

# OPERATION MANUAL



## イセーニン VOICE & BREAKOUT

SEMI-MODULAR SYNTH  
FOR EURORACK SYSTEMS  
BY BLACK CORPORATION

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## **FCC COMPLIANCE STATEMENT**

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## **EUROPEAN UNION REGULATION COMPLIANCE STATEMENT**

This product complies with the Low Voltage Directive 2006/95/EC and the Electromagnetic Compatibility Directive 2004/108/EC. The product meets the requirements of RoHS 2 Directive 2011/65/EU.

This product must be disposed of properly according to local laws and regulations.

## **IMPORTANT SAFETY INSTRUCTIONS**

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of a polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

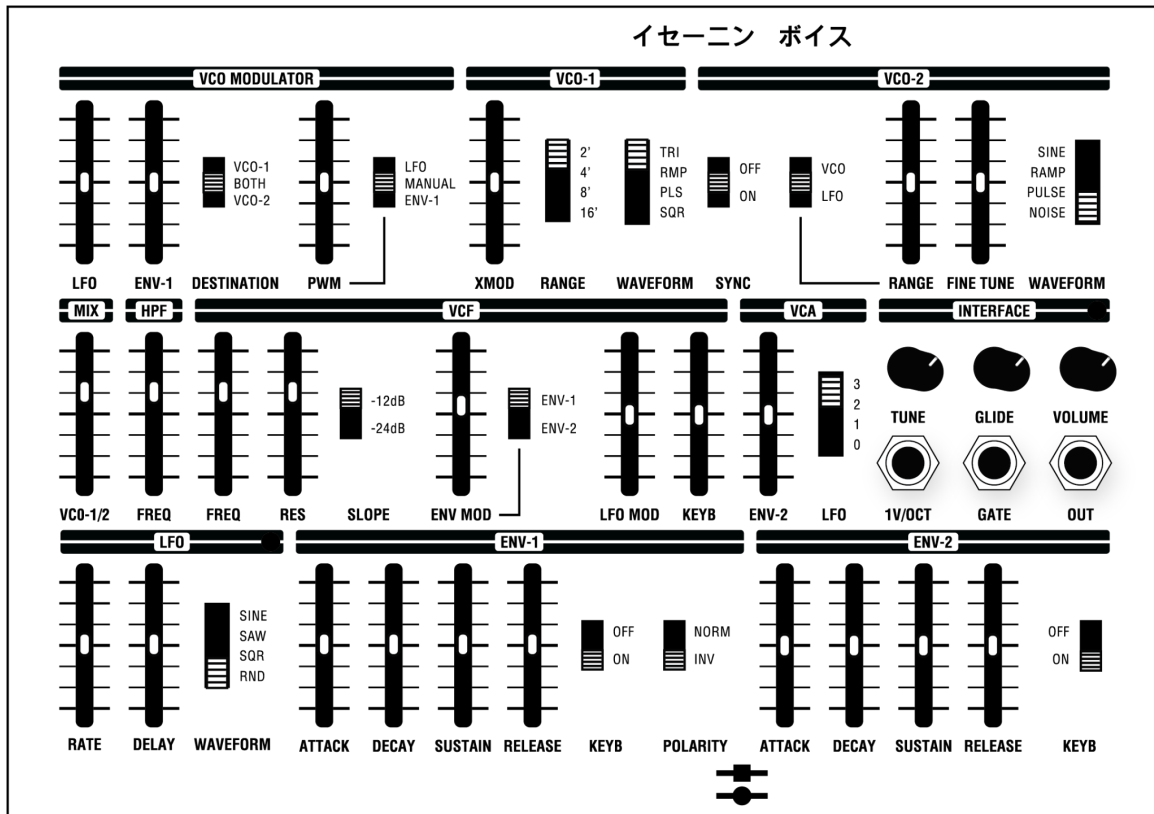
## **SPECS AND FEATURES**

- 36HP size
- +12/-12V standard eurorack power
- 110 mA +12V
- 30 mA -12V
- 0 mA 5V (not used)
- 38 mm depth
- VCO-1 with triangle, ramp, pulse, and square
- VCO-2 with sine, ramp, pulse, and noise
- Low Frequency Oscillator and Envelope control over VCO frequency and Pulse Width Modulation
- Mixer control
- High Pass filter
- Low Pass VCF with resonance slope selectable between -12dB and -24dB
- Dual Envelope control over VCF, VCA, PWM, and VCO frequency.
- Main output with volume control.

