

OBSIDIAN

USER MANUAL V0.1
(Preliminary)



VANNES



THIS IS A PRELIMINARY VERSION OF THE MANUAL AND IS SUBJECT TO CHANGE.

IMPORTANT SAFETY INSTRUCTIONS

- Read this manual carefully before using OBSIDIAN.
- Keep this manual for future reference.
- Use OBSIDIAN only as described in this manual.
- Do not open OBSIDIAN. Risk of electric shock.
- Use only the power adapter supplied or approved by Vannes.
- Do not expose OBSIDIAN to liquids or moisture.
- Do not expose OBSIDIAN to water, dust, sand, dirt, or other corrosive materials.
- Do not cover OBSIDIAN or obstruct ventilation openings. Ensure adequate airflow to prevent overheating.
- Clean OBSIDIAN only with a dry, soft cloth.
- Immediately power off OBSIDIAN, disconnect the power supply, and discontinue use if the unit produces smoke, excessive heat, unusual odors, or abnormal behavior indicating possible damage.
- Servicing must only be performed by qualified service personnel.
- Prolonged exposure to high sound levels may cause permanent hearing damage. Always protect your hearing and avoid listening at excessive volume levels for extended periods of time.



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INTRODUCTION

Forged from fast-cooling lava, this volcanic stone becomes a black mirror that, when used with purpose, awakens and channels your creative energy.

OBSIDIAN is a unique semi-modular analog synthesizer with its own characteristic sound. Its analog circuitry combines different worlds of synthesis techniques, opening space for creative sound design and composition.

The story behind OBSIDIAN

OBSIDIAN is my solo take on combining East Coast and West Coast synthesis styles, paying homage to some of the greatest synthesizer designers of all time. My goal was to bring these two worlds of synthesis together to create a well-thought-out and great-sounding musical instrument.

OBSIDIAN features a straightforward and intuitive interface that makes it easy to get started, while also offering clever functionality that allows you to continuously evolve your sound. OBSIDIAN already has a lot to offer on its own, but its Eurorack-compatible interface opens the door to endless sound creation possibilities.

During the development of OBSIDIAN, I often found myself tweaking and patching for hours. Even with the unfinished, untuned, and quirky prototype, I completely lost myself in all the possibilities. A great amount of creativity, knowledge, time, and effort went into the design and development of your OBSIDIAN, and I truly hope you enjoy playing this instrument as much as I do.

Koen (Vannes Engineering)



