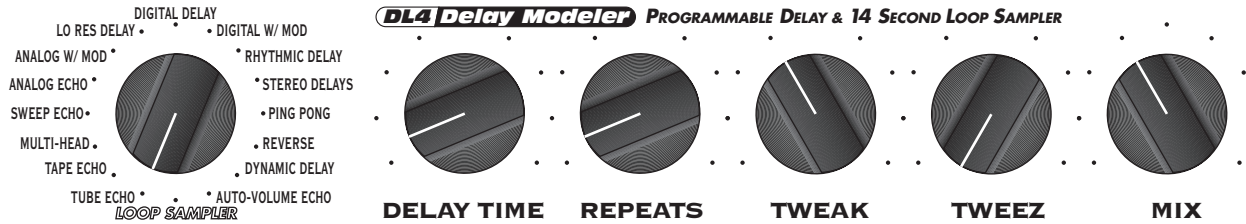
Tube Echo – based on Maestro EP-1.

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

The main feature of the Echoplex design is a special cartridge of looped 1/4" tape that wraps past separate record and playback heads. The position of the playback head can be moved to adjust the delay time from 60 to 650 milliseconds. Your Stomp Box Modeler’s Tube Echo emulates the classic Echoplex tone with the extra advantage of up to 2.5 seconds of delay time.



This image is provided for the sole purpose of identifying the specific product that was studied during the course of sound model development and does not imply any comparison or endorsement.



TWEAK adjusts the emulated tape’s wow and flutter.

TWEEZ adjusts “drive,” which is the amount of distortion created by the unit’s tube electronics and tape saturation.

Tape Echo – based on Maestro EP-3.

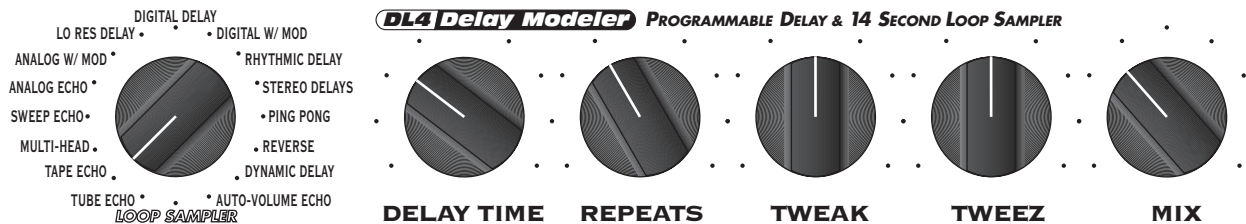
After the tube-based EP-1 and EP-2, Maestro introduced the solid state EP-3, with transistors instead of tubes for the sound electronics. The EP-3 uses the same basic mechanical design as the original Echoplex, including the looped 1/4" tape, but does not have the tube distortion sound of the EP-1.

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

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



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TWEAK adjusts bass.

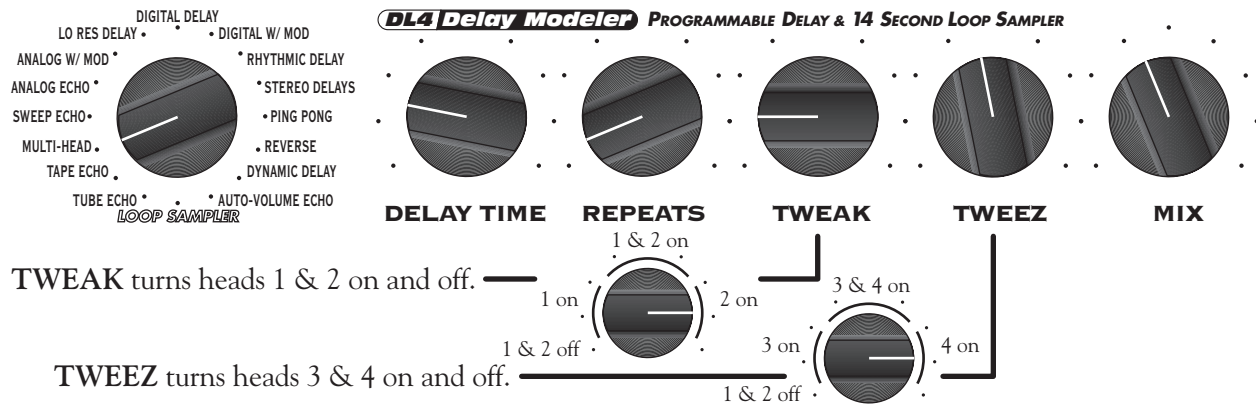
TWEEZ adjusts treble.

