Making Sound Machines — DivSkip

- Manual PDF

Manual PDF / Source

WMD Skorpion — using it to create melodic components

Skorpion is not just a wavefolder. Reading the manual as a musician, it's really a **pitch-aware waveform animator / comparator-driven melodic modulation source**. That means it can contribute to melody in several ways at once:

- as a **timbre voice processor** for pitched oscillators
- as a **self-generated stepped CV source**
- as a **wave-sequenced target generator**
- as a **rhythmic/melodic modulator** derived from the harmonic movement of an incoming note
- as a **stereo melodic texture maker** with controllable width/delay

Since only this module/manual is provided, I'll focus on how the **internal sections of Skorpion work together** to make melodic material.

Big picture: why Skorpion is musically melodic

The core idea is:

1. Your input signal at **IN** is analyzed by **8 thresholds**.

2. Each threshold crossing changes the behavior of the **vector core**.
3. The vector core moves toward a **target voltage** at a speed set by **SLOPE**.
4. The selected target can come from:
5. fixed **5V**
6. the **input/CLIP**
7. or the **8-step TRGT slider sequencer**
8. Several outputs expose internal states:
9. **TRGTs**
10. **COUNT**
11. **DAC**
12. **DIFF**
13. **±G(DIR)**
14. **ABS(IN)**
15. **G(IN>0)**

So the module naturally turns one pitched signal into: - a folded audio result - multiple related CV streams - step-sequence-like control voltages that can be patched back into pitch, timbre, dynamics, or other voices

That's exactly the kind of thing that creates **melodic components**, not just distortion.

The most important melodic use cases

1. Use Skorpion as a pitch-consistent timbre shaper for a melodic oscillator

If you feed a VCO melody into **IN**, Skorpion can keep the timbre behavior more consistent across notes because:

- **1V/OCT controls SLOPE**
- The manual explicitly says this is "necessary for equal timbre across different notes"

Patch concept

- Melodic VCO → **IN**
- Same pitch CV used for that oscillator multed to **1V/OCT** on Skorpion
- Skorpion **OUT L/R** → mixer

Why this matters

Normally, wavefolding changes character a lot as pitch changes. Skorpion compensates by linking pitch to slope. That means: - bass notes and high notes retain a more similar folded identity - melodic phrases sound intentional rather than random - you can treat it like a playable voice processor

Best controls for melody

- **FOLD**: harmonic intensity
- **SLOPE**: brightness / articulation / overtone density
- **SHIFT**: asymmetry; can make alternate-note color changes feel melodic
- **SHAPE**: curve character and dynamic contour

Musical result

This is the most straightforward “melodic” role: Skorpion becomes the **expressive oscillator-shaper** in a tuned lead, bass, or arp line.

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2. Use the TRGT sliders as an internal 8-step melodic contour sequencer

The **TRGTs** are one of the most melodic features in the module.

The manual says: - the 8 targets form an **8-step voltage controlled sequencer** - they can control the vector core destination - they are also available directly at the **TRGTs output jack**

So even if you ignore Skorpion's audio output, you can use it as a kind of **threshold-addressed melodic sequencer**.

Two target order modes

- **SEQ**: target selected by the **count of active thresholds**
- **TIED**: target selected by the **most recently crossed threshold**

These are musically very different.

SEQ mode

Feels more like: - a staircase melody - contour linked to input amplitude/ shape - orderly stepped progression

TIED mode

Feels more like: - event-driven melody - edge-sensitive movement - more angular / reactive / gestural

Patch concept

- Audio oscillator or complex LFO → **IN**
- Set **TARGET** toward **SLIDERs**
- Program TRGT sliders to a melodic contour
- Use **TRGTs output** to modulate:
- another oscillator's pitch input
- filter cutoff
- FM index
- VCA level
- waveshape of another voice

Musical result

The input waveform becomes an **addressing mechanism** for the 8 programmed voltages. This can create: - pseudo-sequences - note ornaments - harmonic shifts - repeated melodic motifs tied to the oscillator's own motion

If attenuated and quantized downstream, this becomes very strong melodic CV.