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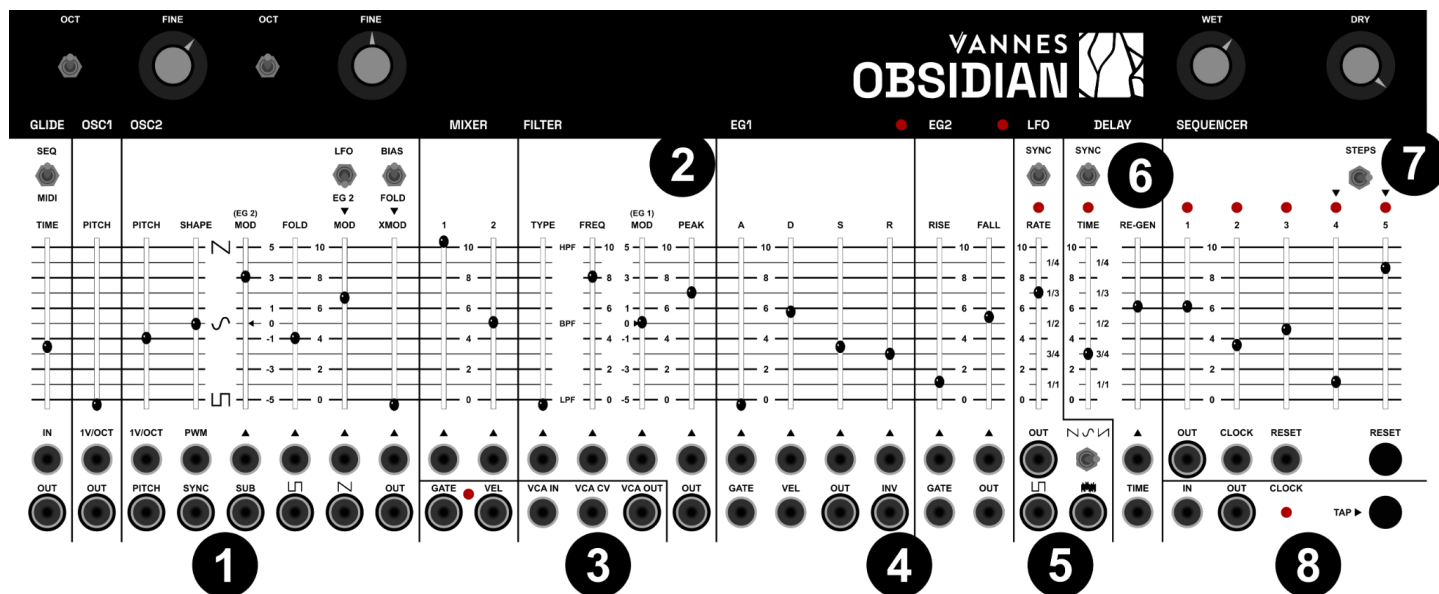
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OVERVIEW



1. Oscillator section

West-coast style dual voltage controlled oscillator

2. Filter Section

12 dB/OCT voltage controlled filter

3. Amplifier section

Voltage controlled amplifier

4. Envelope section

Voltage controlled ADSR and AD/R envelopes

5. LFO section

Clock syncable low frequency oscillator

6. Delay section

Clock syncable tape/BBD style delay

7. Sequencer section

5-step sequencer

8. Clock section

Clock en tap tempo section



OSCILLATORS

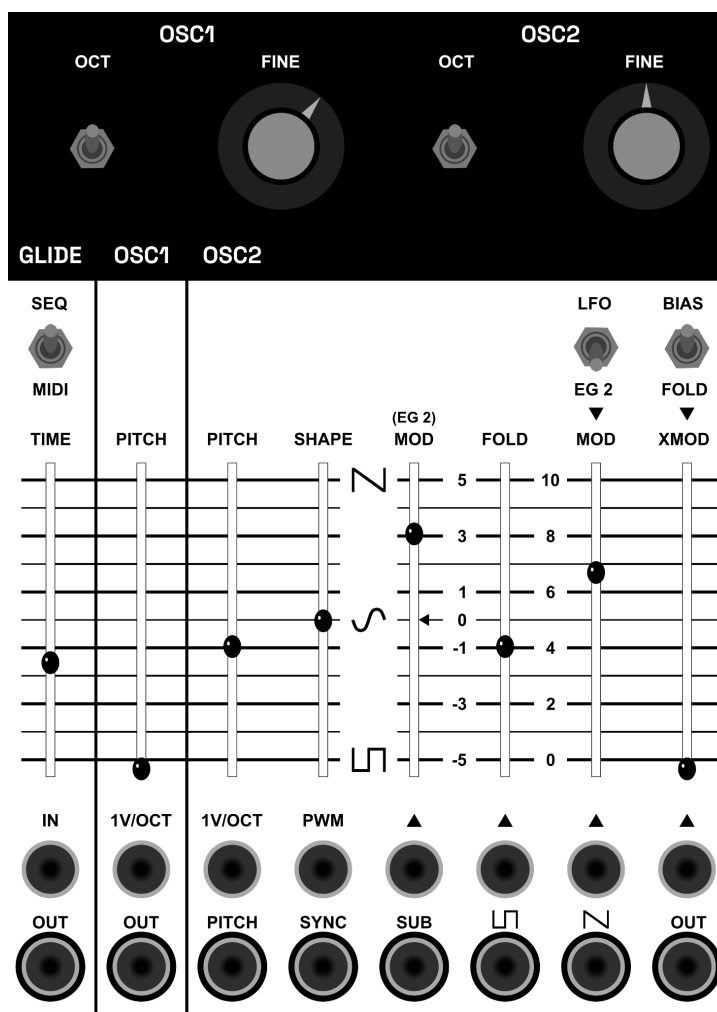
The oscillator section of OBSIDIAN consists of two independent oscillators and a sub-oscillator that tracks oscillator two.

