# maniFold Σ — Quick Guide

*Experimental MicroLooper + Delay Cluster Processor*
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**Demo:** 🎧 Watch here

## Overview

maniFold Σ is a hybrid real-time effect processor that blends **micro-looping**, **spectral-style delay processing**, and **feedback-based textures**. It's designed for experimental sound design, ambient layering, glitch textures, and abstract time-based transformations.

## Key Features

### 🎛️ Micro-looper with 8 Play Heads

- Each head plays from a shared 5-second audio buffer.
- Playback parameters are randomized: position, length, panning, and pitch (±12 semitones).
- **New in v1.0:** Real-time play head visualization — see which heads are active and where they're playing.

### 🧊 Buffer Control

- **Freeze/Lock** — capture a sonic moment for looping.
- **New:** `bufferClear` button — instantly clears the play/record buffer.

### 🌀 Delay Cluster

- 32 delay lines using **all-pass filter topology** (not standard delays).
- Base delay time is scaled across all lines via the **`Delay Spread`** parameter.
- Capable of producing rich comb-like filtering, pitch smearing, and spectral-like time dispersion.

### 🔁 Recirculation

- Adds **feedback** into the delay network, generating evolving and chaotic textures.
- Behaves similarly to a reverb tank or modular feedback loop.

### ✴️ Envelope & Loop Shape Control

- **`mLoopShape`** — sets the amplitude envelope applied to each play head.

- **`mLoopSize`** — defines the **minimum** playback size (from **500ms to 5s**), creating tighter or broader loop behavior.

## Key Control Descriptions

### `mLoopMix`

Controls **how much signal is sent to the delay cluster**, blending between the original signal and the micro-looper output:

- **0%** = only *original input* is sent to the delay network
- **100%** = only *micro-looper output* is sent to the delay network

*Note: This is not a dry/wet control — it sets the source feeding into the delays.*

### `Delay Feedback` (delayFdbck)

Controls the gain (`g`, `-g`) inside the all-pass delay structure — not just a feedback level. This gain value directly shapes the behavior and tonal quality of the delay cluster.

### `Recirculation`

Adjusts how much of the delayed signal is **fed back** into the delay network, creating long tails, swells, and textural buildup.

### `Delay Spread`

Multiplies the base delay time across all 32 delay lines to introduce **temporal and spatial variation**.

### `Preset Panel`

Currently a **non-functional placeholder** while the UI layout is still under development.

## Quick Tip for Exploring the Effect

1. Set **`mLoopMix`** to **0%** — sends only the *dry signal* to the delay cluster (micro-looper disabled as input).
2. Set **`Delay Spread`** to around **0.0010**
3. Adjust **`Base Delay`** to taste — recommended starting point is **300ms or more**
4. Set **`Recirculation`** to **0** initially

Then, while holding **Shift**, adjust **`Delay Spread`** and **`Mod Amount`**.

You'll hear a **spectral-delay-like** effect and start to get a feel for the internal delay structure.

Once you're comfortable with the sound:

- **Increase `Recirculation`** to introduce rich, evolving textures
- **Raise `mLoopMix`** to blend in the micro-looper as the signal source for the delay cluster

## Development Status

I'm still refining features, tuning DSP, and experimenting with the UI.
Your feedback is incredibly valuable — feel free to share thoughts, ideas, or sound examples.
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**Thank you for your interest and support!**
*— Michael @ StrangeAudio*