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Multi-Head – based on Roland RE-101 Space Echo. Long before Boss pedals, the Space Echo was Roland's first venture into the world of effects processing. Instead of having one movable playback head (like the Echoplex) this machine has multiple stationary heads. You change delay times by switching amongst these heads, and then fine-tune delay time with a motor speed control. The groovy part is that you can play back on multiple heads at the same time to get multi-tap delay effects.

The TWEAK and TWEEZ knobs let you select combinations of the emulated tape heads. At their minimum positions, they turn one of the head pairs off.



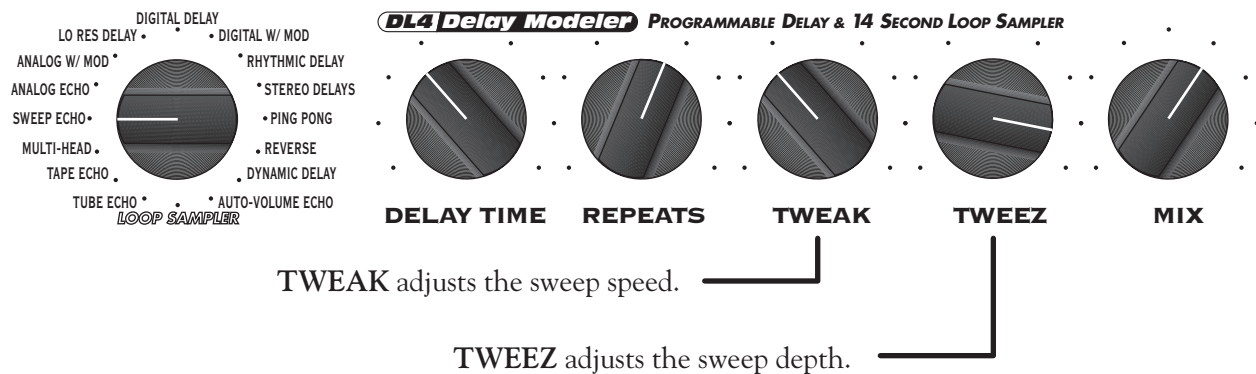
Sweep Echo.

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

In technical terms, the TWEAK and TWEEZ knobs adjust the speed and depth of a sine wave used to modulate the tone of the tape emulation. You can use these controls to create and explore

your own shifting landscape of tonal possibilities. Grab a hold of your guitar and your Stomp Box Modeler's knobs and see where you end up.

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



Analog Echo – based on the Boss DM-2.

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

Analog delays are treasured for the warm, distorted tones they produce, and are also great for creating more experimental sounds. Try this, for instance: set the DELAY TIME at 12 o'clock and REPEATS knob to max and play in some guitar, so the delay circuit "overloads." Now spin the DELAY TIME knob quickly to get something like the sound of a space-aged speeding race car imploding on itself.



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DL4 Delay Modeler PROGRAMMABLE DELAY & 14 SECOND LOOP SAMPLER

DIGITAL DELAY

LO RES DELAY • DIGITAL W/ MOD

ANALOG W/ MOD • RHYTHMIC DELAY

ANALOG ECHO • STEREO DELAYS


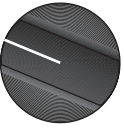
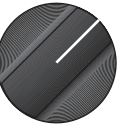
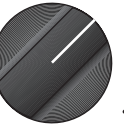
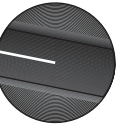
SWEEP ECHO • PING PONG

MULTI-HEAD • REVERSE

TAPE ECHO • DYNAMIC DELAY

TUBE ECHO • AUTO-VOLUME ECHO

LOOP SAMPLER

DELAY TIME REPEATS TWEAK TWEEZ MIX

TWEAK adjusts bass. └─┬─┘

TWEEZ adjusts treble. └─┬─┘

Analog Echo w/ Mod – based on Deluxe Memoryman.