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3. Use threshold crossings to derive melody from timbre

Because threshold states are based on the incoming waveform, Skorpion turns the shape and amplitude of a note into stepped control information.

The most useful melodic outputs here are:

- **COUNT**: 0–4V staircase, each active threshold adds 0.5V
- **DAC**: weighted threshold combination, a more nuanced staircase
- **TRGTs**: selected target voltage
- **DIFF**: difference between target and actual core position

Why these are melodic

These outputs are correlated to: - waveform shape - fold amount - threshold arrangement - symmetry / shift - note dynamics

That means your melody can produce **secondary melodies** or pitch-adjacent movement.

Patch ideas

A. COUNT as a melodic sub-sequence

- **COUNT** → quantizer → oscillator pitch
- Main oscillator also feeds **IN**
- As each played note changes threshold activity, COUNT generates stepped voltages that become a secondary melody

Result: - one played line creates a second harmonically related line

B. DAC as a more refined melodic CV

- **DAC** → quantizer → second voice pitch

- Program thresholds unevenly
- Modulate FOLD and SHIFT slowly

Result: - less obvious staircase than COUNT - more “encoded” melodic motion - excellent for counter-melody

C. TRGTs as phrase contour

- **TRGTs output** → precision adder or quantizer → voice pitch
- Sliders define the phrase shape
- Threshold crossings decide which step is active

Result: - reactive melody generator from the incoming note contour

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4. Use SHIFT for pitch-like motion and melodic asymmetry

The manual states:

> Slow modulation here produces a frequency shift effect.

That’s a major musical clue.

SHIFT pushes the input signal up and down against the comparators, creating asymmetry. In melodic contexts this does several things:

- changes which thresholds are hit
- changes target selection behavior
- changes fold symmetry
- can create apparent pitch-drifting sideband-like motion

Patch concept

- Send slow CV, envelope, or TRGT-derived CV to **SHIFT**
- Keep **SHIFT** near noon for centered behavior, then animate around it

Musical result

This gives: - vowel-like note animation - note-to-note asymmetry - subtle melodic inflection - unstable “bent pitch” timbral motion without retuning the oscillator

This is great for: - leads - acid-like lines - evolving drones with melodic perception - expressive bass articulation

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5. Use the Macro section to animate melody over time

The **MACRO SETUP & MACRO ENVELOPE** section is very strong for phrase-based melodic evolution.

It provides: - macro attack/release - threshold LFO amount/rate - per-parameter modulation normals for: - **FOLD** - **SLOPE** - **SHIFT** - **SHAPE**

These can be set as either: - **LFOs** - **ENVs**

and all LFO amplitude is controlled by the **Macro Envelope**.

Why this matters melodically

A melody often needs: - note articulation - phrase evolution - repeated but non-static timbre - gradually opening/closing complexity

Skorpion can do this internally.

Patch concept: “animated melodic lead”

- Pitch CV → oscillator and Skorpion **1V/OCT**
- Oscillator → **IN**
- Enable **MACRO ENV**
- Set:
- FOLD normal modulation as ENV
- SLOPE normal modulation as ENV
- SHIFT as slow LFO

- SHAPE as slow ENV or LFO
- Trigger Macro Env per note or per phrase

Result

Each note or phrase can: - start clean - bloom into more complex fold states - shift symmetry during sustain - release back to simpler tone

That’s extremely musical, especially when the melody is simple and the timbre does the expressive work.

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6. Use equalized thresholds for classic melodic wavefolder behavior

The **EQUALIZE THLDs** switch forces equal threshold intervals and makes the timbre more like a classic wavefolder.

Musically:

- more predictable harmonic development
- easier to tune by ear across a melody
- better for traditional leads/basses/arps
- threshold sliders no longer define irregular breakpoints

Good use

If you want: - a melodic line with stable “folder” behavior, - less chaotic stepping, - more classic West Coast folding,

then enable **EQUALIZE THLDs** and use: - 1V/OCT to stabilize timbre across pitch - SLOPE and FOLD to sculpt brightness - SHAPE for articulation

Contrast

If you want a more sequenced / melodic-CV-generating behavior, disable equalization and use irregular threshold positions.

