

## Behringer K-2

# Behringer K-2 Analog and Semi-Modular Synthesizer User Manual

## 1. INTRODUCTION

The Behringer K-2 is an analog and semi-modular synthesizer designed to provide a wide range of sound creation possibilities. Featuring dual Voltage Controlled Oscillators (VCOs), a ring modulator, and an external signal processor, the K-2 offers a pure analog signal path for rich, authentic sounds. Its semi-modular architecture allows for immediate performance without patching, while also providing extensive patching capabilities for advanced sound design and integration into Eurorack systems.

## 2. SAFETY INSTRUCTIONS

Please read and follow these safety instructions carefully to ensure safe operation and to prevent damage to the device or injury to yourself.

- **Power Supply:** Use only the power adapter specified for this device. Ensure the voltage matches your local power supply.
- **Moisture:** Do not expose the device to rain or moisture. Do not use it near water or in damp conditions.
- **Heat:** Avoid placing the device near heat sources such as radiators, heat registers, stoves, or other heat-producing appliances.
- **Ventilation:** Ensure adequate ventilation. Do not block any ventilation openings.
- **Cleaning:** Clean only with a dry cloth. Disconnect the power before cleaning.
- **Servicing:** Do not attempt to service this device yourself. Refer all servicing to qualified service personnel.

## 3. UNPACKING AND SETUP

Upon opening the package, ensure all components are present and undamaged. The K-2 package typically includes:

- Behringer K-2 Synthesizer

- Power supply
- User manual (this document)
- Patch cables

### 3.1 Initial Connections

1. **Power:** Connect the included power supply to the K-2's power input and then to a suitable power outlet.
2. **Audio Output:** Connect the K-2's main audio output (SIGNAL OUT) to your mixer, audio interface, or amplifier using a standard 1/4-inch TS cable.
3. **Headphones:** For monitoring, connect headphones to the PHONES output. Adjust the VOLUME knob for comfortable listening.
4. **MIDI Input:** If using a MIDI controller or sequencer, connect its MIDI OUT to the K-2's MIDI IN port.



Figure 3.1: The Behringer K-2 Analog and Semi-Modular Synthesizer, showing its full control panel and wooden side panels.

## 4. OPERATING THE K-2

The K-2 features a logical layout of controls, divided into several key sections for sound generation and manipulation.

### 4.1 Voltage Controlled Oscillators (VCOs)

The K-2 is equipped with dual VCOs, VCO1 and VCO2, which are the primary sound sources. Each VCO has controls for waveform selection and frequency adjustment.

- **WAVE FORM:** Selects the waveform (e.g., Sawtooth, Square, Triangle).
- **FREQUENCY:** Adjusts the pitch of the oscillator.
- **VCO MIXER:** Blends the output of VCO1 and VCO2.

### 4.2 Voltage Controlled Filter (VCF)

The VCF section shapes the timbre of the sound. The K-2 features both high-pass and low-pass filters with resonance control.

- **CUTOFF FREQUENCY:** Determines the frequency point at which the filter begins to affect the sound.
- **PEAK (Resonance):** Emphasizes frequencies around the cutoff point.
- **HPF (High Pass Filter):** Controls the high-pass filter cutoff.
- **LPF (Low Pass Filter):** Controls the low-pass filter cutoff.

### 4.3 Voltage Controlled Amplifier (VCA)

The VCA controls the overall amplitude (volume) of the sound.

- **INITIAL GAIN:** Sets the base volume level.

### 4.4 Envelope Generators (EG1 & EG2)

The K-2 includes two envelope generators (EG1 and EG2) to dynamically control parameters like VCF cutoff and VCA amplitude over time.

- **ATTACK TIME:** Controls the time it takes for the sound to reach its peak level.
- **DECAY TIME:** Controls the time it takes for the sound to fall from its peak to the sustain level.
- **SUSTAIN LEVEL:** The level at which the sound holds as long as a key is pressed.
- **RELEASE TIME:** Controls the time it takes for the sound to fade out after the key is released.

### 4.5 Modulation Generator

This section provides modulation sources for adding movement and expression to your sounds.

- **FREQUENCY:** Adjusts the speed of the modulation.
- **WAVE FORM:** Selects the modulation waveform.

