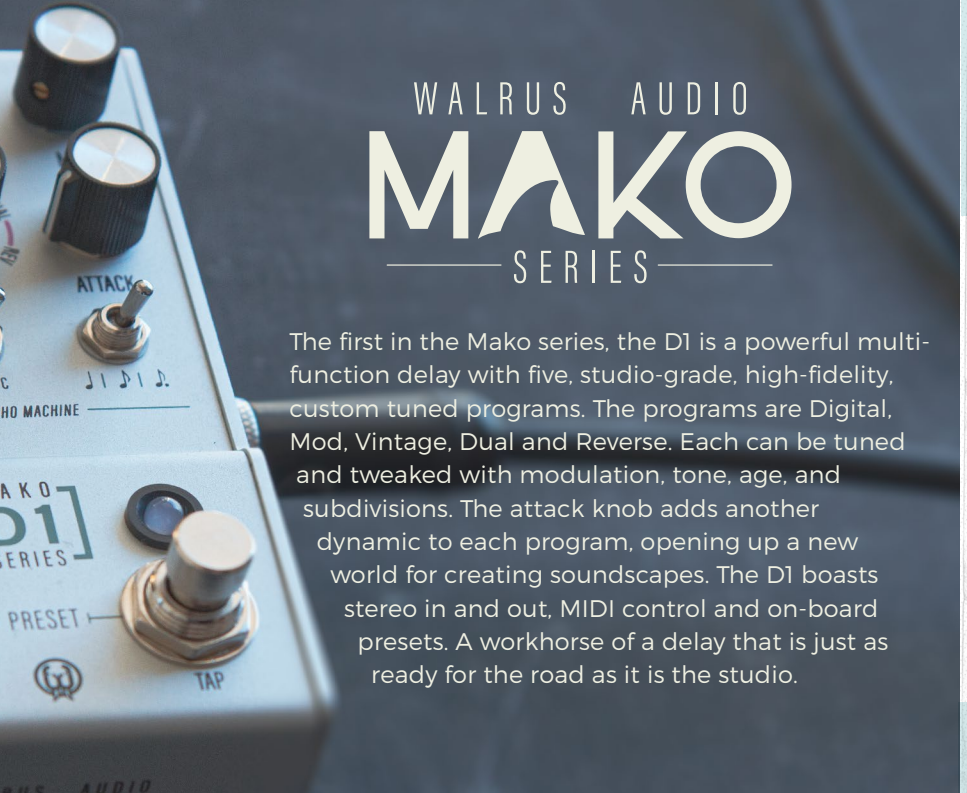
WALRUS AUDIO

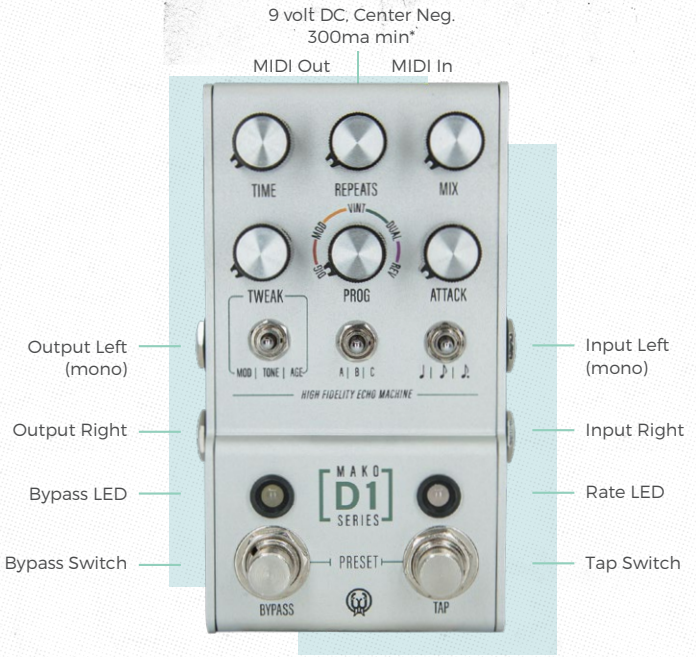
D1 HIGH-FIDELITY STEREO DELAY
INSTRUCTION MANUAL
v 1.5

MAKO SERIES



WALRUS AUDIO MAKO SERIES

The first in the Mako series, the D1 is a powerful multi-function delay with five, studio-grade, high-fidelity, custom tuned programs. The programs are Digital, Mod, Vintage, Dual and Reverse. Each can be tuned and tweaked with modulation, tone, age, and subdivisions. The attack knob adds another dynamic to each program, opening up a new world for creating soundscapes. The D1 boasts stereo in and out, MIDI control and on-board presets. A workhorse of a delay that is just as ready for the road as it is the studio.