## **INSTALLATION**

Remove module from packaging. Power down your modular system and disconnect the power cable. Attach included ribbon power cable to ISE-NIN's power connector with red stripe aligned with indicator stripe labeled -12V on back panel of module. Connect other end to power distribution bus in modular system case. Reconnect and power on modular system. Do NOT connect your module while the power is on! ISE-NIN Voice is ready for operation.

## ISE-NIN VOICE OVERVIEW



## INTRODUCTION

ISE-NIN Voice is a single voice version of the mighty ISE-NIN 8-voice polyphonic synthesizer. Despite being a pared down, monophonic, two oscillator version, it maintains every slider and switch available on its bigger sibling. This Eurorack unit accepts a CV/Gate signal and has an output jack, so it can be used as a basic mono synth. To open up limitless control, we recommend operating ISE-NIN Voice with ISE-NIN Expander Breakout to fully integrate it into a Eurorack set up.

## VCO MODULATOR

This section controls the modulation routing and intensity for VCOs. It allows precise customization of the sound by combining different modulation sources.

- **LFO:** Controls the amount the low frequency operator (LFO) modulates the pitch of VCO-1 and/or VCO-2.
- **ENV-1:** Controls the amount Envelope 1 (ENV-1) affects the pitch of VCO-1 and/or VCO-2.
- **DESTINATION:** Selects the destination pitch affected by the LFO and/or ENV-1 to VCO-1, VCO-2, or BOTH.
- **PWM:** Controls the pulse width modulation intensity for the selected VCO(s) when set to PLS/PULSE.
- **MANUAL:** Manually adjusts PWM without modulation sources.
- **PWM DESTINATION:** Sets the pulse width modulation destination (VCO-1, VCO-2, or BOTH).

## VCO-1

Primary oscillator section for generating the core sound of ISE-NIN Voice.

- **XMOD**: control over the pitch of VCO-1 modulated by VCO-2 to produce a variety of effects from an LFO like vibrato at low frequencies to a ring modulation type metallic sound at high frequencies. This parameter can be used to introduce interesting harmonics, make strange FX, and make bell-like timbres reminiscent of FM synthesis.
- **RANGE**: Sets the octave range for VCO-1 (e.g., 2', 4', 8', 16').
- **WAVEFORM**: Selects the waveform for VCO-1: Triangle, Ramp, Pulse, or Square.

## VCO-2

Secondary oscillator section, which can complement or modulate VCO-1.

- **SYNC**: Forces the frequency of VCO-2 to synchronize with VCO-1.
- **VCO/LFO**: Selects whether VCO-2 operates at LFO or VCO (audio) rate.
- **RANGE**: Covers the same pitch range as VCO-1, but is quantized, so the pitch changes in half steps as the slider is moved up.
- **FINE TUNE**: Allows precise tuning of VCO-2.
- **WAVEFORM**: Selects the waveform for VCO-2: Sine, Ramp, Pulse, or Noise.

## MIXER

Controls the balance and mixing of the sound sources.

- **MIX**: Adjusts the balance between VCO-1 and VCO-2 outputs.
- **HPF**: High-pass filter to remove low frequencies from the mix.

## VCF

Controls the primary filtering of the sound.

- **FREQ**: Adjusts the cutoff frequency of the low-pass filter.
- **RES**: Sets the resonance of the filter, emphasizing frequencies near the cutoff.
- **SLOPE**: Toggles between 12dB and 24dB per octave filter slopes.

## VCA

Controls the overall amplitude of the sound.