### 4.6 External Signal Processor (ESP)

The ESP allows you to process external audio signals through the K-2's filters and other modules, or to extract control voltages from audio.

- **SIGNAL IN:** Input for external audio signals.
- **LOW CUT FREQ / HIGH CUT FREQ:** Filters for the external signal.
- **THRESHOLD LEVEL:** Adjusts the sensitivity for envelope follower and trigger extraction.

### 4.7 Patching

The K-2's semi-modular design means it can produce sounds without any patch cables connected. However, its extensive patch bay allows for advanced routing and integration with other modular gear. Connect patch cables between the various IN and OUT jacks to create custom signal flows and modulate parameters.

### 4.8 MIDI Connectivity

The MIDI IN port allows the K-2 to receive MIDI note data and control change messages from external devices, enabling it to be played from a keyboard controller or sequenced.

## 5. MAINTENANCE

---

Proper maintenance ensures the longevity and optimal performance of your K-2 synthesizer.

- **Cleaning:** Use a soft, dry cloth to wipe the exterior of the unit. Do not use liquid cleaners, solvents, or abrasive materials.
- **Storage:** When not in use, store the K-2 in a clean, dry environment, away from direct sunlight and extreme temperatures.
- **Dust Protection:** Consider using a dust cover to protect the controls and jacks from dust accumulation.

## 6. TROUBLESHOOTING

If you encounter issues with your K-2, refer to the following common problems and solutions.

| Problem                   | Possible Cause                                                                                                                                                                                                                                  | Solution                                                                                                                                                                                                                                                                                            |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No sound output           | <ul style="list-style-type: none"><li>• Power not connected</li><li>• Volume knob turned down</li><li>• Audio cables incorrectly connected</li><li>• VCA INITIAL GAIN too low</li><li>• Filter cutoff too low (LPF) or too high (HPF)</li></ul> | <ul style="list-style-type: none"><li>• Check power connection and outlet.</li><li>• Increase the VOLUME knob.</li><li>• Ensure audio cables are securely connected to SIGNAL OUT and your audio system.</li><li>• Increase VCA INITIAL GAIN.</li><li>• Adjust filter cutoff frequencies.</li></ul> |
| MIDI not responding       | <ul style="list-style-type: none"><li>• MIDI cable incorrectly connected</li><li>• MIDI channel mismatch</li><li>• External controller issue</li></ul>                                                                                          | <ul style="list-style-type: none"><li>• Ensure MIDI OUT of controller is connected to MIDI IN of K-2.</li><li>• Verify MIDI channel settings on both devices.</li><li>• Test with a different MIDI controller or cable.</li></ul>                                                                   |
| Unexpected sound behavior | <ul style="list-style-type: none"><li>• Complex patching</li><li>• Extreme control settings</li></ul>                                                                                                                                           | <ul style="list-style-type: none"><li>• Simplify patching to isolate the issue.</li><li>• Return all knobs to their center or default positions and build the sound gradually.</li></ul>                                                                                                            |

## 7. SPECIFICATIONS

| Feature                        | Detail                                                                             |
|--------------------------------|------------------------------------------------------------------------------------|
| Model Name                     | K-2                                                                                |
| Type                           | Analog and Semi-Modular Synthesizer                                                |
| Oscillators                    | Dual VCOs                                                                          |
| Filters                        | First and second generation filter design (High pass/low pass with peak/resonance) |
| Signal Path                    | Pure Analog                                                                        |
| Polyphony                      | 16-Voice Poly Chain capability                                                     |
| Format                         | Eurorack compatible                                                                |
| Item Weight                    | 5.53 pounds (2.51 kg)                                                              |
| Product Dimensions (L x W x H) | 5.35 x 16.69 x 3.74 inches (13.59 x 42.39 x 9.5 cm)                                |
| Body Material                  | Alloy Steel                                                                        |
| Manufacturer                   | Music Tribe US                                                                     |

| Feature | Detail       |
|---------|--------------|
| UPC     | 653341344632 |

## 8. WARRANTY AND SUPPORT

---

For detailed warranty information and technical support, please refer to the official Behringer website or contact your local distributor. Keep your purchase receipt as proof of purchase for any warranty claims.

**Online Support:** [www.behringer.com](http://www.behringer.com)