

Hexinverter – Orbitals

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Hexinverter Orbitals – using it for melodic components

Orbitals is a **dual bipolar voltage-controlled step sequencer** that can work as:

- **2 independent 8-step sequencers**
- **1 combined 16-step sequencer**

For melody-making, that makes it especially useful as:

- a pitch sequencer
- a rhythm/gate pattern source
- a transposable melodic line generator
- a voltage-addressed note selector
- a two-lane melody/countermelody tool

What Orbitals contributes musically

From the manual, the key melody-oriented features are:

- **Per-step CV knobs** for programming note values
- **Per-step gate switches** for deciding which notes articulate
- **Bipolar or unipolar CV output**
- **Transpose input on Sequencer A**
- **Sequence length control**
- **Multiple playback modes:**

- Forward
- Reverse
- Pendulum
- Random
- CV addressed
- Clocked CV addressed
- **Internal or external clocking**
- **Reset, run, reverse, and slave/sync options**
- **Selectable output ranges via rear jumpers**

This is enough to build classic melodic sequencing, but also more experimental note selection and phrase variation.

Core melodic use cases

1. Classic pitch sequencer

The most obvious use is to send:

- **CV OUT** → oscillator **1V/oct**
- **GATE OUT** → envelope gate input

Then tune each step knob by ear to a scale or motif.

Why it works well

- The gate switches let you create rests.
- Length control can turn an 8-step line into 3, 5, 7, etc. steps for evolving loops.
- Bipolar mode lets you center pitches around 0V if your downstream patch likes positive and negative modulation.

Musical results

- basslines
- lead sequences
- repeating ostinati

- Berlin-school/Tangerine Dream-style patterns

The manual explicitly mentions the transpose input for keyboard-based transposition in this style.

2. 16-step melodic phrase builder

If **Sequencer A length is set over 8**, Orbitals automatically enters **16-step mode**.

In this mode, the module becomes a longer melodic sequencer for:

- full-bar phrases
- call-and-response within one row
- verse-like repeated pitch structures
- longer melodic arcs than typical 8-step loops

Practical approach

- Program steps 1–8 as motif A
- Program steps 9–16 as motif B or a variation
- Use gate switches to create rhythmic contour
- Clock externally from your master clock for tight timing

This is great when 8 steps feel too short and repetitive.

3. Dual melody + countermelody patch

In **dual 8-step mode**, A and B can run independently.

This allows:

- **A** = bassline
- **B** = lead line

or

- **A** = melodic pitch CV

- **B** = second voice / harmony / counterline

Because each sequencer has: - its own rate - its own mode - its own clock/ reset/run inputs - its own gate length - its own sequence length

you can create **polymetric melodic relationships** very easily.

Example

- A length = 5
- B length = 7
- same clock source
- both quantized downstream

Result: a constantly shifting melodic relationship that takes a long time to repeat.

4. Transposable melodic sequencing

One of Orbitals' best musical features is:

- **TRANS A input**

This input adds an external voltage to Sequencer A's CV output.

Melodic uses

- Play a keyboard into TRANS A to transpose a sequence live
- Use another sequencer, offset generator, or precision adder source to shift the melody by intervals
- Send a slow CV to transpose the whole line over time

Musical applications

- verse/chorus key changes
- root-note movement under a repeating melodic pattern
- live performance transposition
- classic modular "play the sequencer from a keyboard" patches

This is one of the most direct ways Orbitals creates richer melodic content instead of a static loop.

5. Voltage-addressed note selection

Orbitals has two special modes for step selection:

- **CV mode**
- **CLK mode**

In these modes, the **RST/CV input** becomes a **0–5V step address input**.

That means instead of advancing step-by-step, an incoming voltage chooses the current step.

CV mode

- Incoming CV directly selects the step
- A new gate is generated whenever the step changes

CLK mode

- CV selects the step
- A new gate only happens on clock events

Why this matters melodically

This turns Orbitals into something more like: - a note lookup table - a manually programmable quantized melody bank - a non-linear pitch source

Patch ideas

- Use an LFO, random voltage, joystick, or another sequencer to address steps
- Program each step as a note from a scale
- Let incoming CV “scan” the melody map

This creates: - non-linear melodies - repeatable but less predictable pitch order - generative melodic structures

CLK mode is especially useful when you want rhythmic stability but non-linear note choice.

6. Random melodic generator

In **RND mode**, every clock selects a random step.

If the step knobs are tuned to notes of a scale, this becomes a playable random melody source.

Best practice

For more musical randomness: - tune all active steps to a limited note set - disable some gates for rests - use shorter sequence lengths to constrain choices - transpose the result with TRANS A

Result

You get melodies that feel: - unpredictable - bounded - stylistically coherent

This is very effective for ambient, generative, and IDM-style patches.

7. Pendulum and reverse for phrase variation

Orbitals includes: - **FW** - **REV** - **PND**

These are simple, but extremely musical.

Reverse

Great for: - inversion-like phrase behavior - turning a lead into a response phrase - variation without repatching

Pendulum

Great for: - symmetrical melodies - arpeggio-like up/down movement - longer-feeling loops from fewer steps

A short 4-step programmed phrase in pendulum mode can sound much more animated than plain forward playback.

8. Sequence length as a melodic tool

The **LENGTH** knobs do more than shorten loops – they reshape melody.

Useful musical tricks

- Set a sequence to 3, 5, or 7 steps for looping against 4/4 rhythm
- Use A at 8 and B at 5 for evolving harmony
- Make a short motif repeat unevenly before resolving

This is one of the easiest ways to get melodies that feel alive without needing additional modules.