*The use of an isolated power supply is recommended for powering all Walrus Audio Pedals. Daisy chain power supplies are not recommended.

CONTROLS

Time - The Time knob allows adjustment of the delay time from approximately 60ms at minimum to 2000ms at maximum and overrides any tap or MIDI tempo for manual time control.

Repeats - The Repeats knob controls the amount of feedback within each delay program. At minimum, only one repeat is allowed. At maximum, there will be a near infinite number of repeats – on the verge of self-oscillation.

Mix - The Mix knob sets the ratio of dry to repeated signal. At minimum, no repeats are heard. Unity gain can be found between 12 and 2 o'clock. And at maximum, only repeats will be heard.

As you dial in different sounds using the Tweak and Attack controls, you will find the Mix knob helpful for maintaining a healthy delay level. Simply turn the knob to dial in the desired level of the repeated signal.

Tweak - The Tweak knob offers creative control over three different parameters that allow you to shape each delay program to taste. Simply move the toggle to select the effect you want to control, then use the Tweak knob to dial in the right amount of modulation, filtering, or "age" for the delay.

Tweak Switch - The Tweak switch selects one of three effects for the Tweak knob to control. The Mod, Tone and Age effects are key to shaping the fidelity and character of the repeats allowing the user to dial in unique sounds.

- **Mod**: Set the switch to the Mod position and use the Tweak knob to adjust the desired amount of modulation applied to the repeats. The modulation type varies on some programs. See the Program section for more detail.

- **Tone**: Set the switch to the Tone position and use the Tweak knob to adjust the tonal characteristic of the delay. The EQ type varies on some programs. See the Program section for more detail.

- **Age**: Set the switch to the Age position and use the Tweak knob to adjust the desired amount of grit through the delay. The idea for the "age" effect is to simulate the signal passing through bucket brigade ICs or other analog circuits and in turn, losing fidelity. This is a desired sound that has charmed guitar players for decades.

Prog (Program) - The Prog knob selects the desired D1 delay program. See the Program section for more detail about each one.

Attack - The Attack knob offers dedicated control over a volume envelope applied to the audio being fed into the delay line. This will soften the attack of the echoes if desired. The higher the Attack setting, the longer it takes the signal feeding the delay line to fade up in volume. It can allow for higher mix levels while keeping the attack of the delay out of the way of the dry signal. With high Repeats and Attack settings, you can achieve dreamy soundscapes and ethereal sounds. For more traditional delay sounds, set the attack to lower settings.

A | B | C Bank Switch - The D1 offers three banks for storing presets. Each bank holds three presets for a total of nine that the user can access without using MIDI. The Bank switch selects which bank of presets the pedal will access. Bank A is presets 0-2, Bank B is 3-5, and Bank C is 6-8. The presets in each bank correspond to the Red, Green, and Blue LED, so the first preset in each bank is Red, the second is Green and the third is Blue.

Division Switch - The Division switch lets you select quarter (1/4), eighth (1/8), or dotted eighth (.1/8) delay multiplier when tapping a tempo or when the tempo is set via MIDI clock.

Bypass Switch - Used to turn the pedal on and off. Click to turn the pedal on and click again to turn the pedal off.

Bypass LED - Indicates if the pedal is on or off by illuminating solid when on, and off when the pedal is off.

CONTROLS

Tap Switch - Used to tap the desired 1/4 note delay time. The Mako D1 offers highly accurate tap tempo as it uses a custom rolling average tap program. Tap the switch with the tempo of the song to lock in the delay time.

Rate LED - The Rate LED flashes the color of the selected preset and indicates delay time in quarter notes. The Rate LED will flash purple when a preset has been modified.

Feedback Ramp - Press and hold the bypass switch to ramp up the repeats of the delay. Release to set the feedback back to the knob location.

Audio Input and Output - The Mako D1 offers multiple input and output configurations.

- Mono In / Mono Out - Use the top set of jacks for mono in - mono out.
- Mono In / Dual Mono Out
- Stereo In / Stereo Out
- Stereo In / Mono Out

Mono/Stereo Mode Select - In Mono mode, the Left and Right channels are mixed together and sent to both outputs equally. In Stereo mode, the Left and Right channels remain independent of each other.

- When the pedal is on, hold down the Tap Tempo switch until the Tap Tempo LED turns solid Blue or Green.
- When the LED is solid, you can use the "Attack" pot to choose whether the delay lines are being sent as mono or stereo:
  1. Blue (Counter-Clockwise), both delay lines feed the Left and Right outputs equally (Mono).
  2. Green (Clockwise), the left and the right output have independent delay lines (Stereo).

