

2hp — 3 to 1

- [Manual PDF](#)
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[3:1 Module Manual PDF \(2HP\)](#)

Using the 2hp 3:1 for Densely Rhythmic & Hyper-Complex Percussion in Eurorack

The **2hp 3:1** is a voltage-controlled gate switch and summer, perfectly suited for creative rhythmic manipulation. Below are strategies and patches for generating dense, complex, polyrhythmic percussion using this module.

1. Sequenced Gate Switching for Percussive Complexity

- **Patch multiple gate/trigger sources** (e.g., clock dividers, Euclidean sequencers, random gates) into IN 1, IN 2, and IN 3.
 - **MODULATE the SEL CV** input with a fast, unpredictable source (e.g., random stepped CV, sample & hold, or another sequencer). This causes the output rhythm to rapidly switch between input patterns, generating complexity.
 - **Result:** The output combines or flips between different grooves/patterns, yielding a fused hyper-rhythmic sequence.
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2. Gate Summing for Polyrhythms & Time-Signature Crossings

- Set the **MODE toggle** to the right (gate summing mode).
 - Feed different rhythmic divisions or polymeter sources (e.g., 3-step and 4-step patterns, or sequencer & clock division outputs) to the three inputs.
 - The output will fire **triggers when any of the inputs receive a gate** or trigger—by combining non-aligned patterns, intricate polyrhythms and time signatures such as 3:4 or even cross-rhythms are easily created.
 - The output triggers are **normalized to 5 ms pulses**, great for clean, punchy percussion triggering.
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3. Voltage Controlled Rhythmic Morphing

- Patch a **modulation source** (LFO, envelope, or stepped random CV) to **SEL CV**.
 - Slowly modulate across the input selection in selective switch mode (MODE left). This "morphs" between gate/trigger sources, letting you transition abruptly or gradually between different rhythmic feels or phrases.
 - **Manual SEL knob** lets you perform live, hands-on selection for expressive fills or variation.
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4. Trigger Manipulation & Cleansing

- In **summing mode**, the 3:1 outputs 5ms triggers **regardless** of input pulsewidth. Use this as a way to "sharpen up" muddy or uneven gate lengths from DIY or old gear, or to extract crisp triggers from complex sources.
 - **Chain with analog percussion voices:** these clean pulses work excellently for snappy drums and percussive synths.
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5. Complex Signal Routing for Percussive FX

- Route the 3:1 output to multiple voices or effects using a sequential switch after the module, or feed output to audio-rate frequency dividers for chopped, stuttering textures.
 - Invert, delay, or process the OUT with logic modules for even *deeper* rhythmic complexity.
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Creative Tips

- **Gate Length:** If downstream modules are sensitive to gate length, always use SUM mode for short, snappy triggers.
 - **Control Input SEL with a clocked sequencer:** This can generate predictable but dense and MIDI-like polymetric structures.
 - **Stack outputs:** Use stackable cables to send the OUT to multiple percussive sound sources.
 - **Integrate with randomness:** Sample & Hold or Turing Machine derivatives to SEL CV create generative, never-repeating percussion.
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For full technical details, **consult the [official 2hp 3:1 manual here \(PDF\)](#)**.