- **ENV-2**: Sets the amount Envelope 2 affects the VCA.
- **LFO**: Selects the intensity of the LFO controlling the VCA.

## INTERFACE

Provides tuning and connection options for external control.

- **TUNE**: Adjusts the global pitch of the module.
- **GLIDE**: Sets the portamento (glide) time between notes.

- **1V/OCT**: CV input for pitch control.
- **GATE**: Triggers the envelopes.
- **OUT**: Outputs the main audio signal.

## LFO

Controls the Low-Frequency Oscillator for modulation purposes.

- **RATE**: Adjusts the frequency of the LFO.
- **DELAY**: Sets the delay time before the LFO starts modulating.
- **WAVEFORM**: Selects the LFO waveform: Sine, Saw, Square, or Random.

## ENVELOPE 1 (ENV-1)

Sets time based modulation source used for VCO, pitch, and PWM.

- **ATTACK**: Sets the time it takes for the envelope to reach its peak.
- **DECAY**: Adjusts the time for the envelope to fall to the sustain level.
- **SUSTAIN**: Sets the level that the envelope maintains after decay.
- **RELEASE**: Adjusts the time for the envelope to return to zero after the gate closes.
- **POLARITY**: Switches between normal and inverted envelope polarity.
- **KEYB**: Toggles whether the relative envelope amount source levels increase as lower keys are played on the keyboard.

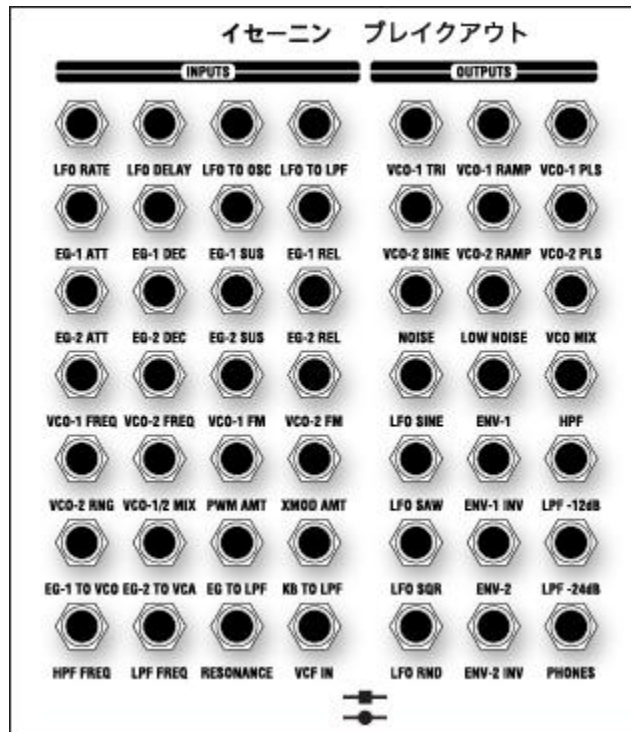
## ENVELOPE 2 (ENV-2)

Sets time based modulation source used for the amplifier or VCF.

- **ATTACK**: Sets the time it takes for the envelope to reach its peak.
  - **DECAY**: Adjusts the time for the envelope to fall to the sustain level.
  - **SUSTAIN**: Sets the level that the envelope maintains after decay.
  - **RELEASE**: Adjusts the time for the envelope to return to zero after the gate closes.
  - **KEYB**: Toggles whether the relative envelope amount source levels increase as lower keys are played on the keyboard.
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## BREAKOUT OVERVIEW



## INTRODUCTION

The ISE-NIN Breakout module is an expansion unit designed to unlock the full potential of ISE-NIN Voice. It provides inputs and outputs for every major parameter, giving users unprecedented control and patching flexibility in their Eurorack system. Whether you're looking to integrate ISE-NIN Voice into a larger modular setup or simply push its capabilities further, the Breakout module makes it possible. Note: ISE-NIN BREAKOUT can ONLY be used with ISE-NIN Voice. It will not produce any signals on its own.

This manual will guide you through the module's features, detailing all the inputs and outputs available.

