



Thank you for your purchase of the Hakai Labs DEFCON 2 Eurorack Module! This guide will give you a good overview of the module and its functionality, allowing you to explore deeper on your own.

Don't bother RTFM'ing this thing, just plug the module in and start playing with it. 😊

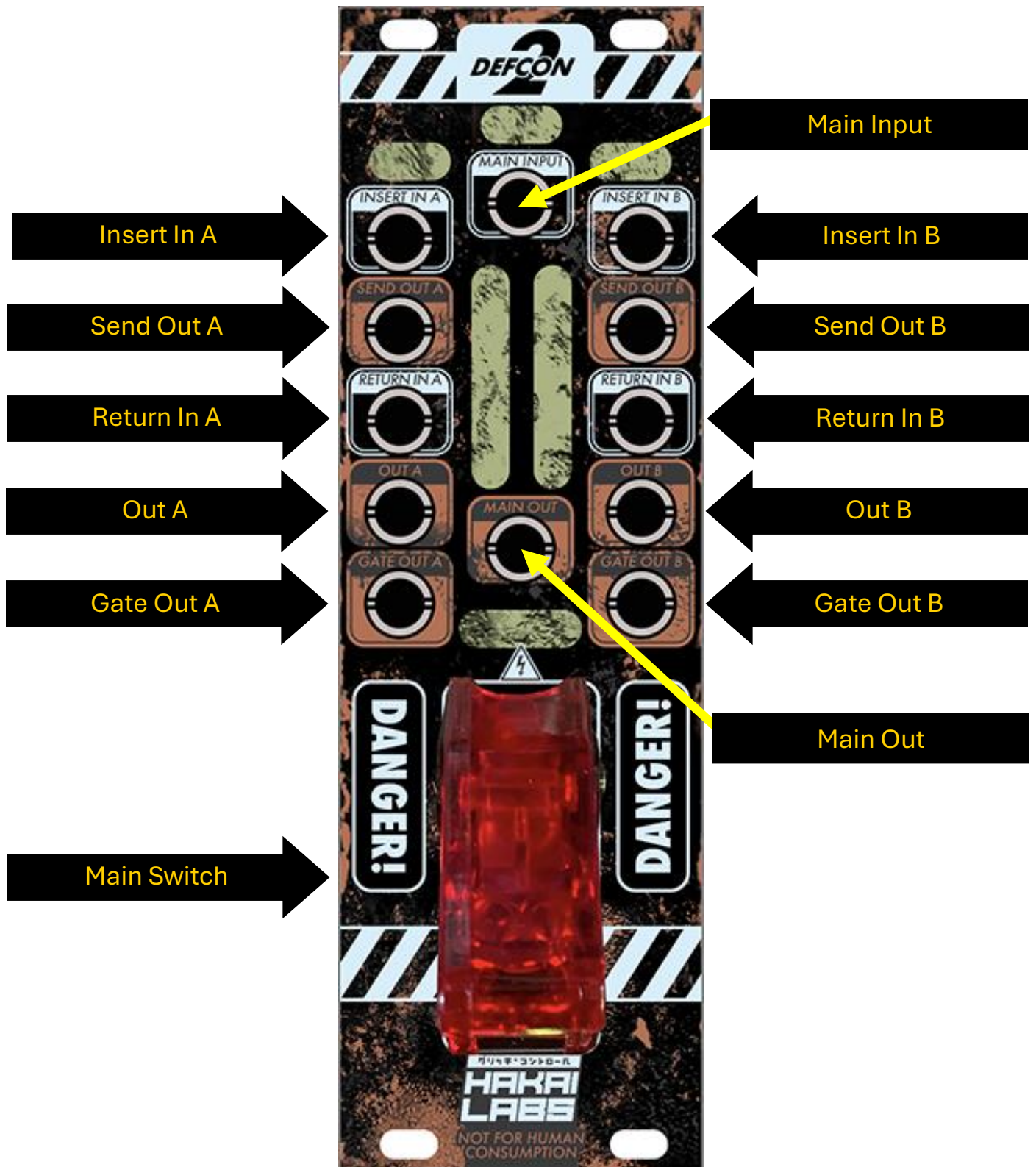
What is DEFCON 2?

DEFCON 2 is an advanced signal router at its core. A big, protected toggle switch controls whether the signal from the Main Input flows down Path A (left) or Path B (right) on its way to the Main Out, letting you change your signal routing instantly with the flick of a switch.