9. Gate pattern as melodic phrasing

Because each step has a **gate switch**, Orbitals separates:

- pitch progression
- note articulation

This is very important musically.

Even if pitch steps continue internally, only selected steps create notes.

Melodic phrasing possibilities

- create rests
- create syncopation
- emphasize certain notes

- thin out dense pitch patterns

Combined with gate length control, this can move a sequence from: - plucky staccato to - sustained legato-like lines

The manual notes that at fast speeds, longer gate settings can tie gates together, which can be musically useful for smoother phrasing.

10. Using Sequencer B as melodic support for A

Even if you only need one main melody, Sequencer B is still very useful.

Good companion roles for B

- second melodic voice
- transposition source for other modules
- modulation for filter or wavefolder tied to the melody
- rhythmic gate pattern for another voice
- alternate phrase layer

With the **SLAVE B>A** switch, B can share A's transport control inputs, making it easy to keep them synchronized without extra patching.

This is ideal when building: - harmonized lines - bass + lead relationships - melody + ornament pairs

Practical patch recipes

Patch 1: Simple melodic line

- Orbitals A **CV OUT** → VCO 1V/oct
- Orbitals A **GATE OUT** → envelope gate
- Envelope → VCA CV
- VCO → VCA → mixer
- Set A to **FW**

- Tune the 8 knobs to a scale
- Turn some gate switches off for rests

Result: a straightforward sequenced melody.

Patch 2: Tangerine Dream style live-transposed sequence

- Patch as above
- Keyboard CV or precision voltage source → **TRANS A**
- Use external clock for tempo sync
- Use 8 or 16 steps
- Keep the programmed pattern intervallic rather than absolute

Result: the same sequenced pattern can be moved harmonically in performance.

Patch 3: Bassline + lead

- A CV/GATE → bass voice
- B CV/GATE → lead voice
- Same external clock to both, or use **SLAVE B>A**
- A length = 8, B length = 5 or 7
- A in FW, B in PND or RND

Result: interlocking melodic layers with different repetition cycles.

Patch 4: Addressed melody map

- Program each step to notes in a scale
- Set mode to **CV** or **CLK**
- External modulation source → **RST/CV input**
- CV OUT → oscillator pitch
- GATE OUT → envelope

Result: incoming voltage selects notes from your programmed set instead of stepping linearly.

This is excellent for controlled generative melody.

Patch 5: Random but musical notes

- Set A to **RND**
- Tune active steps to chord tones or scale tones
- Shorten sequence length to 4–6 steps
- Use gate switches to create sparse rhythms
- Add transpose on TRANS A

Result: constrained random melodic movement.

Patch 6: Long-form 16-step phrase

- Set Sequencer A length above 8 to enter **16-step mode**
- Program first half as phrase
- Program second half as variation
- Clock externally
- Use reset to realign with your song structure

Result: a longer, more song-like melodic sequence.

Important technical/musical considerations

Output range matters

Orbitals has rear jumpers for output range selection.

From the manual:

- **Bipolar ON, 5V jumper:** -2.5V to +2.5V
- **Bipolar ON, 10V jumper:** -5V to +5V

- **Bipolar OFF, 5V jumper:** 0V to +5V
- **Bipolar OFF, 10V jumper:** 0V to +10V

For melodic use

If you're driving oscillator pitch directly: - the larger ranges can span many octaves - this makes precise tuning harder by ear

So musically, a smaller range is often easier for tonal sequencing unless you want wide interval leaps.

Safety note

The manual is explicit: **Never adjust the jumpers with the module powered on.**

Clocking considerations for melody

Orbitals can use: - its own internal clock - an external clock

For music systems with drums, master clocks, or song structure, external clocking is usually the better choice.

The module expects about: - **1V logic high** for clock/reset/run inputs

It can also run quite fast — up to low audio range internally and about **1kHz clock input** reliably — which means it can blur into audio-rate or pseudo-oscillator behavior, though for melody the sweet spot is obviously much slower.

Best musical strengths of Orbitals

Orbitals is particularly strong when you want:

- **hands-on pitch programming**
- **classic analog sequencing**

- **easy melodic transposition**
- **two related melodic lanes**
- **non-linear voltage-addressed note selection**
- **simple but powerful performance variation**

It is especially good for: - Berlin-school sequences - basslines - looping motifs - generative melodic patches - interlocking two-voice patterns

Limitations to keep in mind

Based on the manual, a few practical melodic limitations:

- No built-in quantizer is mentioned, so tuning notes to exact scales may need care or an external quantizer.
- Output range can be broad, which may make fine pitch dialing sensitive.
- Voltage-addressed modes are powerful, but they are not the same as a dedicated quantized note memory system.

Still, the combination of **manual step programming + transpose + addressable steps + dual lanes** makes it very musically flexible.

Bottom line

Hexinverter Orbitals is a very capable melodic sequencer for eurorack because it can cover both:

- **traditional note sequencing** and
- **more experimental CV-addressed melody generation**

Its standout melodic features are:

- dual 8-step / single 16-step operation
- per-step pitch and gate programming
- transpose input
- random/reverse/pendulum modes
- CV-addressed step selection

- easy synchronization between the two sequencers

In a patch, it can act as: - the main melody source - a bassline sequencer - a harmonized second voice - a transposable phrase generator - a programmable note bank for generative composition

If you want, I can also turn this into: 1. a **patch cookbook** 2. a **beginner-friendly quickstart** 3. a **“best companion modules” guide** for Orbitals

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