

Making Sound Machines – DivSkip

• [Manual PDF](#)

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WMD Skorpion Cheat Sheet

What it is

Skorpion is a stereo analog **wavfolder** / **waveform animator** built around a **vector core**: - Your **IN** signal is compared against **8 thresholds** - Each threshold crossing can reverse the core's direction - **SLOPE** sets how fast the core moves - **TARGET** sets what voltage the core moves toward - **SHAPE** adds feedback-based contouring - **OUTPUT** crossfades from dry → wet → stereo widened wet

It can behave like: - a classic-ish wavfolder - a highly asymmetrical folding/distortion source - a CV/audio-rate animation engine - a modulation source generator via its many aux outputs

Quick start

1. Patch **audio to IN**
2. Patch **OUT L** and **OUT R** to mixer/output
3. Set:
 4. **OUTPUT** around noon to full wet
 5. **TARGET** to **5V** or **CLIP**
 6. **SYNC** to **SOFT** or **HARD** for stable behavior
 7. **EQUALIZE THLDS** ON for simpler/classic folding

8. Raise **FOLD**
9. Adjust **SLOPE**
10. Add **SHIFT** for asymmetry
11. Add **SHAPE** and choose a **SHAPE source** for more complex timbres

If it gets too weird/silent while modulating: - turn on **DRY IF NO THLDS**

Core sound controls

FOLD

Amplifies the input against the threshold stack; more fold activity.

SLOPE

Sets the vector core slew rate. Higher = more harmonic content, brighter/faster motion.

1V/OCT

Tracks **SLOPE** so timbre stays more consistent across pitch.

SHIFT

Offsets the input against thresholds for asymmetry. - Noon = ~0V shift - Slow modulation here can create frequency-shift-like effects

TARGET

Sets where the vector core tries to go: - **5V**: static destination, squarer sounds - **CLIP**: uses input waveform (or external CLIP jack) as destination overlay - **SLIDERS**: uses 8 target sliders as a sequenced destination voltage

SHAPE

Modulates SLOPE using a selected feedback/control source. - Noon = no feedback - **SYM** switch on: shaping is symmetrical for + / - portions of the waveform

OUTPUT

Crossfader: - lower half: **DRY** ↔ **WET** - upper half: **WET** ↔ **WIDE** - **WIDE** brings in stereo delay/mid-side widening

Most important switches / toggles

EQUALIZE THLDs switch

Forces equal threshold spacing; sounds more like a classic wavefolder. - **ON**: equalized always on; jack ignored - **XOR**: equalized on unless jack is high - **JACK**: equalized off unless jack is high

LED on = thresholds equalized.

DRY IF NO THLDs

If no thresholds are active, forces dry signal through the core. Helpful when heavy modulation causes folding to disappear.

SYNC

Resets vector core at **IN zero crossings**: - **SOFT**: ramps toward 0V at current slope - **X**: off - **HARD**: fast reset to 0V

OUTPUT switch

- **DC**: direct signal, no filtering
- **FILTERS**: low end (<240Hz) stays centered; highs get delayed/ side processed

TARGET ORDER

How slider targets are selected: - **SEQ**: by number of active thresholds -
TIED: by most recently crossed threshold

HALT IF TARG=0

If a target slider is at 0, that segment can stop moving, producing square/held sections.

TRGT MOD mode

- **SYM**: full-wave rectified modulation, symmetrical
 - **ASYM**: straight modulation, asymmetrical
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Sliders and spring toggle

Slider contexts

The 8 sliders serve 3 roles:

1) THLDs mode (default)

Sets the **8 threshold voltages** where folds occur.

2) TRGTs mode (hold spring toggle left)

Sets the **8 target voltages** for the target sequencer.

3) MACRO SETUP (hold spring toggle right for ~1 second)

Configures internal modulation.

Macro system

Skorpion has an internal **macro envelope** controlling internal LFO/envelope modulation.