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7. Use SYNC for cleaner pitch-centered notes

The **SYNC** switch resets the vector core at zero crossings of the input.

Modes: - **SOFT** - **X** = off - **HARD**

Melodic implications

For pitched material, sync often makes notes: - cleaner - more repeatable - more stable in attack - less smeared

HARD sync

- best for percussive, articulate melodies
- sharper note identity
- more aggressive harmonic reset

SOFT sync

- smoother
- more organic
- still pitch-coherent

Good patch

For melodic bass or plucked sequences: - oscillator → IN - pitch CV → oscillator and 1V/OCT - SYNC = SOFT or HARD - Macro envelope opening FOLD or SHAPE per note

Result: - consistent attacks - strong note centers - more playable behavior

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8. Use HALT and HALT IF TARG=0 to create pitched, square-like melodic segments

This is one of the coolest musical features.

- **HALT jack** stops the vector core from moving

- **HALT IF TARG=0** lets any target slider at 0 create a halted segment

That means you can deliberately insert **flat held segments** into the folded waveform. The manual says this creates “squares in the timbre.”

Why melodic?

Square-like held segments emphasize: - pitch center - odd harmonics - note articulation - digital/stepped phrasing

Patch idea

- Set **TARGET** to use **SLIDERs**
- Put some TRGT steps at 0
- Enable **HALT IF TARG=0**
- Feed a melodic oscillator into IN
- Use **TIED** or **SEQ** target ordering

Result

Some waveform segments freeze while others slope. This can produce: - speech-like note shapes - stepped timbral accents - pseudo-PWM melodic tones - phrase-dependent harmonic punctuation

This is especially effective for: - electro leads - square-ish basses - sequenced techno lines

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9. Use CLIP and TRGT MOD to impose another melody onto the current one

The module allows the target voltage to be influenced externally:

- **CLIP** can replace the normal input-clipping reference
- **TRGT MOD** directly influences the output of the TARGET pot
- TRGT MOD can be **SYM** or **ASYM**

This is a huge “use together” point internally: input audio, target selection, and external modulation can all interact.

Musical uses

A. Overlay one melody onto another

- Voice A audio → **IN**
- Voice B audio or CV → **CLIP** or **TRGT MOD**
- Set TARGET toward CLIP or slider region

Result: - melody A’s timbre is shaped by melody B - harmonic contour of one line imprints onto another

B. Symmetric modulation for stable melodic richness

- **TRGT MOD = SYM**
- Feed an LFO, envelope, or another oscillator

Result: - more balanced timbral animation - less asymmetric weirdness - better for tonal leads

C. Asymmetric modulation for phrase accents

- **TRGT MOD = ASYM**
- Feed sequence CV or envelope

Result: - note-dependent skewing - expressive accenting - unstable, animated melodic contour

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10. Use the stereo output and delay to widen melodic voices without losing the center

The **OUTPUT** control blends: - **DRY** ↔ **WET** on lower half - **WET** ↔ **WIDE** on upper half

The **WIDE** section introduces: - ultra-short delay - optional **mid/side** network - optional filtering below/above 240 Hz to keep lows centered

Melodic value

For lead and arp parts: - mono center retains pitch solidity - high frequencies spread wide - movement feels bigger without detuning

Best practice

- melodic bass: keep output lower / centered, maybe FILTER mode for mono lows
- melodic lead: move OUTPUT into upper half for width
- sequence or arp: use FILTER mode so low fundamentals stay focused and highs spread

Delay output

The **DELAY** jack exposes the delayed waveform: - no output below 12 o’clock - fades in around 12–12:30 - longer delay up to 3 o’clock - beyond 3 o’clock adds more delay time and slow modulation

This means the stereo widening engine is also a modulation/audio source.

