

WaveTronic

EKSSPERIMENTAL SOUNDS STUDIO

INTRODUCTION

WaveTronic Shaper is a waveshaping processor built around two complementary shaping curves and a flexible output stage that determines how they interact. At its core, you work with:

- a **Preset** stage, offering a curated set of predefined curves
- a **Custom** stage, which you draw and sculpt yourself
- an **Output** stage, which defines how the Preset and Custom Shapes are combined

The two shapes Preset and Custom are mixed, morphed, or split across the stereo field by the Output Mode. The Output Shape display always shows the actual shaping curves being applied to the audio, including modulation and CV.

GLOBAL CONTROLS

BYPASS

Engages or bypasses the entire device.

FILTER

A simple, bipolar filter placed before the shaping stages.

- Turn left for low-pass filtering
- Turn right for high-pass filtering
- Center position bypasses the filter

Technical details

The filter sits between the two input gain stages and affects the signal with some resonance added before entering the shaper engine. The LED lights up when the filter is active.

GAIN

Controls how hard the signal drives the shaping engine.

Technical details

Center position = 0 dB

Max:

- +12 dB before the filter
- +12 dB after the filter

Total boost: +24 dB

Min:

- 36 dB before the filter
- 36 dB after the filter

Total attenuation: -72 dB

TONE

A post-shaping tone control for final balancing.

- Left: high-cut
- Right: low-cut
- Center: neutral

MIX

Blends between:

- Dry signal (taken before gain and filtering)
- Fully processed signal

This allows parallel shaping and subtle blending.

LEVEL

Sets the final output level from $-\infty$ to +12 dB.

METERS

The input meter displays the level after gain and filtering, just before shaping.

The output meter displays the final output level.

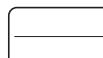
SHAPER DISPLAYS

PRESET SHAPE

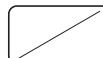
The Preset Shape provides a collection of predefined waveshaping curves, ranging from clean and linear to aggressive and irregular.

Select a shape from the row at the top of the display. The selected curve is shown immediately.

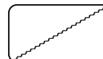
Available shapes include:



flat (Flat)



line (Linear)



bit (Bit Reduced)



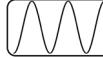
sin (Sine)



tan (Tanh)



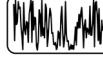
dio (Diode)



3x (3x Sines)



spr (Sparse)



rnd (Random)



wei (Weighted)



inv (Inverted Weighted)

PRESET & CUSTOM - SCALE

Controls how strongly the shape is applied:

- Positive values increase shaping
- Negative values invert the curve
- Zero = Flat

Technical details

The scale value is applied as a multiplier to the Preset and Custom Shapes.

Scale CV is injected during Output Shape calculation so full animation will happen in the output display.

CUSTOM SHAPE

The Custom Shape lets you design your own waveshaping curve by drawing directly into the display.

You can start from a blank slate, copy the Preset Shape, or blend the two, then refine the result with a range of drawing tools.

CUSTOM SHAPE - UTILITIES

- **Clone From Preset** – Copies the current Preset Shape into the Custom Shape.
- **Mix With Preset** – Blends the existing Custom Shape with the Preset Shape.
- **Set Flat** – Resets the Custom Shape to a flat line (no shaping).
- **Set Linear** – Creates a linear ramp from -100 to +100.

DRAWING A CUSTOM SHAPE

Draw directly in the display using the mouse. Modifier keys change how the curve is painted and combinations of several keys enable stepped, straight, curved, or smoothed drawing. This allows both precise editing and more expressive gestures.

MODIFIER COMBINATIONS:

- **SHIFT** – snap horizontally
- **ALT** – jitter brush
- **CMD / CTRL** – soften existing points
- **ALT + SHIFT + CMD** – Stepped Vector Line: Click and drag to draw a stepped line between two points.
- **SHIFT + CMD** – Straight Vector Line: Click and drag to draw a straight line between two points.
- **CMD + ALT** – Curve Mode (Bezier): Click and drag to draw a smooth S-shaped curve.
- **SHIFT + ALT** – Stepped Freehand: Draw freehand with stepped quantization.

OUTPUT SHAPE

The Output stage is where the magic happens. It defines how the Preset Shape and Custom Shape are combined and routed to the output. Depending on the selected mode, the two shapes may be:

- merged into a single mono shaping curve, applied to both Left and Right channels, or
- processed independently and dependent on each other for left and right channels

The Output Shape display always shows the final shaping curves, including CV modulation. Any animation you see here reflects real changes in the audio.

MONO MODES

These modes produce a single combined shaping curve, applied equally to both channels.

Add

Adds the Preset Shape and Custom Shape together.

Subtract

Subtracts the Custom Shape from the Preset Shape.

Difference

Uses the absolute difference between the two shapes. The Morph control influences polarity and introduces opposing polarities between left and right channels, creating subtle stereo contrast.

STEREO MODES

These modes generate independent shaping curves for left and right channels.

- Preset Shape acts as Mid
- Custom Shape acts as Side

Morph controls how much Side is added to and subtracted from Mid, adjusting stereo width.

PAN

Preset Shape feeds the left channel
Custom Shape feeds the right channel
Morph performs a cross-pan between the two shapes.

SHIFT

Shifts the two shapes horizontally in opposite directions.

- Preset Shape shifts forward
- Custom Shape shifts backward

Shifts are clamped at the waveform edges.

WRAP

Same as Shift, but the waveform wraps around instead of clamping, preserving continuity and often leading to surprising shapes.

STEREO CROSS-FEED

The two shapes feed into each other across channels, creating more complex stereo interaction.

MORPH CONTROL

The Morph slider defines how the two shapes interact.

Depending on the mode, it may crossfade shapes, control stereo balance or set shift/mod amount.

CV INPUTS (REAR PANEL)

Each main stage has its own CV input:

- Preset Shape Scale CV
- Custom Shape Scale CV
- Morph CV

Scale CV inputs are injected at the Output Shape stage, not at the individual shapes.

This ensures the Output Shape display always reflects the true, final shaping curves, including CV modulation.

**THIS DEVICE
IS DESIGNED
TO MAKE
WAVESHAPING
TANGIBLE.
YOU ARE NOT
JUST HEARING
THE RESULT
— YOU ARE
WATCHING IT
TAKE SHAPE.**

THANK YOU FOR SUPPORTING EKSSPERIMENTAL SOUNDS STUDIO!

Ekssperimental Sounds Studio is a one man project driven by the passion for experimental electronic sounds, new and old synthesizers and music gear. As a Reason user since 2001 it truly is a dream come true to finally be able to create my own synthesizers and effects for the Reason rack.

Thanks to all of you who buy my products I can continue to learn and develop more fun and inspiring devices for our beloved rack.

I hope you will enjoy WaveTronic!

Cheers,
Erik Söderberg 2024



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