Spring toggle behavior

- **Tap right:** enable/disable Macro Envelope
- **Hold right:** enter Macro Setup while held
- **Hold left:** edit TRGT sliders

Macro Env LED

- **Red:** gate on
- **Blue:** envelope level

Macro Setup sliders

1. **Macro Env Attack:** 50ms–600s
2. **Macro Env Release:** 500ms–600s
3. **THLD LFO Amount**
4. **THLD LFO Rate:** 0.0016Hz–6Hz
5. **FOLD normal modulation**
6. **SLOPE normal modulation**
7. **SHIFT normal modulation**
8. **SHAPE normal modulation**

For sliders 5–8: - quick **top**→**bottom** gesture = **LFO mode** - quick **bottom**→**top** gesture = **ENV mode**

Behavior: - **LFO:** 0.0016Hz–6Hz, unipolar, amplitude controlled by Macro Env - **ENV:** 50ms–600s, gated by Macro Env gate, amplitude not scaled by Macro Env - Routed internally to the corresponding CV normal input

Notes: - LFOs reset on each Macro gate-on - Envelopes attack without resetting on retrigger - LFO disabled at slider bottom; envelopes cannot be disabled

Practical usage tips

For classic wavefolder territory

- **EQUALIZE THLDs = ON**
- **TARGET = 5V**
- **SHAPE near noon**
- **SYNC = SOFT or HARD**
- Bring up **FOLD**, then tune brightness with **SLOPE**

For asymmetrical / vocal / unstable folds

- Modulate **SHIFT**
- Use **TARGET = CLIP**
- Feed external signal into **CLIP**
- Add **SHAPE** from **OUT**, **DIFF**, or **DIR**

For sequenced/talking timbres

- Set **TARGET** toward **SLIDERS**
- Edit **TRGTs**
- Switch **TARGET ORDER** between **SEQ** and **TIED**
- Try **HALT IF TARG=0**

For stereo width

- Turn **OUTPUT** past noon into **WIDE**
- Use **FILTERS** mode to keep bass centered
- Tap the **DELAY** output as an extra modulation/audio source

For self-patching

Good aux outputs to patch back in: - **DIFF** → **SHAPE CV** for spiky timbres - **COUNT** → **TARGET / SHIFT / SHAPE - ±G(DIR)** → **SHIFT - TRGTs out** → **anything - ABS(IN)** → **modulation destination - DELAY** → **SHAPE** with output in wide region

Controls reference

Knobs

- **FOLD** – amount of folding
- **SLOPE** – vector core rate
- **SHIFT** – input offset/asymmetry
- **SHAPE** – slope feedback amount
- **OUTPUT** – dry/wet/wide blend
- **TARGET** – destination selection between 5V / CLIP / SLIDERS

Attenuverters / associated CV controls

- **FOLD CV attenuverter**
- **SLOPE CV attenuverter**
- **SHIFT CV attenuverter**
- **SHAPE CV attenuverter**
- **OUTPUT CV attenuverter**

Rotary / mini switches

- **EQUALIZE THLDs**: ON / XOR / JACK
- **TARGET ORDER**: SEQ / TIED
- **SHAPE source**: IN / OUT / DELAY / COUNT / DIFF / TRGTs / DAC / DIR
- **SHAPE symmetry**: SYM / asym
- **TRGT MOD**: SYM / ASYM
- **HALT IF TARG=0**
- **SYNC**: SOFT / X / HARD
- **OUTPUT**: DC / FILTERS

Sliders

- **8 THLD sliders** in default mode
- **8 TRGT sliders** when holding spring toggle left
- **Macro setup sliders** when holding spring toggle right

Spring toggle

- center: thresholds
- hold left: targets
- tap right: macro env on/off
- hold right: macro setup

Jack reference

Inputs

Manual states **IN nominal range is $\pm 5V$** . Other CV/gate inputs are supported; explicit ranges are only given where stated in the manual. When not explicitly specified, patch typical Eurorack CV/audio.

