# 2hp — Rnd

- Manual PDF

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# 2hp Rnd Module - Cheat Sheet

2hp Rnd is a compact dual random generator for Eurorack—perfect for modulation and unpredictable rhythmic sources.

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## Panel Overview

**Top to Bottom:** 1. **INT/EXT Switch**
2. **CLOCK Jack**
3. **RATE Knob & LED** 4. **GATE Output** 5. **SMOOTH Attenuator & Output** 6. **QUANT Attenuator & Output**

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## Controls & Jacks Reference

| Label | Type | Description | Range / Function |
|---|---|---|---|
| INT / EXT | Switch | Selects clock source: Internal (L) or External (R) | - |
| CLOCK | Jack | - INT: CV for internal clock rate<br>- EXT: Clock input | CV Input: 0V-10V |

| Label | Type | Description | Range / Function |
|---|---|---|---|
| RATE | Knob & LED | - INT Clock: Internal clock rate<br>- EXT Clock: Gate randomness rate<br>- Smooth: Rate of change | Slow (L) → Fast (R) |
| GATE | Output | - INT: 50% duty cycle clock output<br>- EXT: Random gate output | 0V (low), 10V (high) |
| SMOOTH Attenuator | Knob | Sets output level of Smooth random voltage | 0V–10V |
| SMOOTH | Output | Continuously changing random voltage, rate set by Rate knob | 0V–10V |
| QUANT Attenuator | Knob | Sets output level for Quant output | 0V–10V |
| QUANT | Output | New random voltage at every clock pulse (stepped) | 0V–10V |

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## Quick Operation Guide

- **Internal Clock Mode**: (Switch left)
- Use RATE to set clock speed. GATE outputs steady clock, QUANT changes every tick.
- CLOCK jack can take CV to modulate clock rate.
- **External Clock Mode**: (Switch right)
- CLOCK jack receives external clock.

- GATE outputs random gates ("eruptions"); RATE sets probability/ rate of rand gates.
- QUANT outputs new stepped random voltage every external clock pulse.
- **SMOOTH Output**
- Continuously changing random voltage.
- Rate of change and output level set via RATE and SMOOTH ATTEN.
- **QUANT Output**
- New value each time the module is clocked (internal/external).
- Output level set via QUANT ATTEN.

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## Voltage Ranges

- All outputs (GATE, SMOOTH, QUANT): **0V–10V**
- CLOCK CV Input: **0V–10V**

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## Patch Tips

- Use **GATE** to trigger envelopes or events unpredictably.
- Use **SMOOTH** for organic, flowing modulations (filters, FM, etc).
- Use **QUANT** for stepped random sequences or pitch modulation.

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