Musical patch

- Skorpion processed voice at OUT L/R
- **DELAY** output patched elsewhere:
- into another filter
- into FM index
- into another voice’s wavefolder
- into a VCA for “echo melody” timbral doubling

Internal combinations that work especially well for melody

A. Clean melodic voice

Use when you want a playable lead/bass.

- Oscillator → **IN**
- Pitch CV → oscillator and **1V/OCT**
- **EQUALIZE THLDs ON**
- **SYNC SOFT**
- **TARGET = 5V** or slight blend toward **CLIP**
- Moderate **FOLD**
- SHAPE at noon or slight **OUT** feedback
- OUTPUT in wet zone, not too wide

Result: - classic-ish folded melodic voice - stable across pitch - expressive but controlled

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B. Sequenced melodic timbre

Use when the melody should also generate internal steps.

- Oscillator → **IN**
- Pitch CV → oscillator and **1V/OCT**
- Uneven threshold slider settings
- **TARGET = SLIDERs**
- Program TRGT sliders as a phrase contour
- **TARGET ORDER = SEQ**
- **COUNT** or **TRGTs** output → quantizer → second oscillator pitch

Result: - primary melody plus derived counter-melody - tightly related harmonic movement

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C. Reactive counterpoint generator

Use for evolving melodic systems.

- Main voice → **IN**
- **DAC** output → quantizer → second voice pitch
- **DIFF** output → filter FM or VCA CV
- **G(IN>0)** or **±G(DIR)** → trigger envelopes or switch events
- Skorpion output as stereo main voice

Result: - one source creates: - audible melody - counter-melody - dynamic articulation - timbral rhythm

This is one of the strongest “single source to melodic ecosystem” uses.

D. Phrase-evolving lead

Use for expressive lines without needing extra modulation modules.

- Oscillator → **IN**
- Pitch CV → oscillator and **1V/OCT**
- Macro Env gate per note or per phrase
- Macro setup:
- **FOLD** = ENV
- **SLOPE** = ENV
- **SHIFT** = slow LFO
- **SHAPE** = slow LFO or ENV
- **SYNC HARD** for punch or SOFT for smoother tone

Result: - notes open and close like acoustic articulation - repeated sequences feel alive - strong for melodic hooks

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E. Harmonic melody mutation

Use for aggressive or experimental tonal music.

- Voice A oscillator → **IN**

- Voice B oscillator or melodic CV → **TRGT MOD**
- Optionally percussion or another synth line → **CLIP**
- **TARGET** toward CLIP/SLIDER region
- **TRGT MOD = ASYM**
- **TARGET ORDER = TIED**

Result: - one line mutates another - harmonic “cross-synthesis” feel - unstable but still trackable melodic content

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Best outputs for building melodic systems

If your goal is “melodic components,” these are the most useful outputs ranked by likely usefulness:

1. TRGTs output

Best for: - programmed step contours - repeatable melodic patterns - quantized pitch sequencing

Why: - directly represents your 8 programmed target voltages

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2. DAC output

Best for: - nuanced melodic CV - encoded harmonic movement - subtle second-voice pitch control

Why: - weighted threshold combination gives richer variation than simple count

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3. COUNT output

Best for: - obvious staircase sequences - simple transposition patterns - rhythmic melodic stepping

Why: - easy to hear and patch musically

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4. DIFF output

Best for: - edgy melodic modulation - FM amount - filter movement - aggressive upper-voice pitch experiments

Why: - always slopes toward 0 and is rich in harmonics

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5. ±G(DIR) and G(IN>0)

Best for: - note subdivision logic - alternating melodic articulations - switching between two pitch offsets or timbres

Why: - they provide reliable state/gate signals tied to the waveform’s motion

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6. ABS(IN)

Best for: - octave-ish or rectified contour modulation - re-using melody energy as modulation - creating pitch-related envelopes or CV shapes

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Practical melodic patch recipes

Patch 1: West-coast lead with stable pitch behavior

- VCO sine/triangle → **IN**
- Sequence CV → VCO + **1V/OCT**
- **EQUALIZE THLDs ON**
- **SYNC SOFT**
- **TARGET = 5V**
- Moderate **FOLD**
- Increase **SLOPE** until bright
- SHAPE source = **OUT**, slight amount
- OUT L/R to mixer

This gives a very playable folded lead.