Oscillator One (OSC 1)

Oscillator One is a basic 1V/oct sine wave voltage-controlled oscillator (VCO) that can also be used as a modulation source for Sync, PWM, VCO and filter FM, Fold, Bias, and more.

Oscillator One features the following controls and in- and outputs:

- Octave switch
- Fine tune knob
- Pitch range slider
- 1V/OCT input
- Sinewave output



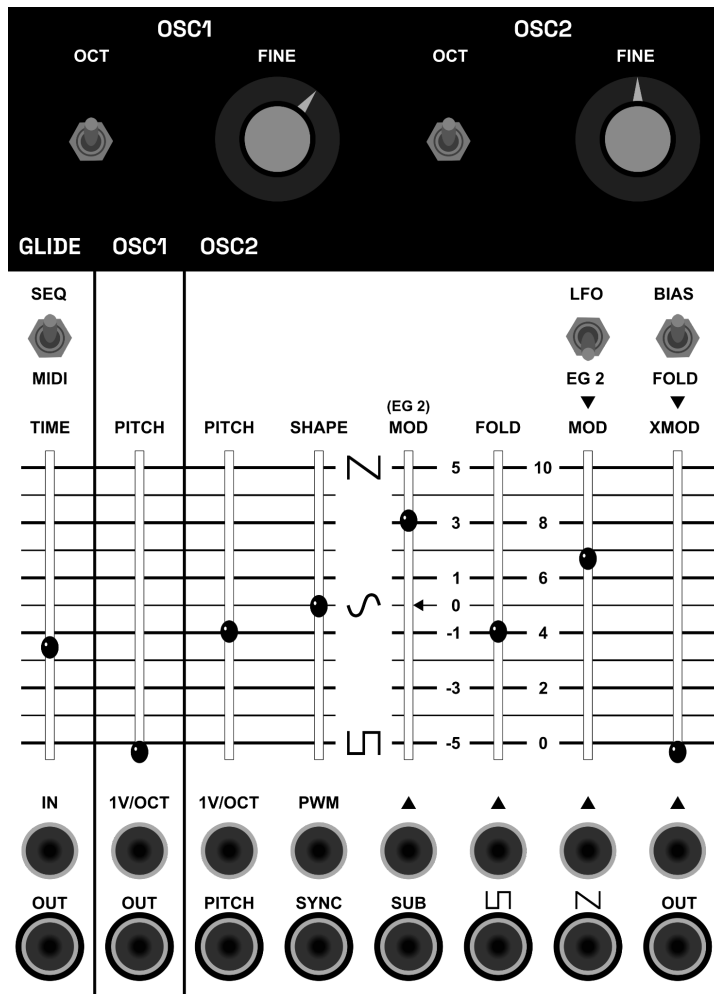


Oscillator Two (OSC 2)

Oscillator Two is an extended 1V/oct sine wave voltage-controlled oscillator (VCO) that can be shaped into a saw wave (even harmonics) and square wave (odd harmonics). The resulting waveform is then fed into a wavefolder to create a more complex waveform. Together with Oscillator One, OBSIDIAN offers a West Coast-style approach to sound shaping.

