# Rebel Technology — Stoicheia

- Manual PDF

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**Stoicheia (Στοιχεῖα) Eurorack Module Manual**

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# Stoicheia: Concise Cheat Sheet

## Quick Start

- **Connect Clock IN A/B:** Plug an LFO or clock into the left/right bottom jack(s).
- **Connect OUT A/B:** Connect left/right OUT jack to your drum or gate-enabled modules.
- **Middle Switch (both rows):** Center for OFF, UP for Trigger, DOWN for Alternating (see Modes).
- **Set Knobs:**
- Bottom: Fills (# of gates per pattern, CCW=1, Center=50%, CW=all)
- Middle: Length (steps, 1–16, center=8)
- Top: Rotation (start position; left/right rotates sequence)

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## Panel Controls

### Jacks

- **OUT A/B (top left/right jacks):** Rhythmic gate outputs
- Low: 0V, High: 5.1V
- Impedance: < 1.1kΩ

- **RESET (middle jack):** Trigger resets *both* sequences to their start position.
- Input: > 100kΩ
- **CLOCK A/B IN (bottom left/right):** Clock/trigger for left/right sequence.
- Input: > 100kΩ

### Knobs (each sequence, left/right columns)

1. **Top (Rotation):** Step offset/rotation of sequence start
2. **Middle (Length):** 1–16 steps, center=8
3. **Bottom (Fills):** Number of "on" steps (gates), 1–length, center=half, CW=max

### Switches

- **Sequence Switch (each sequence, 3-way):**
- **UP:** Trigger mode—output follows input clock edges, pulse width matches clock
- **CENTER:** Off
- **DOWN:** Alternating/Tied mode—output toggles, holding high until next on-beat
- **Chained Mode:** Center switch down enables chaining (A then B, outputs merged)

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## Modes

- **Trigger Mode:** Gate outputs follow the input clock width (UP position)
- **Alternating Mode:** Output toggles on each on-beat (DOWN position)
- **Chained Mode:** Both sequences run consecutively (via center switch DOWN)

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## Patterns

- **E(x,y):** x fills, y steps, auto-Euclidean distribution
- Example: E(3,4) = [x . x x] (Calypso)
- E(2,5): [x . x . .] (Take Five, Tchaikovsky)
- E(5,8): [x . x x . x x .] (Cuban cinquillo, Persian)
- E(7,12): [x . x x . x x . x . x .]
- E(9,16): [x . x x . x . x x . x . x . x .]

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## Voltage/Current Specs

- **Power:** +12V <10mA, +5V <25mA, -12V 0mA
- **Output range:** 0V (low), 5.1V (high)

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## Reference

- Official Manual
- Euclidean Patterns Paper by Toussaint (PDF)
- All source & schematic on Github

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## Hacking / Open Hardware

- **MCU:** ATMega168 (Arduino bootloader, FTDI compatible)
- **Firmware:** Open source, see repo

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