## INPUTS

The Breakout Expander module includes a wide range of CV and modulation inputs for fine control over every aspect of the ISE-NIN Voice. The destinations of the inputs are as follows:

- **LFO Rate**: rate of the Low-Frequency Oscillator (LFO).
- **LFO Delay**: delay time before the LFO takes effect.
- **LFO to OSC**: amount the LFO affects oscillator pitch.
- **LFO to LPF**: amount the LFO affects Low-Pass Filter.
- **EG-1 ATT**: Envelope 1 attack time.
- **EG-1 DEC**: Envelope 1 decay time.
- **EG-1 SUS**: Envelope 1 sustain level.
- **EG-1 REL**: Envelope 1 release time.
- **EG-2 ATT**: Envelope 2 attack time.
- **EG-2 DEC**: Envelope 2 decay time.
- **EG-2 SUS**: Envelope 2 sustain level.
- **EG-2 REL**: Envelope 2 release time.
- **VCO-1 FREQ**: frequency of VCO-1.
- **VCO-2 FREQ**: frequency of VCO-2.
- **VCO-1 FM**: frequency modulation of VCO-1.
- **VCO-2 FM**: frequency modulation of VCO-2.
- **VCO-2 RNG**: range control for VCO-2.
- **VCO-1/2 MIX**: mix level between VCO-1 and VCO-2.
- **PWM AMT**: pulse width modulation amount.
- **XMOD AMT**: cross-modulation amount.
- **EG-1 to VCO**: amount Envelope 1 affects VCO pitch.
- **EG-2 to VCA**: amount Envelope 2 affects VCA amount.
- **EG-1 to LPF**: amount Envelope 1 affects the Low-Pass Filter.
- **KB to LPF**: amount keyboard tracking affects the Low-Pass Filter.
- **HPF FREQ**: cutoff frequency of the High-Pass Filter.
- **LPF FREQ**: cutoff frequency of the Low-Pass Filter.
- **RESONANCE**: filter resonance.
- **VCF IN**: External signal input to the filter.

## OUTPUTS

The Breakout module provides individual outputs for waveforms, envelopes, filters, voltages, and noise sources, making it an essential tool for advanced patching and sound design. Outputs are as follows:

- **VCO-1 TRI:** Triangle waveform of VCO-1.
- **VCO-1 RAMP:** Ramp waveform of VCO-1.
- **VCO-1 PLS:** Pulse waveform of VCO-1.
- **VCO-2 SINE:** Sine waveform of VCO-2.
- **VCO-2 RAMP:** Ramp waveform of VCO-2.
- **VCO-2 PLS:** Pulse waveform of VCO-2.
- **NOISE:** White noise.
- **LOW NOISE:** Filtered low-frequency noise signal.
- **VCO MIX:** Combined mix of VCO-1 and VCO-2.
- **LFO SINE:** Sine waveform of the LFO.
- **LFO SAW:** Sawtooth waveform of the LFO.
- **LFO SQR:** Square waveform of the LFO.
- **LFO RND:** Random waveform of the LFO.
- **ENV-1:** Signal from Envelope 1.
- **ENV-1 INV:** Signal of Envelope 1.
- **ENV-2:** Signal from Envelope 2.
- **HPF:** Signal processed by the High-Pass Filter.
- **LPF -12dB:** Low-Pass Filter output at a 12dB slope.
- **LPF -24dB:** Low-Pass Filter output at a 24dB slope.
- **PHONES:** Dedicated headphone output for monitoring.

## BASIC OPERATION

1. **Connect the Module:**
  - Ensure the Breakout module is connected to the ISE-NIN Voice module using the 2 x provided ribbon cables.
  - Mount both modules securely in your Eurorack case and connect ISE-NIN Voice to the power bus.
2. **External Control:**
  - Use CV signals to control parameters via the Breakout module's inputs.
  - Patch outputs to external modules or effects to expand sound design possibilities.
3. **Advanced Patching:**
  - Combine inputs and outputs for complex modulation and audio routing.
  - Use individual outputs for parallel processing or layering.

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