MICRO DIGITAL REVERBERATOR

user manual MDR 1.0

KORNEFF
the other side of sound

MICRO DIGITAL REVERBERATOR

The Korneff Audio Micro Digital Reverberator gives you access to the funky reverb sounds that influenced a generation of producers and engineers who got their start in home studios in the 1980s and '90s.

In the early '80s, plate reverbs, digital reverbs, and good-sounding spring reverbs cost a lot, and were found only in big, commercial studios. Kids with four-track cassette recorders, making punk and hip-hop tracks, were lucky to have a boingy-ass, cheap spring reverb to throw on a vocal. But everything changed in 1986, when digital reverb became affordable. Actually, it became cheap.

These game-changing devices were small black boxes with minimal controls and only pre-programmed sounds—there was no adjusting of decay time, damping, early reflections, or any of that fancy stuff. It was pick a program and go. There were a few room simulations ranging from crawlspace to concert hall, some plates, a few gated reverb sounds (it was the '80s, so of course there were gated reverbs) and some weird but strangely musical backwards effects. And considering the price, these things sounded AMAZING.

And soon they were EVERYWHERE—home studios, live sound set-ups, on guitar rigs. Commercial studios also adopted them, and why not: for $1000 you could get three digital reverb units. The sounds of these cheap little boxes are all over many of your favorite records from that time.

Our Micro Digital Reverberator has two different, iconic vintage digital reverberators, replicating the one-of-a-kind sounds and simple interface that made these things fast and fun to work with. Slap our MDR across an insert, click through the various reverb and effect programs, pick one, and go!

Feel free to ignore the manual! I sure did, back then! But if you do read on, we'll give you some ideas and hints on how to think about this particular plugin, and get some great sounds on your recordings.

Minimum System Requirements
Quad Core i5 Processor
4GB of RAM
Mac OS X 10.14 or Later
Windows 7 & Above

Supported Plugin Formats
Intel Mac 64bit: VST3, AU, AAX
Windows 64bit: VST3, AAX

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OVERVIEW

The MDR has very simple controls. Basically, there are three knobs in common to both machines, and then specialized program selection controls for each machine. At the bottom is Korneff Audio's quintessential utility panel for loading and storing presets, getting help, trimming levels for proper gain matching and all that engineery stuff.

SIMPLIFIED BLOCK DIAGRAM

FRONT PANEL

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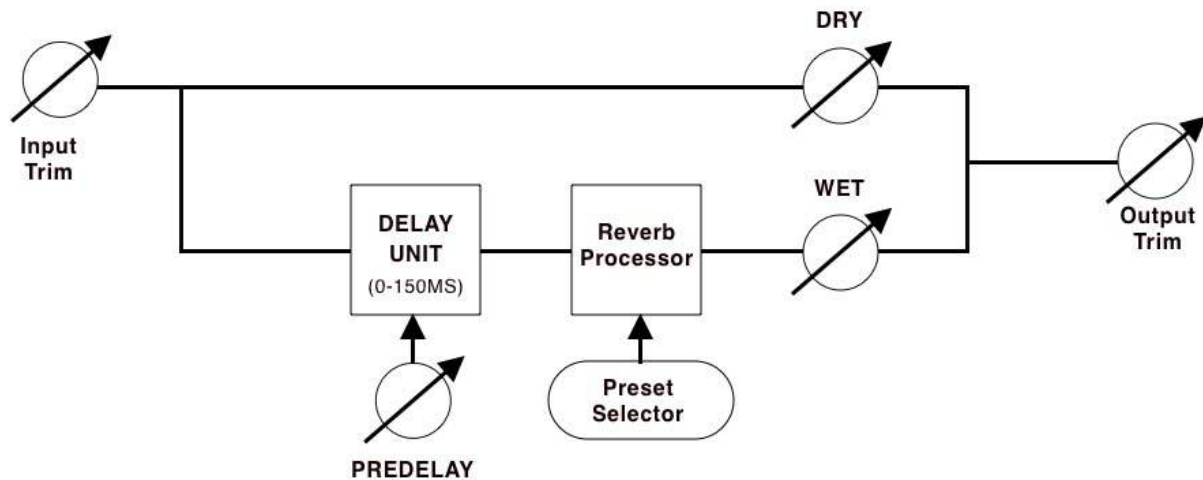
Common Front Panel Controls

Click on the **KORNEFF NAMEPLATE** at the top to go to the back panel of the plugin.