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

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

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



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DL4 Delay Modeler PROGRAMMABLE DELAY & 14 SECOND LOOP SAMPLER

DIGITAL DELAY

LO RES DELAY • DIGITAL W/ MOD

ANALOG W/ MOD • RHYTHMIC DELAY

ANALOG ECHO • STEREO DELAYS



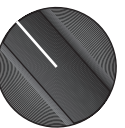

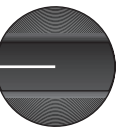
SWEEP ECHO • PING PONG

MULTI-HEAD • REVERSE

TAPE ECHO • DYNAMIC DELAY

TUBE ECHO • AUTO-VOLUME ECHO

LOOP SAMPLER

DELAY TIME REPEATS TWEAK TWEEZ MIX

TWEAK adjusts modulation speed. └─┬─┘

TWEEZ adjusts modulation depth. └─┬─┘

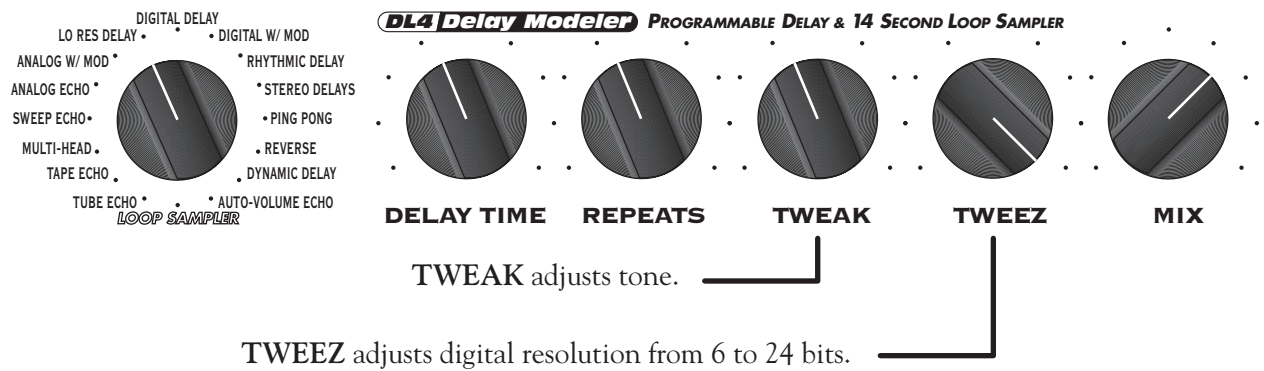
Lo Res Delay.

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

Low bit resolution can create a unique sort of grunge and noise that is sometimes just the sound you're looking for, and that's why these old delays

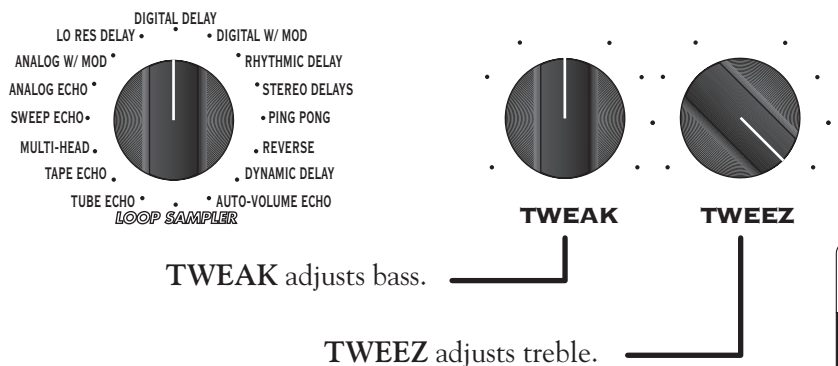
are still used to give a particular shape to the sounds that are run through them. Early model digital samplers are sometimes used in modern-day industrial and electronica to achieve these effects. Try this model on a low resolution setting to get that characteristic digital grunge.