Oscillator Two features the following controls and in- and outputs:

- Octave switch
- Fine tune knob
- Pitch range slider
- Waveshape (saw-sine-square) slider
- Shape modulation slider (normalised to EG 2)
- Fold slider
- Fold modulation slider (selectable LFO or EG2)
- Xmod (cross mod) slider for amount of modulation from OSC 1 to Bias or folder
- 1V/OCT CV input
- Pitch modulation CV input
- PWM CV input
- Sync CV input
- Shape CV input
- Fold CV input
- Cross modulation amount CV input (OSC 1 is fed to an internal VCA, VCA level controlled by CV which then controls modulation amount)
- Square & Saw output
- Complex wave output
- Sub-oscillator output (-1 octave)





FILTER

The voltage-controlled filter (VCF) is a 12 dB/oct resonant multimode filter. This unique analog circuit is designed to be widely versatile. It can sound like both a transistor ladder and a diode ladder filter, but can also function as a clean filter to smooth out the sharp edges of complex West Coast sounds.

The filter allows for smooth modulation between high-pass, low-pass, and band-pass modes, and offers voltage control over resonance.

Mixer

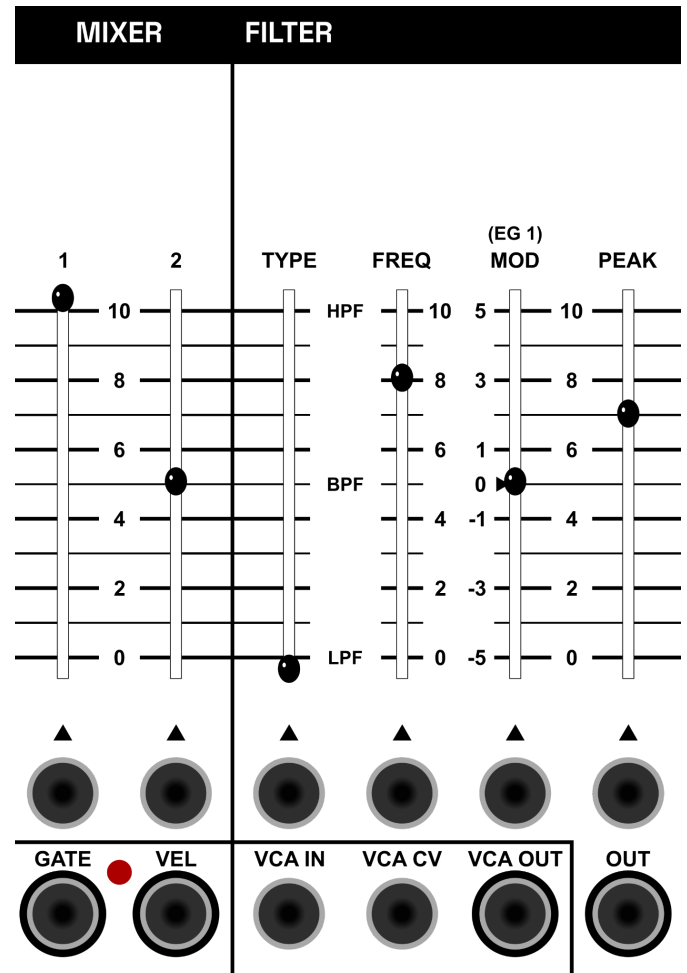
The filter input mixer features the following controls and in- and outputs:

- Input 1 level slider (Normalised to OSC 2 input)
- Input 2 level slider (Normalised to SUB-oscillator input)
- External input 1 and 2

Filter

The filter features the following controls and in- and outputs:

- Type slider
- Cutoff slider
- Cutoff modulation (ripolar, normalised to EG1)
- Peak (resonance)
- Type CV input
- Cutoff CV input
- Modulation CV input
- Resonance CV input



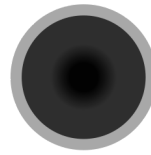
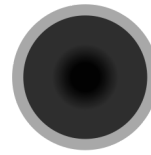


AMPLIFIER

The voltage-controlled amplifier (VCA) is a simple VCA designed to sound great in combination with the filter. External audio and control voltage inputs, as well as an output, are provided for external control and more experimental modulation possibilities.