Input impedances: **IN 100k Ω , 1V/OCT 3M Ω , TRGT MOD 20k Ω** , all other CV/gate inputs **220k Ω** .

Jack	Type	Range / notes
IN	Audio/CV input	$\pm 5V$ nominal
CLIP	Audio/CV input	Range not specified; overrides normal from IN for clip/target overlay
1V/OCT	CV input	Range not specified
FOLD	CV input	Range not specified; affects fold amount
SLOPE	CV input	Range not specified
SHIFT	CV input	Range not specified
SHAPE	CV input	Range not specified
TARGET	CV input	Range not specified

Jack	Type	Range / notes
OUTPUT	CV input	Range not specified; controls dry/wet/wide
TRGT MOD	CV/audio input	Range not specified; directly modulates TARGET pot output
THLDs/	CV input	Range not specified; weighted modulation of all thresholds
THLD1	CV input	Range not specified; direct modulation of threshold 1
TRGTs	CV input	Range not specified; modulates all targets together
EQ THLDs	Gate/CV input	High signal enables/disables equalization depending on switch mode
MACRO ENV	Gate input	Range not specified; gates macro envelope
HALT	Gate/CV input	Range not specified; stops vector core motion; audio-rate capable

Outputs

Output impedance: **1k Ω**

Jack	Type	Voltage range / notes
OUT L	Audio output	Range not specified
OUT R	Audio output	Range not specified
ABS(IN)	CV/audio output	Full-wave rectified IN; range not specified

Jack	Type	Voltage range / notes
G(IN>0)	Gate output	0V / +5V
TRGTs	CV/audio output	Target sequencer output; range not specified
DIFF	CV/audio output	Difference between target and vector core; range not specified
±G(DIR)	Bipolar gate output	-5V / +5V
COUNT/	Staircase CV output	0V to 4V , +0.5V per active threshold
DAC	Weighted staircase CV output	0V to 4V full scale
DELAY	Audio/CV output	Delayed waveform from WIDE section; range not specified

Output section behavior

OUTPUT knob

- **Below 12 o'clock:** dry→wet blend
- **Above 12 o'clock:** wet→widened stereo

DELAY output behavior

Only active when OUTPUT is in the wide region: - below 12 o'clock: no delay out - 12:00 to 12:30: fades in - to ~3:00: delay time increases - beyond ~3:00: delay time plus slow modulation depth/rate increase

Delay specs: - fade-in region: **80µs to 1.8ms** - up to modulation onset: **8.2ms** - max: **14.4ms ±3ms** at ~2Hz modulation

Threshold/CV behavior summary

THLDs/

Weighted across all 8 thresholds: - THLD1 gets CV $\div 2^7$ - THLD2 gets CV $\div 2^6$ - ... - THLD8 gets CV $\div 1$

COUNT vs DAC

- **COUNT/**: simple staircase, each active threshold adds **0.5V**
- **DAC**: binary-weighted version of threshold activity, **0–4V**

DAC bit weights: - THLD1 = 1/256 full scale - THLD2 = 1/128 - THLD3 = 1/64 - THLD4 = 1/32 - THLD5 = 1/16 - THLD6 = 1/8 - THLD7 = 1/4 - THLD8 = 1/2

Helpful reminders

- If slider LEDs don't respond as expected, check **EQUALIZE THLDs**
 - **SHIFT at noon** is recommended when using **HALT**
 - **MACRO ENV** is always **OFF on power-up**
 - Settings auto-save after **1 minute** of inactivity
 - Audio path is **analog except delay**
 - **All CVs support audio-rate modulation** for threshold-related processing
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Specs

- **Width**: 20HP
- **Depth**: 38mm
- **Power**: +200mA / -160mA
- **Mid/Side crossover**: 240Hz
- **Max slew rate**: 0.4V/ μ s
- **Internal LFOs**: 0.0016Hz–6Hz
- **Envelope times**: 50ms–600s

Generated With Eurorack Processor