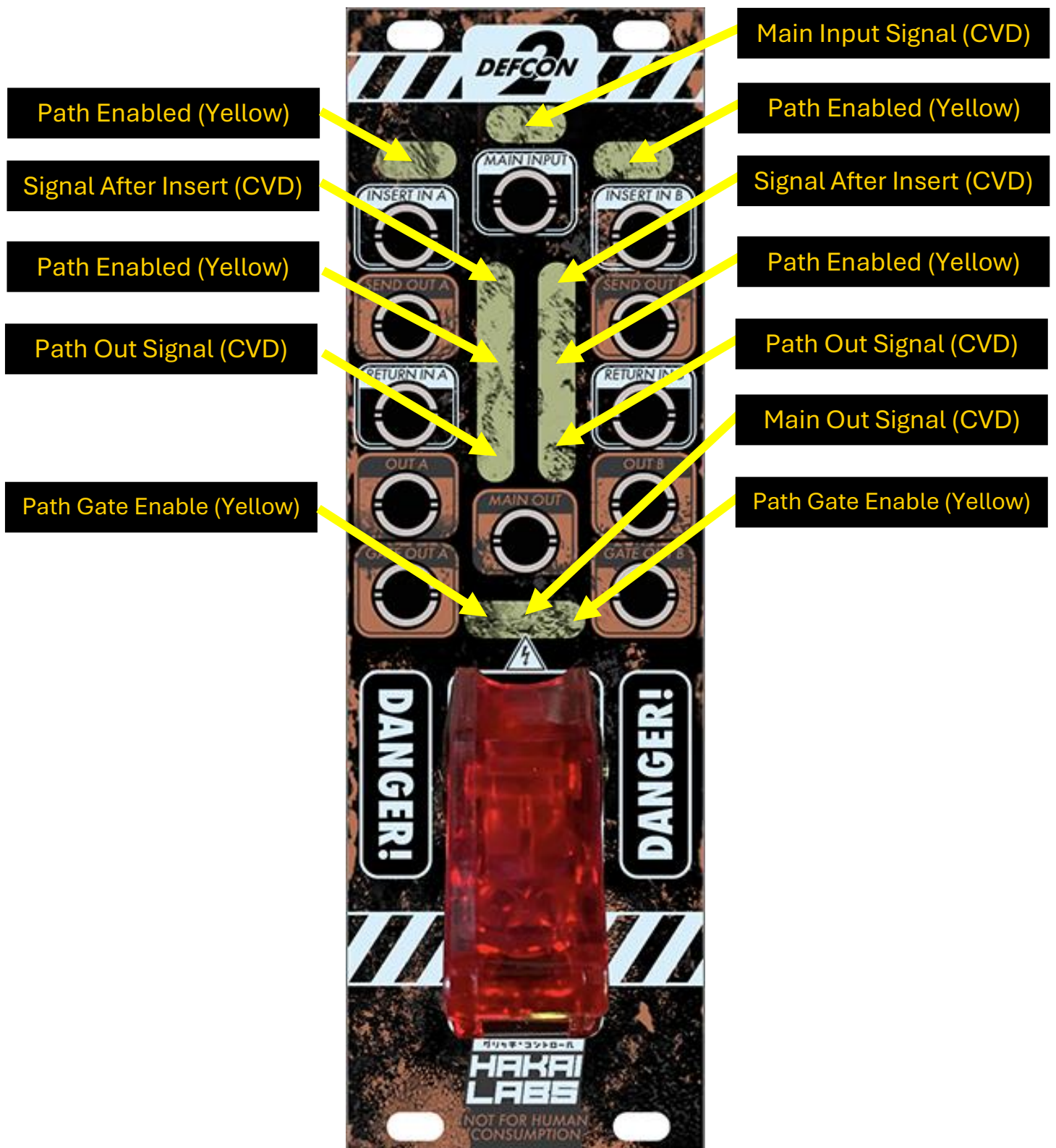
IN CASE OF SIGNAL EMERGENCY

1. Lift cover. 2. Flip switch. 3. Remain calm.

Front Panel / Outputs / Controls



LED Indicator Functions



DEFCON 2 Signal Overview

The DEFCON 2 is a dual-path analog signal switcher built around a guarded toggle switch. It routes a single Main Input to either Path A (left) or Path B (right). Each path has its own Insert In, Send Out, Return In, Out, and Gate Out jacks, so you can override, process, or tap the signal at several points along the way. High-speed CMOS switching keeps transitions silent and instantaneous, with no audible artifacts.

Only the active path reaches the Main Out. The inactive path still works as a signal path, though. Anything patched into its Insert In or Return In continues through that path to its Send Out and Out jacks, and LED indicators show signal activity on both paths.