The VCA features the following controls and in- and outputs:

- Signal input
- Signal output
- Level CV input

VCA IN**VCA CV****VCA OUT**

Patch idea:

Use a folded waveform. Put LFO modulation on the filter frequency in bandpass mode and patch the saw/square output of OSC 2 into the VCA input..... Maybe feedback the signal to the mixer...?



ENVELOPES

The envelope section features two snappy discrete analog envelope generators with voltage control over all parameters. While this section may look straightforward, the CV control over rise and fall times allows for highly dynamic sequences with a lot of variation. Both envelopes also feature velocity (CV) control over their output levels. This means each envelope has a dedicated VCA, allowing its level to be controlled by CV (for example velocity CV). This can be used to add accents to notes and create more expressive performances in general.

Envelope generator one (EG1)

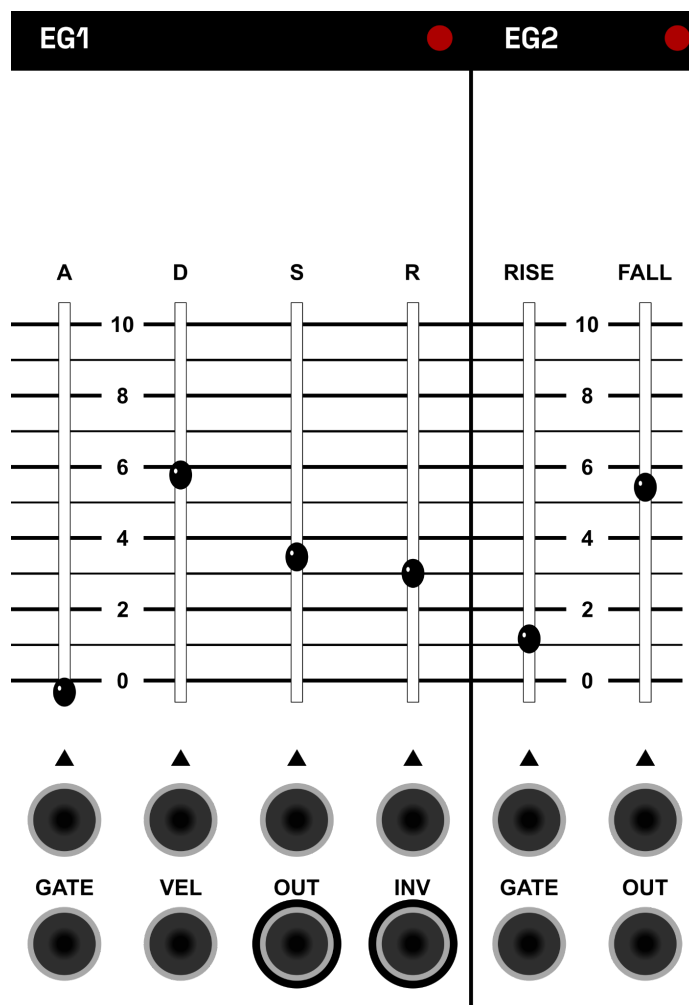
EG1 features the following controls and in- and outputs:

- Attack time slider and CV input
- Decay time slider and CV input
- Sustain level slider and CV input
- Release time slider and CV input
- Gate input
- Velocity (Envelope level) CV input
- Output
- inverted output

Envelope generator two (EG2)

EG2 features the following controls and in- and outputs:

- Attack time slider and CV input
- Decay/release time slider and CV input
- Gate input
- Output





