

Mutable Instruments — Braids

- [Manual PDF](#)
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Mutable Instruments Braids: Creative Modulation Tips

Mutable Instruments Braids is a powerful and versatile digital macro-oscillator. With 45 synthesis models and extensive modulation and CV capabilities, it's a prime sound source for modern electronic music, especially for warped percussion, filthy bass, and eerie pads. Here's how you can modulate Braids for maximum sonic impact:

1. Distorted Percussive Sounds

Model Choices:

- **DRUM** (TR-808 metallic drum)
- **KICK** (TR-808 bass drum)
- **SNAR** (TR-808 snare)
- **CYMB, BELL, PLUK**

Modulation Techniques:

- **TRIG Input:**

Use external gates/triggers (sequencer, clock divider) to excite physical models and fire envelopes. Set the TSRC (Trigger Source) to EXT for standard triggering or AUTO for self-triggering based on pitch changes.

- **Timbre & Color CV:**

Patch envelopes, LFOs, or stepped random sources into TIMBRE and COLOR to distort decay, brightness, or introduce glitch/

artifacting. Fast envelopes = sharp, snappy hits; audio-rate signals = wild, bitcrushed/folder chaos.

- **FM Input:**

Patch in another percussion sound or fast random voltage (like a noised-up S&H) and set FM attenuverter for gritty, harsh transients.

- **AD Envelope (Internal):**

Use the internal Attack/Decay envelope generator to quickly modulate FM, TIMBRE, COLOR, or even output VCA (see |\FM, |\TIM, |\COL, |\VCA in Options). This adds dynamic shapes, movement, and snap to every hit.

- **Low Bit Depth (BITS)/RATE Reduction:**

Lower bit rate and sample rate produce crunchy, mangled transients and digital artifacts—ideal for lo-fi, industrial percussion.

- **SIGN Option:**

Enable for grungy distortion and unexpected waveform glitches.

- **CLOU/PRTC Granular Models:**

Modulate TIMBRE with gates or slow LFOs to smash textures from granular to dense, turbulent "grains".

2. Gnarly Dubstep/DnB Basslines

Model Choices:

- **FM, FBFM, WTFM** (phase modulation, feedback, wild tonalities)
- **/|/|--**, **RING**, **VOSM**, **WTx4**, **HARM**, **WTBL** (aggressive, harmonically rich)
- **TOY**, **TWNQ** (digital filth and resonant mayhem)

Modulation Techniques:

- **V/OCT Input:**

Sequencer for pitch, or even audio-rate oscillator for brutal, "FM-fusion" low-end movement.

- **FM Input:**

Route an envelope, LFO, or another oscillator here. Use bipolar modulation (FM attenuverter) for frequency "wobble" that's essential in dubstep. Extremely short envelopes give "growl"; slow LFOs give classic wobble.

- **TIMBRE and COLOR Modulation:**

Assign envelopes or stepped random CV. Patch a slow LFO to TIMBRE and a faster one to COLOR—or vice versa. Modulate in opposite polarity for wild crossfades through heavy distortion or formant shifting.

- **Model Morphing (META mode):**

Assign a random stepped source, S&H LFO, or manual control via a fader or sequencer to FM input while META is on. Sweep across synthesis models mid-note for brutal, hybrid tones.

- **Signal Folding (FOLD Model):**

Modulate TIMBRE (wavefold strength) with envelopes or wobbly LFOs, and COLOR to switch between sine/triangle.

- **Twin Peaks (TWNQ):**

Self-modulation via high feedback and aggressive Q values achieves spitting, resonant bass.

- **WTx4 (Quad Voice):**

Use COLOR for chordal "spread" or heavy unison basses; dial in microtonal detuning for a "swarm" effect.

- **Embrace Aliasing:**

Intentionally run at low RATE (DAC sample rate) for aliasing harmonics and teeth-grinding distortion.

3. Haunting Pads & Atmospheres

Model Choices:

- **ZLPF/ZHPF/ZBPF** (filtered analog emulations)
- **WMAP, WTBL, WLIN** (rich wavetables)
- **CLOU/PRTC** (granular, textural)
- **VOWL, VFOF** (vocal-like, formant-rich)
- **HARM** (additive pads), **RING** (FM shimmer)

Modulation Techniques:

- **Slow Modulation:**

Use multiple LFOs or long envelopes patched to TIMBRE, COLOR, and FM. Drift between waveforms, filter shapes, and harmonic structures.

- **Granular Models (CLOU, PRTC):**
Modulate COLOR and TIMBRE with slow random voltages, or a joystick, for evolving, shimmering sounds.
 - **Meta Mode + Random CV:**
Morph pad textures by slowly sweeping the FM input (when META is on) through models, wavetables, or filter settings.
 - **FM Sideband "Shimmer":**
Patch reverb tails, ambient drones, or external synths to FM for subtle, spectral shifting.
 - **Internal Envelope:**
Use a long attack & decay envelope to modulate output amplitude or timbral position, creating swelling, morphing tones.
 - **Formant Models (VOWL/VFOF):**
Use slow LFO on TIMBRE for vowel sweeps; COLOR to simulate "gender/age".
 - **Noise Models (NOIS, TWNQ):**
Crossfade outputs or modulate filter resonance to blur between synthetic "wind" and haunted resonance.
 - **Brightness/Detune:**
Use FLAT and DRFT for gentle detuning and instability for old tape/vintage synthetic character.
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Additional Pro Tips

- **Self-Modulation:**
Mult Braids' output back to FM, TIMBRE, or COLOR for feedback chaos and self-organizing movement.
- **Meta-Model Randomization:**
Use stepped random CV or a random looping sequencer on FM (in META mode) for living, generative textures.
- **All Modulation is Additive:**
Knob positions and CVs combine—consider scaling/offsetting to hit the "sweet spots".
- **Attenuverter Mastery:**
Fine-tune modulation range and polarity for expressive, performance-ready sounds.

- **Combine with Distortion or Waveshaper Modules:**

Push already-twisted Braids output through analog distortion or wavefolders for extra grit.

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