Patch 2: One oscillator creates two melodies

- VCO → **IN**
- Sequencer CV → VCO + **1V/OCT**
- Uneven thresholds
- TARGET toward **SLIDERs**
- Program TRGT sliders to a musical contour
- **TRGTs output** → quantizer → second oscillator pitch
- Skorpion audio out = voice 1
- Second oscillator = voice 2

You get a lead plus a derived counterline.

Patch 3: Bassline with animated note attacks

- Bass VCO → **IN**
- Pitch CV → VCO + **1V/OCT**

- **SYNC HARD**
- **TARGET = 5V**
- Macro Env triggered per note
- FOLD modulation = ENV
- SHAPE modulation = ENV
- OUTPUT switch = **FILTERs**
- OUTPUT in moderate wet/wide range

This creates punchy, centered low-end with animated upper harmonics.

Patch 4: Reactive melody sequencer from thresholds

- Audio-rate oscillator → **IN**
- Thresholds set irregularly
- **TARGET ORDER = SEQ**
- **COUNT** → quantizer → oscillator B pitch
- **DAC** → filter cutoff on oscillator B
- **TRGTs** → FM amount or wavefold amount on oscillator B

This produces a secondary melody and phrase-linked animation.

Patch 5: Frozen-step harmonic lead

- Oscillator → **IN**
- Pitch CV → oscillator **+ 1V/OCT**
- **TARGET = SLIDERs**
- Set some TRGT sliders to zero
- Enable **HALT IF TARG=0**
- Moderate **SHIFT** around noon
- TIED mode for more event-driven target changes

This yields stepped, square-inflected melodic textures.

What matters most for tonal results

If you want Skorpion to behave musically rather than chaotically, prioritize these:

Use 1V/OCT

This is essential if the input is playing notes.

Start with equal thresholds

Then disable equalization once you understand the behavior.

Use TARGET = 5V first

That gives the most stable, square-ish, pitch-clear behavior.

Add TRGTs later

The slider targets are powerful, but more complex.

Use SOFT/HARD sync for notes

Especially for bass and plucks.

Keep SHIFT near noon at first

The manual specifically hints at noon for some operations; too much shift can quickly destabilize the relation between pitch and fold behavior.

Quantize melodic CV outputs if using them for pitch

TRGTs, COUNT, and DAC are melodic, but they'll really shine when run through a quantizer or precision pitch path.

Best musical interpretation of Skorpion

If I had to describe Skorpion's melodic role in a rack:

> It is a **playable wavefolder voice processor plus an internal melodic CV extractor/sequencer**.

It excels when one pitched signal is allowed to generate: - its own folded tone, - its own phrase contour, - its own counter-melody, - its own articulation logic, - and its own stereo expansion.

That makes it unusually good for: - solo lead voices - generative counterpoint - animated basslines - stereo arps - self-modulating melodic systems

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Summary

Best ways to use Skorpion for melodic components

1. **Process a tuned oscillator** and mult pitch CV to **1V/OCT** for stable melodic timbre.
2. Use **TRGT sliders** as an 8-step contour source.
3. Patch **TRGTs / COUNT / DAC** to other voices for derived melodies.

4. Use **Macro Env + internal LFO/ENV normals** to animate note phrasing.
5. Use **SYNC** to improve note definition.
6. Use **HALT IF TARG=0** for square-like, stepped melodic articulation.
7. Use **WIDE / DELAY** for stereo melodic presence.
8. Use **CLIP** and **TRGT MOD** to let one line reshape another melodically.

If you want, I can also turn this into: - a **set of 10 specific patch recipes** - a **beginner-friendly quickstart** - or a **signal-flow diagram showing how to patch Skorpion as a melodic voice**.

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