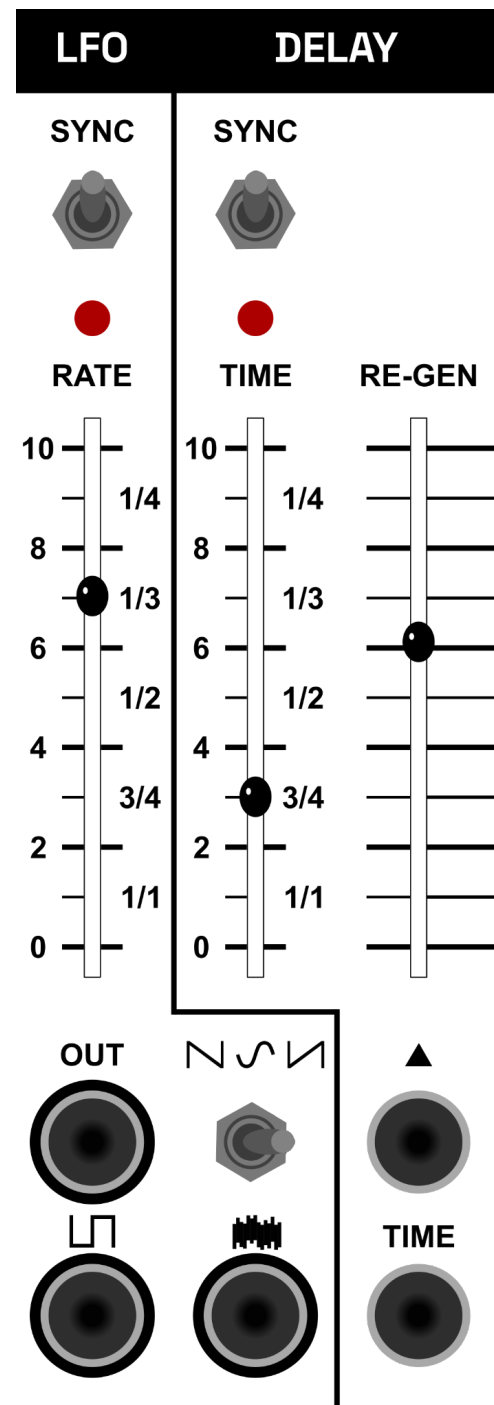
LFO

The low-frequency oscillator (LFO) generates modulation signals to control any parameter. The LFO can be synchronized to tap tempo, external clock, or MIDI clock with multiple clock divisions for tight, rhythmical sounds (e.g. techno). In free-running mode, its frequency can be set within a range of 0.01 to 100 Hz.

The LFO features an output with selectable waveforms (saw, sine, square). A pulse output is also provided, which can be used to trigger envelopes or run the sequencer, for example. Finally, there is a random voltage output (synchronized to the LFO period) to introduce randomness into your sounds and sequences.

The LFO features the following controls and outputs:

- Sync switch
- Rate (frequency) slider
- Selectable waveform output
- Waveform selection switch (saw, sine, square)
- Pulse output
- Random voltage output





DELAY

A delay works well with any synthesizer, but for OBSIDIAN it is especially powerful due to its clock synchronization options. The tape/BBD-style digital delay can be synchronized to multiple clock divisions, making it perfect for rhythmic sounds in combination with the synchronized LFO and sequencer.