PRESETS

The pedal includes 128 total presets slots. Good luck using them all. The first 9 presets are accessible from the pedal using the Bank switch and both stomp switches. All 128 are accessible via MIDI Program Change messages. All 128 are accessible via MIDI Program Change messages which are outlined in the MIDI section.

- **To recall a preset:**
  1. First, select the bank of presets you want to access with the A|B|C switch. The pedal will automatically recall the red preset in that bank.
  2. Next, scroll through the presets in that bank by pressing both stomp switches at the same time. Each press of both stomp switches will load the next preset until you get back to red and the pattern repeats.

- **To save a preset:**
  1. Scroll to the preset color in the bank you want to save a new sound.
  2. Using the knobs and switches, dial in the desired delay sound. The Rate LED will turn purple indicating the preset has been modified.
  3. To save, hold down the Bypass and Tap switches until the preset LED blinks. The preset is now saved and the LED will return to the preset color.

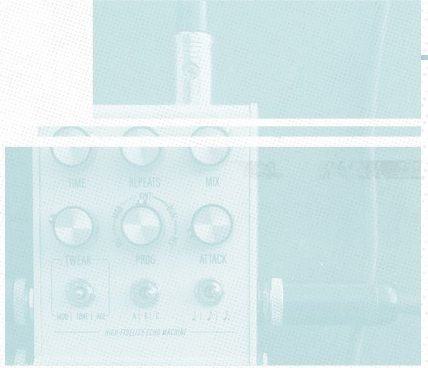
MIDI

The D1 is able to be controlled via standard MIDI messages. Simply connect your MIDI controller to the D1 MIDI "IN". Downstream MIDI devices can be connected to the MIDI "OUT" which serves as a MIDI passthrough. The D1 is not able to control other devices via MIDI. The D1 ships with the MIDI channel set to 1 by default.

- **MIDI Channel Assign** - To assign the MIDI device channel:
  1. Hold down both stomp switches at power up then release once the LEDs begin flashing white.
  2. Now send a MIDI Program Change message on the desired MIDI channel for the pedal.
  3. The LEDs will flash green momentarily, and the pedal will save that MIDI channel and only respond to messages on that channel until the user changes it again.
- **MIDI In** – Connect upstream MIDI devices or your MIDI controller to the D1 MIDI "IN".
- **MIDI Out** – The MIDI "OUT" functions as a simple MIDI thru allowing all incoming MIDI messages to pass through.
- **MIDI Clock** - The D1 accepts MIDI clock and sets its delay time anytime it sees a change in MIDI clock tempo. MIDI clock, when sent, will override the tempo set with the Time knob or tap switch. You can, however, tap a new tempo after the tempo has been set with MIDI clock. It's a good practice to limit your MIDI clock to only send a few clock pulses at a time since the D1 will quickly lock in the tempo.
- **MIDI PC** – Presets on the D1 are able to be recall LED via MIDI program change messages. Simply send a program change message corresponding the desired preset to be recalled on the D1 MIDI channel. See the table on the next page for a list of D1 presets and how they map to program change messages.

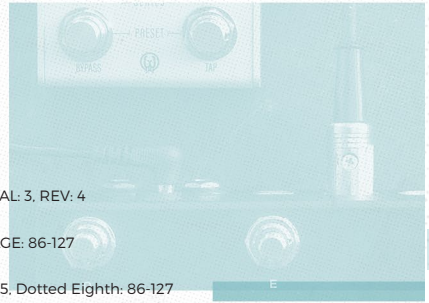
MIDI

PRESET	MIDI PROGRAM CHANGE (PC)
Bank A (Red)	0
Bank A (Green)	1
Bank A (Blue)	2
Bank B (Red)	3
Bank B (Green)	4
Bank B (Blue)	5
Bank C (Red)	6
Bank C (Green)	7
Bank C (Blue)	8
Accessible via MIDI	0-127



- **MIDI CC** – Most parameters on the D1 can be controlled via MIDI CC messages. The list below shows all applicable MIDI CC numbers and their associated parameters and control values.