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



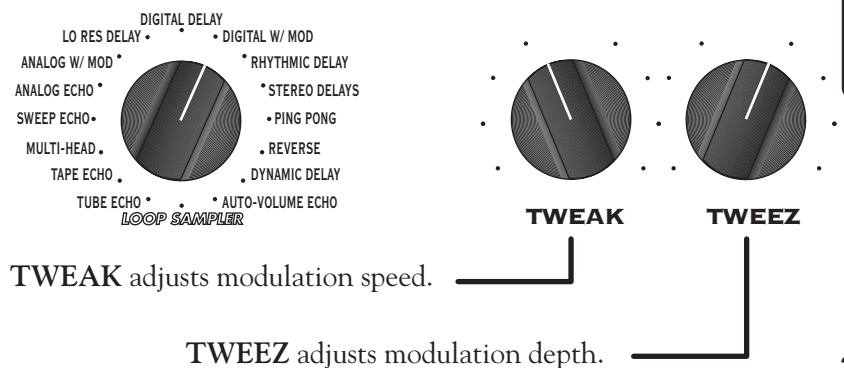
Digital Delay.

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



Digital Delay w/ Mod.

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



Rhythmic Delay.

This is a handy place to come when you want a delay that keeps a certain rhythm with your music. Here's the basic idea: you tap quarter notes on the tap tempo switch. Then you turn the DELAY TIME knob to set the note value you want for your delay time. You can tap quarter notes, and your clever little Stomp Box Modeler will give you back delays in eighth note triplets – or one of 5 other time values that you choose (see DELAY KNOB illustration at bottom).

Now let's say you want eighth note delays for one section of a piece of music, and eighth note triplets for another passage. Use the optional expression pedal, set it up to control the DELAY TIME knob's rhythm settings, and pedal your way to whatever timing suits the musical moment. In addition to the rhythm setting, we've also given you some modulation controls on the TWEAK and TWEEZ knobs so you can dial in a bit of color for your delay sound.

DL4 Delay Modeler PROGRAMMABLE DELAY & 14 SECOND LOOP SAMPLER

DIGITAL DELAY • DIGITAL W/ MOD
 LO RES DELAY • RHYTHMIC DELAY
 ANALOG W/ MOD • STEREO DELAYS
 ANALOG ECHO • PING PONG
 SWEEP ECHO • REVERSE
 MULTI-HEAD • DYNAMIC DELAY
 TAPE ECHO • AUTO-VOLUME ECHO
 TUBE ECHO • LOOP SAMPLER

DELAY TIME **REPEATS** **TWEAK** **TWEEZ** **MIX**

DELAY TIME sets rhythm.
 TWEAK adjusts speed for modulation.
 TWEEZ adjusts depth for modulation.

Stereo Delays.

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

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

This model highlights one of the features of your Delay Modeler – the True Stereo nature of both the direct path and the delay processing. Signals that come in the left and right inputs are kept discrete,

processed separately, and passed out the left and right outputs separately (for a mono in/out hookup, left and right delays are both sent to the left/mono out).

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

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DIGITAL DELAY • DIGITAL W/ MOD
 LO RES DELAY • RHYTHMIC DELAY
 ANALOG W/ MOD • STEREO DELAYS
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 TUBE ECHO • LOOP SAMPLER

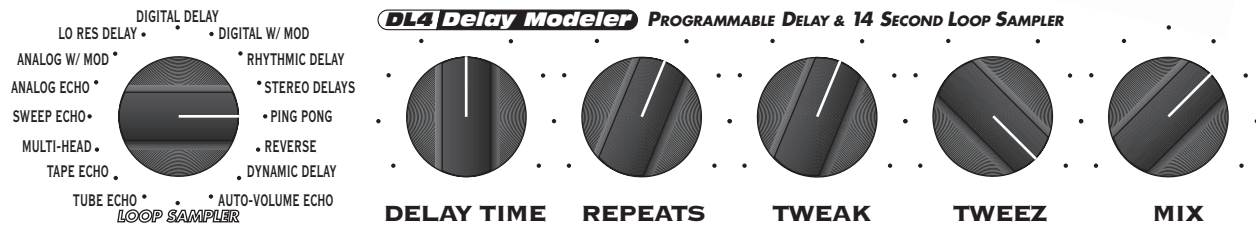
DELAY TIME **REPEATS** **TWEAK** **TWEEZ** **MIX**

These knobs set the left channel.
 TWEAK sets Delay Time for right channel.
 TWEEZ sets Repeats for right channel.