Signal Path

On each path, the signal travels in this order (the Signal Flow Diagram at the end of this manual shows the full route):

- Main Input is routed to the active path by the main switch.
- Insert In: a patched cable replaces the signal on that path.
- Send Out taps the signal at this point (buffered).
- Return In: a patched cable replaces the signal on that path.
- Out taps the signal at this point.
- Main Out: only the active path continues here.

Main Switch

The switch is protected by a flip-up safety cover to prevent accidental switching. Lift the cover, then move the toggle.

- Down (default): routes the Main Input to Path A (left).
- Up: routes the Main Input to Path B (right).

WARNING: Flipping this switch reroutes your signal instantly. Hakai Labs is not responsible for sudden silence, unexpected noise, or ruined takes. Not for human consumption.

Jack Reference

Main Input

Accepts any signal at Eurorack levels: audio, CV, gates, triggers, envelopes, and more. Signals beyond $\pm 12V$ will be clipped by the input protection circuitry. The Main Input is routed to Path A or Path B depending on the switch position.

Insert In A / Insert In B

Overrides the signal on a path. When a cable is patched into an Insert In jack, the connection from the Main Input to that path is broken, regardless of switch position, and the patched signal takes its place. The inserted signal continues through the rest of that path (Send Out, Return In, and Out), even when the path is inactive. With nothing patched, the Main Input passes through normally.

Send Out A / Send Out B

Outputs a buffered copy of the signal currently on the path, ideal for feeding external effects or processors. Patching a Send Out does not interrupt the signal flow.

Return In A / Return In B

Works like Insert In, and is designed to bring an external effect back into the path. With nothing patched, the signal continues unchanged. When a cable is patched, it replaces the signal on that path from this point onward. Pair a Send Out with a Return In to build an effects loop on either path.

Out A / Out B

Outputs the signal at the end of each path, just before the Main Out switching stage. These are passive taps, so patching them does not interrupt the signal to Main Out. Out is available regardless of switch position, but an inactive path carries a signal only if something is patched into that path's Insert In or Return In. Otherwise there is nothing on it.

Main Out

Outputs the signal from the active path. The inactive path is not passed to Main Out.

Gate Out A / Gate Out B

Outputs a 5V gate while its path is active and 0V while it is inactive. The two outputs are always opposite: when A is high, B is low, and vice versa. Use them to trigger envelopes, clocks, or other modules whenever the switch changes state.

LED Indicators

The LEDs on the DEFCON 2 show what is happening on each path in real time, whether or not that path is currently active. Because each path is monitored independently, you can see an Insert or Return signal on the inactive path even though it is not reaching the Main Out. The LED Indicator Functions diagram on page 3 shows where each one sits.

- **Path Enabled (yellow):** Lit while that path is the active one. Each path has two Path Enabled LEDs, placed that way for visual balance. Both light together.
- **Path Gate Enable (yellow):** Lit while that path's Gate Out is high (5V).
- **Signal LEDs (bi-color red/green):** Show the signal present at four points in the signal path: Main Input Signal, Signal After Insert (one per path), Path Out Signal (one per path), and Main Out Signal.

The signal LEDs are bi-color red/green CVD LEDs, chosen to be easier to distinguish for people with red-green color vision deficiency.

Routing Modes

1-to-1 (single source, single destination): Patch into Main Input and take the signal from Main Out. Use the Send/Return loops to insert effects on either path.

2-to-1 (source selector): Patch two sources into Insert In A and Insert In B, bypassing the Main Input. The toggle selects which source reaches Main Out.

1-to-2 (split and route): Patch into Main Input and take the signal from Out A and Out B. Process each path independently through its Send/Return loop before sending to separate destinations. Only the active path carries the Main Input at any time.

Satellite Expansion

The DEFCON 2 Satellite is a companion module that mirrors the toggle state of the DEFCON 2 to control two additional independent signal paths. Connect the rear expansion port on the DEFCON 2 to the Satellite using a standard patch cable.

Power

The DEFCON 2 connects to your Eurorack power supply with a 10-pin shrouded power connector. Follow the standard Eurorack convention with the red stripe of the ribbon cable toward the -12V side. The module is reverse-polarity protected, but always power down your system before connecting or disconnecting any module.

Specifications

- Width: 8 HP
- Depth: 25 mm
- Current draw:
 - 60 mA @ +12V
 - 30 mA @ -12V
 - 0 mA @ 5V
- Gate outputs: 0V / 5V
- Signal range: $\pm 12V$ (clipped beyond this)

DEFCON Series Signal Flow Diagram