MACHINE 1 & 2 - press to switch between two different vintage reverberator simulations.

DRY - controls the level of the dry (unaffected) signal feeding the MDR's output.

WET - controls the level of effect signal feeding the MDR's output.

PRE-DELAY - adjusts the amount of time in milliseconds between the dry signal and the effect signal by delaying the onset of the effect signal. The original hardware units didn't have a pre-delay control. Back then, if you wanted to pre-delay a reverb, you had to patch in a delay unit before it. Our MDR comes with a pre-delay built in, with a range from 0ms to 150ms. Please note that **PRE-DELAY** is set independently of the selected program. If you don't want pre-delay, set the control fully counterclockwise.

Think of pre-delay as delaying the reverb. It sort of simulates how long it takes a sound to travel across a room, bounce off a wall and get back to a listener's ears. This is a naturally occurring acoustic phenomena. The bigger the room or hall, the longer the pre-delay generally is. Smaller rooms have almost no pre-delay, and plates and spring reverbs typically don't have pre-delay.

Engineers began to use a delay unit in front of a reverb unit as a way of mimicking the sound of a large acoustic space using what was available in the studio - a reverb chamber, a plate reverb, etc. A chamber or plate with pre-delay on it sounds bigger. Pre-delay can also be used to separate the reverberant signal from the dry, and to make a reverb more rhythmically coherent with the recording.

Machine 1 Programs

Machine 1 is a simulation of a very popular 16 bit, 1/3 rack size digital reverberator that was introduced in 1986. Although it had a limited range of sounds, they were carefully designed and sounded great. You still see this unit in guitar racks and studios all over the world.

Program Selector - uh... you turn this to get different programmed sounds. If you're still confused after reading this, then I think we need to talk to your mom.

SMALL
1 - small and bright
2 - small and dark
3 - medium and dark
4 - percussion plate - put this on a snare!
5 - medium bright room
6 - long plate

Large
1 - large dark room
2 - bright hall
3 - dark, odd stairwell sort of thing
4 - large plate - like an old '70s vocal plate setting
5 - warm concert hall
6 - sounds like a parking garage to me
7 - huge government warehouse where they store abandoned spacecraft, decay time of a long weekend w/drinking

Reverse - a backwards reverb that is rhythmically centered to about a quarter note at 120bpm. No, this won't make your song sound like the beginning of the chorus of "Round and Round" by Ratt. That effect is called "Preverb."

Gated 1 - this one is percussive.

Gated 2 - this one is smoother, better for vocals perhaps.

Machine 2 Programs

Machine 2 is a simulation of the second-generation, full-rack size digital reverberator. This unit had lots of presets, some really interesting and useful sounds, and a straightforward interface that made it fast in the studio and reliable in live sound situations.

Program Selector - like the original unit, the program selector requires a two-digit number to work. You can enter the preset number in using the keypad (to get to preset 5 enter 0 5, etc). You can also use the up and down arrows to increment it.

Machine 2 Programs are selected by clicking numbers or using the arrow keys.

Programs 01-29: Natural spaces. These are rooms of various sizes and responses.