Ping Pong.

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

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



TWEAK adjusts the offset between the two delays.

TWEEZ adjusts stereo spread (at minimum, signal is mono).

Reverse.

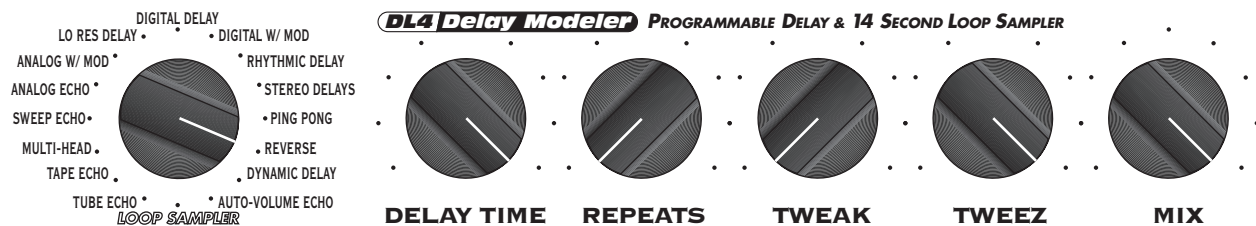
!setaeb eht dna xirdneH imiJ ekil tsuJ – Take a step back in time with your cool new reverse delay. Whatever you play in comes back at you backwards, delayed by the time you set with the DELAY TIME knob (1.25 seconds max).

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

When using Reverse, try setting MIX fully-

clockwise (100% wetness) so all you hear is the reversed sound – instant backwards guitar solo fun.

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



TWEAK adjusts speed for a modulation of the delay.

TWEEZ adjusts depth for a modulation of the delay.

Dynamic Delay.

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

While you play, the Dynamic Delay keeps the volume of the echoes turned down, so that the echoes don’t overwhelm what you’re doing. Then, when you stop playing for a moment, the volume level of the repeats turns up to allow

the echoes to be heard. The TWEAK knob sets the threshold – the breakpoint where this automatic volume control stops working and lets the echoes through at full volume. The TWEEZ knob adjusts the level of the “ducked” repeats – higher settings will duck the delay level down more.

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

DL4 Delay Modeler PROGRAMMABLE DELAY & 14 SECOND LOOP SAMPLER

DIGITAL DELAY
 LO RES DELAY • DIGITAL W/ MOD
 ANALOG W/ MOD • RHYTHMIC DELAY
 ANALOG ECHO • STEREO DELAYS
 SWEEP ECHO • PING PONG
 MULTI-HEAD • REVERSE
 TAPE ECHO • DYNAMIC DELAY
 TUBE ECHO • AUTO-VOLUME ECHO
 LOOP SAMPLER

DELAY TIME **REPEATS** **TWEAK** **TWEEZ** **MIX**

TWEAK adjusts threshold.

TWEEZ adjusts ducking.

Auto-Volume Echo.

This model gives you two effects in one. The Auto Volume part of the equation is a volume fade-in swell, like the attack time on a synthesizer’s envelope generator. This can be used for a bowing effect, like the one you get by turning the volume knob on your guitar quickly up from zero just after you pick

a note. Higher settings for the TWEEZ knob will give you a longer swell time, so that the sound slowly fades in, like a wave.

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

DL4 Delay Modeler PROGRAMMABLE DELAY & 14 SECOND LOOP SAMPLER

DIGITAL DELAY
 LO RES DELAY • DIGITAL W/ MOD
 ANALOG W/ MOD • RHYTHMIC DELAY
 ANALOG ECHO • STEREO DELAYS
 SWEEP ECHO • PING PONG
 MULTI-HEAD • REVERSE
 TAPE ECHO • DYNAMIC DELAY
 TUBE ECHO • AUTO-VOLUME ECHO
 LOOP SAMPLER

DELAY TIME **REPEATS** **TWEAK** **TWEEZ** **MIX**

TWEAK sets modulation depth.

TWEEZ sets ramp time for the auto-volume swell.