PARAMETER	MIDI CC #	MIDI CC Value
Time	14	0-127
Repeats	15	0-127
Mix	20	0-127
Mod	21	0-127
Tone	22	0-127
Age	23	0-127
Prog	24	DIG: 0, MOD: 1, VINT: 2, DUAL: 3, REV: 4
Attack	25	0-127
Tweak Switch	26	MOD: 0-42, TONE: 43-85, AGE: 86-127
A|B|C Switch	27	A: 0-42, B: 43-85, C: 86-127
Division Switch	28	Quarter: 0-42, Eighth: 43-85, Dotted Eighth: 86-127
Bypass Switch	29	Bypass=0, Engaged=127
Tap Tempo	30	Bypass=0, Engaged=127



USER EDITABLE PREFERENCES

Bypass Mode - The D1 offers three bypass modes. True Bypass, DSP+True Bypass, and DSP Bypass. In True Bypass mode, the D1 uses relays to bypass the pedal. In DSP+True Bypass mode, the D1 allows the delay echoes to ring out before bypassing via relays. In DSP Bypass mode, the D1 uses the DSP to bypass the pedal. The D1 ships in True Bypass mode by default. Use the following procedure to change the bypass mode:

1. Hold down the Bypass switch while applying power until the rate LED lights up a solid color.
2. Press the bypass switch to scroll to the color corresponding to the desired bypass mode.
   a. Red: True Bypass
   b. Green: DSP+True Bypass
   c. Blue: DSP Bypass
3. Press the bypass and tap switches simultaneously to confirm selection.

Tempo Mode - The D1 offers global and preset tempo modes. In global mode, once a tempo is set, the tempo will not change when changing presets. In preset tempo mode, the tempo is set based on the delay time stored when the preset was saved. The D1 ships in global tempo mode by default. To toggle between tempo modes, perform the following:

- Hold down the Tap switch while applying power until the rate LED begins flashing Red or Blue. **Red** = Global Tempo, **Blue** = Preset Tempo

Factory Reset - To reset the pedal back to factory settings, hold both stomp switches while applying power to the pedal for longer than 10 seconds. After 10 or more seconds, release both stomp switches and the pedal will be reset to factory default settings.

DELAY PROGRAMS

· **Digital** - The Digital delay program offers a clean and crystal-clear delay that is perfect for rhythmic guitar parts where ultra-defined echoes are desired.

Tweak effects for the Digital program:
- o **Mod:** Adds pitch modulation to the repeats when turned up.
- o **Tone:** Low-pass filter applied to the repeats.
- o **Age:** Controls the intensity of a bit crusher applied to the repeats. Brace yourself.

· **Mod** - The Mod delay program has unique modulation LFOs applied to the repeats that are random and run at multiple rates to create unpredictable pitch modulation. This results in very unique sounding repeats perfect for warping minds and scattering trains of thought.

Tweak effects for the Mod program:
- o **Mod:** Adds pitch modulation to the repeats when turned up.
- o **Tone:** Low-pass envelop filter applied to the repeats.
- o **Age:** Adds gentle warm overdrive and high frequency roll-off to the repeats when turned up.

· **Vintage** – The Vintage program allows for analog delay inspired tones to be achieved with complex filtering applied to the repeats. Use the tone knob at low settings for darker filtering and at higher settings to roll off low end.

Tweak effects for the Vintage program:
- o **Mod:** Adds asymmetric pitch modulation to the repeats when turned up.
- o **Tone:** The tone blends between a low-pass and highpass filter applied to the repeats. From minimum to noon, it operates as a low-pass and from noon to maximum, it operates as a high-pass filter.
- o **Age:** Adds gentle warm overdrive and high frequency roll-off to the repeats when turned up.

· **Dual** - The Dual program employs two delays in parallel, each with different time divisions. When connected in mono, the two delays are added together. When connected in stereo, one set of repeats is sent to the left output and one set is sent to the right. The division switch has unique functionality in Dual mode. We'll break it down for you on the next page:

- o In the quarter note position, the D1 offers 1/4 note and 1/4 triplet repeats.
- o In the eighth note position, the D1 offers 1/8 note and 1/4 triplet repeats.
- o In the dotted eighth note position, the D1 offers 1/4 note and .1/8 repeats.

Tweak effects for the Dual program:
- o **Mod**: Adds pitch modulation to the repeats when turned up.
- o **Tone**: Low-pass filter applied to the repeats.
- o **Age**: Adds gentle warm overdrive and high frequency roll off to the repeats when turned up.

· **Reverse** - The Reverse program reads the delay memory backwards creating a unique delay repeat character known as reverse delay.

Tweak effects for the Reverse program:
- o **Mod:** Adds pitch modulation to the repeats when turned up.
- o **Tone:** Low-pass filter applied to the repeats.
- o **Age:** Adds gentle warm overdrive and high frequency roll off to the repeats when turned up.


TIME
REPEATS
MIX
TWEAK
PROG
ATTACK
VINT
MOD
DUAL
DLY
MOD | TONE | AGE
A | B | C
HIGH FIDELITY ECHO MACHINE
MAKO
D1
SERIES
PRESET
BYPASS
TAP

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