01 - Small Bright .1 Sec
02 - Small Bright .2 Sec
03 - Small Bright .3 Sec
04 - Medium Warm 1.1 Sec
05 - Medium Bright .6 Sec
06 - Large Bright 1.2 Sec
07 - Large Dark 1.0 Sec
08 - Medium Dark .6 Sec
09 - Medium Dark .5 Sec
10 - Medium Bright .6 Sec
11 - Medium Bright .8 Sec
12 - Large Warm 1.0 Sec
13 - Large Warm 1.1 Sec
14 - Medium Dark 1.0 Sec
15 - Medium Bright 1.1 Sec

16 - Medium Bright 1.15 Sec
17 - Large Bright 1.6 Sec
18 - Large Dark 1.7 Sec
19 - Medium Bright 1.65 Sec
20 - Medium Bright 1.9 Sec
21 - Large Warm 2.2 Sec
22 - Large Warm 1.75 Sec
23 - Large Bright 1.45 Sec
24 - Large Dark 2.2 Sec
25 - Large Warm 2.3 Sec
26 - Large Bright 2.4 Sec
27 - Large Bright 2.5 Sec
28 - Xlarge Warm 5.0 Sec
29 - Xlarge Warm 15.0 Sec

Programs 30-39: Gated Reverbs. These units were from the '80s, so this is to be expected. The Slow Gates have a smoother decay and are more subtle. The Fast Gates are definitely much more of that '80s drum sound. Quick, call Phil Collins!

30 - Slow Gate 100 mSec	35 - Fast Gate 150 mSec
31 - Slow Gate 200 mSec	36 - Fast Gate 75 mSec
32 - Slow Gate 250 mSec	37 - Fast Gate 200 mSec
33 - Slow Gate 400 mSec	38 - Fast Gate 100 mSec
34 - Slow Gate 450 mSec	39 - Fast Gate 175 mSec

Programs 40-50: Reverse Reverbs

40 - Reverse 400 mSec	44 - Reverse 150 mSec
41 - Reverse 450 mSec	45 - Reverse 500 mSec
42 - Reverse 250 mSec	46 - Reverse 2 Sec
43 - Reverse 200 mSec	47 - Reverse 8 Sec

48 - 2 Tap Ambient - sounds like two reverbs happening one after the other. Like echoes but with reverb.

49 - Multitap Ambient - this is more like slapback echo but with reverbs — like in a large bathroom but without the hand dryer running.

50 - Multitap Reverse - same bathroom, but you've been drinking or just got a concussion, maybe both... moves left to right.

Programs 51-55: Some strange things

51 - Stuck Flanger - a sort of comb filter effect, like a flanger with modulation turned off.

52 - Wide Mono - short delays have a subtle widening effect on a mono signal. It also does weird, phase shifty kinds of things that are fun. Try this on drums: set DRY to 100% and turn up WET to shift the frequencies that cancel and reinforce. Turn up PRE-DELAY and you get a short, bizarre ambience around the dry signal.

53 - Stereo Maker - an old-school, stereo generation effect. Highs are on the left, lows are on the right, and delays make them happen one after the other. This effect also subtly moves from left to right. Makes a nice vocal widener: put it on a mono vocal track, flip around to the back panel, set the WIDTH to about 150%, and then adjust WET to get a vocal to have a bit more size and weight in a mix. If you turn up PRE-DELAY too much it sounds like you have a garbage can over your head. Not that I've done such a thing.

54 - Regenerated Delay 2 sec - percussive effect that sounds like tape delay in an old sci-fi movie.

55 - Regenerated Delay 3 sec - you know when you have two mirrors in the bathroom, and if you angle them just right you can get, like, "The world of infinite mirrors?" This is like that but with reverb. Really useful if the song has shitty lyrics.

