4ms — Rotating Clock Divider

- Manual PDF

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4ms Rotating Clock Divider (RCD) Cheat Sheet

PCB v1.2, Firmware v1.1
4HP, 60mA @ +12V/+15V

Overview

The RCD takes a master clock input and outputs 8 different clock divisions, rotatable by CV. Divisions, mode, and rotation are easily voltage- or jumper-controlled. Optionally, deep configuration is available at the back (jumpers).

Front Panel Controls & Jacks

Label	Type	Function	Voltage Range
Clock In	Input	Main clock input, rising edge triggers	3.5V – 15V
CV Rotate	Input		0V – +5V

Label	Type	Function	Voltage Range
		Rotates output divisions per jack	
CV Reset	Input	Syncs/resets count on next rising clock	3.5V – 15V (Trig)
/1 ... /8	Output	Divided clock outputs	GATE: 0V/ High, 50%duty TRIG: Follows clock pw
LEDs	Visual	Show clock activity/output states	-
(No knobs, sliders, or toggles on the front panel)			

Voltage-Controlled Inputs

- **Clock In** — 3.5V–15V, triggers on rising edge
- **CV Rotate** — 0V to +5V; each ~0.67V step (max-div 8) advances all outs by 1 division
- **CV Reset** — 3.5V–15V, pulse resets counters on next clock

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Outputs

- **8x Divider Outs** *(3.5mm jacks, labeled 1–8, see below for mapping)*
  - **Spread Off, Max Div 8**: 1, 2, ... 8 (*+ Rotate offset R*)
  - **Spread On**: /1, /2, /3, /4, /6, /8, /12, /16 (*rotates with CV*)
  - **GATE Mode**: 0V/High, 50% duty (divided waveform)

- **TRIG Mode**: Short pulse equals input clock pulse width

Back Panel Jumpers (Options, or use Breakout)

Label	Setting	Action/Description
Up/Down	ON: Downbeat	All outputs fire on 1st beat. OFF: Upbeat (default)
Trig/Gate	ON: Gate Mode	50/50% gate outs. OFF: Trigger Mode (default)
Max-Div-Range 16	ON: Max /16	Sets the highest division
Max-Div-Range 32	ON: Max /32	Used with above for /32 or /64
Spread	ON: Spread	Evenly spreads outputs in max range
Auto-Reset	ON: Enables (16/32/64/128)	Auto-resets at end of cycle

- **Max-Div by**:
- Both 16 & 32 OFF: Max /64
- 16 ON, 32 OFF: Max /16
- 16 OFF, 32 ON: Max /32
- 16 ON, 32 ON: Max /8

Reference: Output Jack Mapping (Default, Spread OFF, MaxDiv 8)

CV Rotate Voltage	<0.67V	0.67–1.3V	1.3–1.9V	1.9–2.5V	... up to >4.5V
/1	1	2	3	4	up to 8
/2	2	3	4	...	wraps to /1
...	...	...	...	...	...
/8	8	1	2	...	wraps to /7

Special Modes & Details

- **Spread Mode ON**: Jacks follow intervals: /1, /2, /3, /4, /6, /8, /12, /16
  Good for musical/rhythmic divisions.
- **Auto Reset**: Automatically resets the divider count after n clocks (per jumper and Max Div).
- **Bus Clock Input**: Can clock from Eurorack bus (jumper); patched clock overrides bus.
- **5V/12V Power**: Selectable with rear jumper ("EXT"=5V; "INT"=12V, factory default).
- **LED Brightness**: Rear trim pot.

Quickstart / Typical Patch

1. **Patch clock source** into Clock In (5V square or trigger).
2. **Patch Divider outputs** (1–8) to modules/drums/sequencers, etc.
3. **Apply CV to Rotate** input to shift all outputs together.

4. **Patch Reset** with a trigger or out from another divider to resync cycle.

Advanced

- Rear jumpers set gate/trigger, up/down counting, auto-reset, Spread, Max-Div range, bus clock.
- Use the RCD Breakout for easy mode changes.