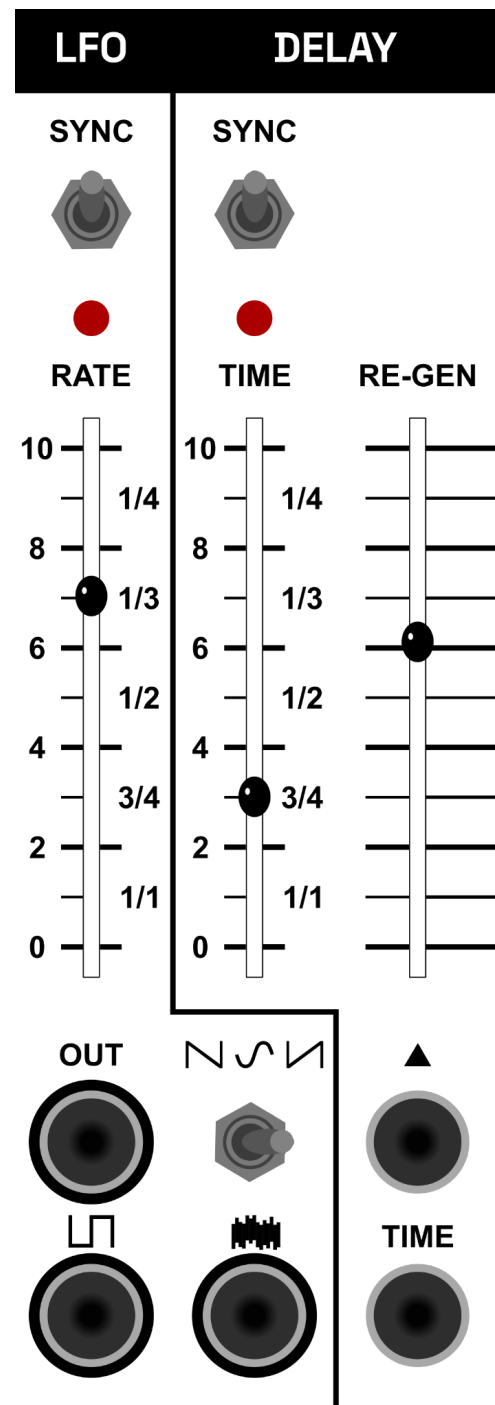
The delay time can also be set freely, ranging from a few milliseconds up to 1 second. In addition, both delay time and feedback amount can be modulated using external control voltages.

The delay features the following controls and outputs:

- Level (Wet) knob
- Sync switch
- Delay time slider
- Feedback amount slider
- Delay time CV input
- Feedback amount CV input

Patch idea:

Let the LFO random output control the feedback amount of the delay and sync both the delay and LFO to clock....



SEQUENCER

OBSIDIAN breathes West Coast-style synthesis through its interface, overall aesthetic, and especially its complex oscillator section. A 5-step sequencer simply could not be left out. It is designed to control pitch, but can also be used to modulate almost anything — envelope parameters, delay feedback, and more. Get creative!

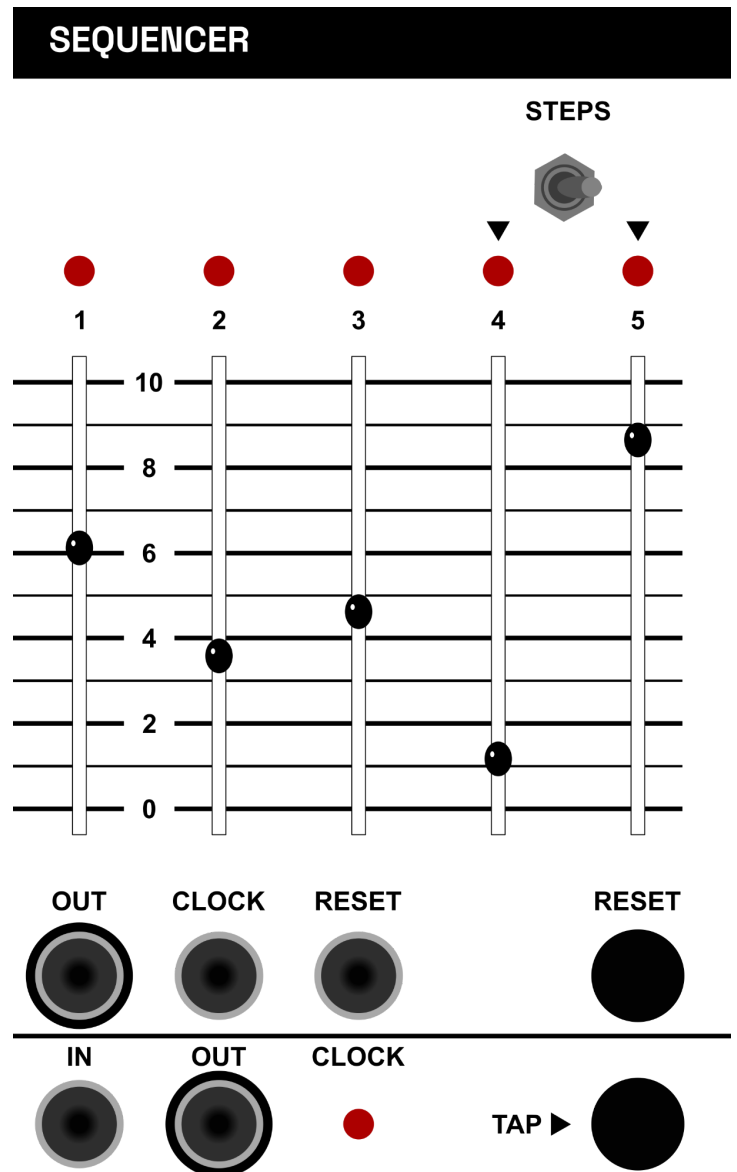
The reset button and trigger input reset the sequencer back to step 1. The sequencer output is normalized to the VCO section (selectable), but there is also a dedicated output with a wide voltage range for modulation purposes.