Back Panel Controls
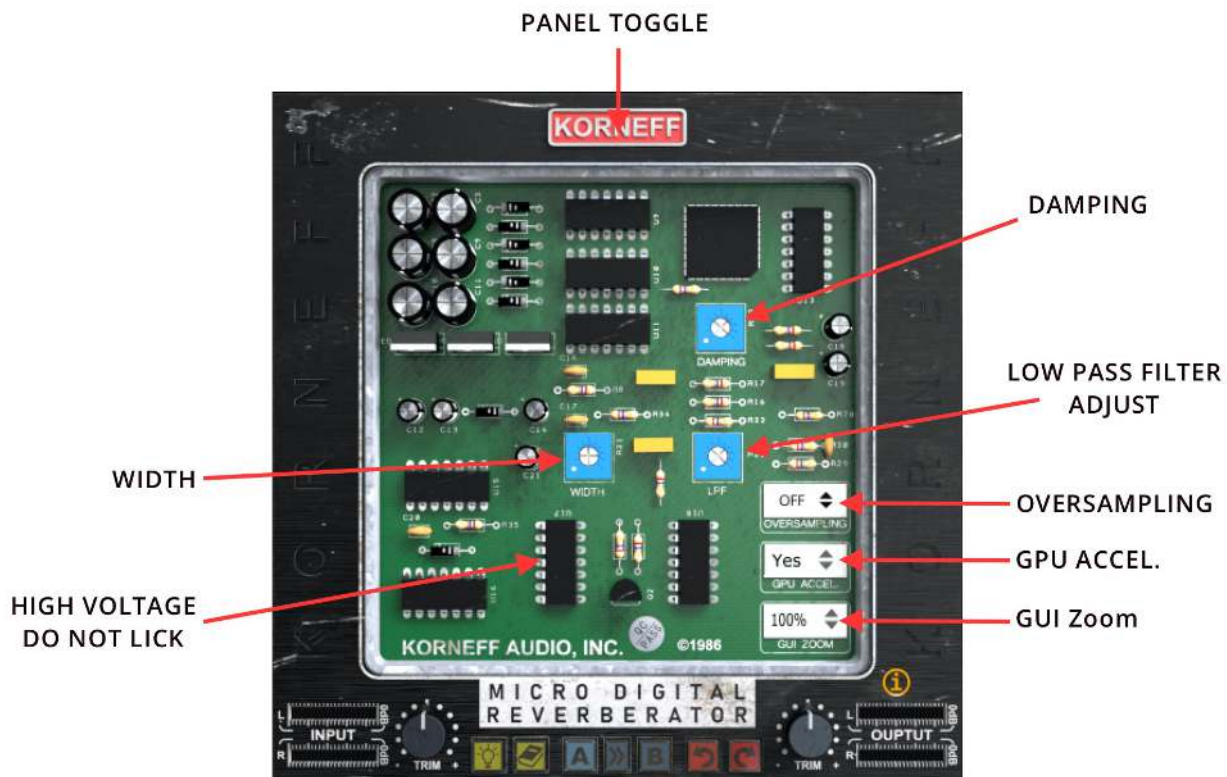
There can never be too many things to play with. The MDR isn't the Pawn Shop Comp when it comes to screwing around under the hood, but we've provided some extra controls for you that certainly weren't on the original. There are three little blue trim pots back there, as well as controls for oversampling, how large the plugin appears on your screen and graphics acceleration.

DAMPING, **LPF** and **WIDTH** affect only the WET reverb signal and have no effect on the dry signal.

Damping - this decreases the decay time of the higher frequencies in the reverbed signal. At full clockwise, which is the initial position of the trim pot, the highs are not damped at all. As you turn it counterclockwise, the decays of the highs shorten. Use this to fine tune the reverb for a slightly darker color.

LPF - a low pass filter that gradually rolls off the reverb signal. Fully clockwise — again, the initial position, the reverb signal is passed from 20kHz down. Rotating the trim pot counterclockwise lowers the pass frequency, giving you a much darker sound. Fully counterclockwise sets the frequency to 20Hz, effectively filtering out all of the reverb signal.

WIDTH - is a psychoacoustic stereo-width enhancer. The initial position is 12:00 and the width is at 100%, which is the normal width of the unit. Clockwise increases the apparent stereo width of the reverb (wet); counterclockwise narrows the reverb's width to mono. It's really effective: high settings put the reverb signal "beyond" the speakers, while at 0% the signal becomes fully mono. This control can do some interesting things, especially with the Machine 2 presets in the 50s.

Oh my god! Play with **WIDTH**! It is SO COOL. You can have a stereo track with mono reverb in the middle!

GUI ZOOM - allows you to change the size of the MDR's interface on your screen. Make the MDR look as big-assed as it sounds!

OVERSAMPLING - increases the sample rate of the plugin 4 times over the current sample rate of your project. Oversampling minimizes deleterious digital artifacts that can lessen the sound quality of signals. However, engaging **OVERSAMPLING** will increase the load on your computer's processors, which can cause stuttering and other issues with your audio. If you are working at sample rates above 48kHz, you probably don't need to use oversampling because artifacts will most likely already be minimized. At rates below 48kHz, clicking in oversampling can yield an improvement in sound quality.

GPU ACCELERATION- Enables OpenGL processing for compatible graphics cards. This is on by default, and will keep your DAW's graphics running without any lagging. However, certain hardware configurations will lag and jenk with this switched in. In those cases, which are rare, switch **GPU ACCELERATION** off. As a rule of thumb, leave this on and go make noise.

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UTILITY PANEL
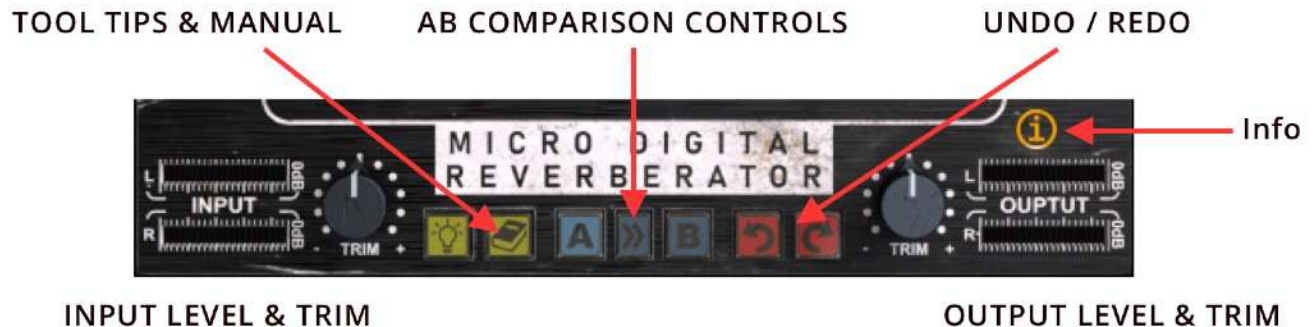
TOOL TIPS/USER MANUAL - The **LIGHTBULB** brings up the tool tips, and the **BOOK** opens the user manual, which you are currently reading.

A/B COMPARISON - The comparison tools are very cool. **A** and **B** are two independent snapshots of the plugin's settings. Click A and make a few adjustments to the plugin's controls. Click B and make some different adjustments. Click back on A and you'll see all the adjustments you made for A. Click back on B and you'll see all the adjustments you made on B. The **>>** key copies whatever setting you have in A over to B.

UNDO/REDO: **UNDO** - to the left, reverses all the damage mankind has done to the planet. **REDO**, to the right, restores all the damage mankind has done to the planet, starting with the latest control you tweaked on the plugin. There are unlimited levels of Undo, so feel free to go back to the Cretaceous Period.

INPUT and OUTPUT TRIM - lets you gain stage the MDR correctly. On some of our plugins, cranking up the INPUT trim can result in cool saturation and distortion. Not on the MDR. Crank it up and you'll get digital clipping which sounds awful and makes speakers uncomfortable. Set these two controls such that you're not hitting 0 on the meters.

USAGE IDEAS

It's a reverb with like five controls, how many ideas do I need, Korneff guys?