The sequencer features the following controls and in- and outputs:

- Level slider per step
- Switch to select 4 or 5 steps
- Sequencer output
- Reset button and trigger input
- Clock input

Patch idea:

Use the MIDI gate output to clock the sequencer and play rhythmical patterns.....



CLOCK

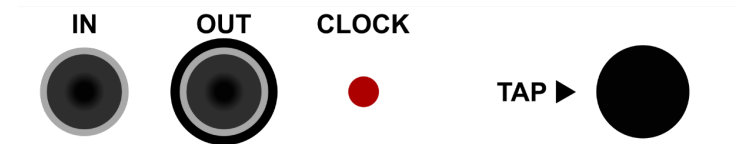
A global clocking system is implemented throughout OBSIDIAN, allowing for tightly synchronized sequences and standalone envelope triggering.

When OBSIDIAN receives a (USB/DIN) MIDI clock signal, it automatically synchronizes and outputs a pulse with a quarter-note period. If no MIDI clock is present but an external (Eurorack) clock signal is detected, OBSIDIAN synchronizes to that clock instead. No external clock available? You can simply tap in any tempo between a few milliseconds and two seconds (30 BPM) using the Tap Tempo button.

The sequencer is normalized to the internal clock until an external clock is patched into its clock input. The LFO and delay can be synchronized using their dedicated sync switches.

Patch idea:

Use global clock output to trigger the envelopes and use LFO in a clock division to trigger the sequencer clock....





MIDI

OBSIDIAN can be controlled over MIDI using USB or MIDI DIN connection. The following parameters can be controlled:

- Note / pitch:
Over 8 octaves of tracking
- Gate:
Normalised to trigger envelopes, but also has an output on the frontpanel
- Velocity:
Dedicated CV output that can be used to modulate anything
- Pitch bend:
One octave up and down
- Modulation:
Control over folding

Patch idea:

Use velocity CV output to control the modulation amount from OSC1 to OSC2.....



VANNES ENGINEERING

Founded in 2017 (Utrecht, NL), Vannes Engineering has been dedicated to designing and developing high-quality synthesizers for artists, musicians and sound explorers. Koen, Co-Founder and former owner of Majella Audio, decided to pursue a solo path in Vannes Engineering. In 2026 the company introduced its first fully self-made instrument: OBSIDIAN.

CONTACT

For questions regarding OBSIDIAN, please contact VANNES ENGINEERING via the official website:

www.Vannes-Devices.com

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