It's not how many you need, it's how many we can give you. Here:

Send and Returns or Across an Insert

Most studio applications of reverb involve patching it into the console using channel Aux Sends and then returning via a dedicated console Effects Return, or in the case of a DAW, via a stereo channel, sometimes called an Aux channel. The MDR, however, follows the heritage of the units on which it is based, which were designed to be patched across the output of an inexpensive console and fed directly into a mixdown deck or a bus compressor.

You can use the MDR with sends or using inserts on a channel or a bus, but it does lend itself to the latter—slapping it on an insert and skipping the whole setting up an Aux Send, blah blah blah.

To use the MDR on an insert, simply instantiate it on a channel or bus insert, bring up **DRY** to 100%, and then adjust **WET** to get the balance you want (feel free to adjust **DRY** as well). This is a really quick way to use the unit, and when you're writing a song or experimenting and you want to keep your ideas flowing, bring up the MDR, spin the knobs, pick a program and go.

To use the MDR in a more conventional way, set up a channel Aux Send, instantiate the MDR on the Aux Send output and keep the **DRY** at 0 and **Wet** at 100%.

Monoverb

A favorite application of the MDR is to instantiate it on a mono channel, using it as an insert with a mono output. Doing this keeps the direct and the reverberant sound tight and compact, and reminiscent of the sound of records made in the 60's and early 70's when engineers would often cut an instrument or vocal straight with all its effects straight to tape. In a modern application, using the MDR mono on a channel lets you carve out a cool little spot in your mix for an accent or a touch of ear candy.

Small Rooms

The small room programs are rather unique on the MDR: they actually sound like small rooms. They're great for adding a bit more weight to an instrument or just making them a little less lifeless and dry.

Program **Machine 1 Small 1** and **Small 2** are fun, kind of ugly sounding little rooms - throw a drum set through them and you'll get a Steve Albini sort of vibe. Add a little **PRE-DELAY**... Machine 2 05 is especially "In Utero-ish"

Program **Machine 2 01** doesn't really sound much like a room, but run anything through it for instant weight gain and fatness without any mud. Play with **PRE-DELAY** to make the effect less natural.

SNARES

Seriously, this thing is like the best sounding snare reverb on the planet. **Machine 2 06** and **07** are wonderful for this, giving your snares a huge, cannon like slam. Hair metal, anyone?

GOOP

If you listen to rock records from the 1960's, especially Rolling Stones singles, there is this indefinable mess hanging around in the far background. It's a combination of acoustic guitar, bass, a band recording live in one big room, and perhaps an echo chamber. WHATEVER - that huge background fullness fills up all the empty spaces in the record like rice with Chinese food, and it sounds WUNDERBAR.

You'll like this! Run the entire mix through the MDR. Use program **Machine 1 Large 6** or personal favorite **Machine 2 28**. Start with **DRY** 100% and **WET** at 0. Roll tape (...or start playing the song with your DAW), and slowly turn up the **WET** until you get a low level blossom of reverb happening. With percussive music, the effect can be a little too noticeable, and you might have to roll down the **WET** at the ending of the song to keep the reverb tail from hanging around for 5 seconds after the song is done. You can automate that. Speaking of automation...

AUTOMATE THE WET KNOB (or the DRY KNOB)

If you patch the MDR across a channel insert, and then set the **DRY** to 100%, you can control how much reverb effect is heard by simply bringing up and down the **WET** knob. And you can automate this. So, imagine the reverb on a vocal swelling and diminishing depending on the music around the singer, or the emotional effect you want to get. Or as the song fades out, crank up **WET** and things don't only fade, they seem to move back and away. And because it is only 1 knob you're working with, the effect is easy to manage and automate. Gah! Automate the pan AND the **WET** (or the **DRY**, which might be even cooler) and then you can have parts move around not only left to right but front to back. Very AXIS: Bold as Love.

So, there ya go. The MDR is really fun to use, and really fast. It's great for smashing through a quick mix or generating some ideas as you start planning a recording or a final mix.

Make great music, make great records, have too much fun!