

# Acid Rain – Constellation

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- [Manual PDF](#)
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[Download: Constellation Firmware V1.1 Manual PDF](#)

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## Constellation Eurorack Cheat Sheet

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### OVERVIEW

**Constellation** is an 8-channel trigger/gate pattern generator with advanced Euclidean rhythm capabilities, rich logic, pattern modifiers (burst, ratchet, chance), polyrhythmic channel clocks, freely assignable CV modulation, and robust save/load options.

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### QUICK START

1. **Patch 1–5 Channel Outputs** (top row of module) to drum modules:
  2. Ch1: Kick
  3. Ch2: Snare/Clap
  4. Ch3: Closed Hi-Hat
  5. Ch4: Open Hi-Hat
6. Ch5: Rimshot/other sound
7. **Power on:** Plays "4 on the floor" @120 BPM by default.

8. Press **Load** – select any of the 20 pulsing buttons (central 2 rows) for quick start patterns. Use **live** mode to play/save slots like a keyboard.
  9. Patch a slow-moving **0–5 V CV** source into CV Input I for pattern evolution.
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## INPUT AND OUTPUT JACKS

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### Inputs

- **Clock (clk):** External main clock input, expects 0–5V pulse. With cable inserted, switches to external clocking.
- **Reset:** External reset (rising edge = reset).
- **CV Inputs (I–VIII):**
- **Assignable.** Not fixed to channels; can independently or cascadingly control any parameter on any pattern/channel.
- **Voltage Ranges:**
  - Divide , Length , Ratchet : **0–5V (Unipolar)**
  - Events , Rotate , Burst , Chance , Width , Mute , Load : **-5V to +5V (Bipolar)**
  - See details below for modulation ranges.

### Outputs

- **Clock:** +5V/0V digital pulse (either internal or mirrored external clock, depending on clocking).
  - **Reset:** +5V pulse on reset event.
  - **Channel Outputs (1–8):** +5V when active, 0V inactive – outputting final channel pattern as trigger/gate.
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# FRONT PANEL CONTROL REFERENCE

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## Buttons

- **Top Row:**
  - `clock`, `reset`, `save`, `load`, `input`, `random`
- **Middle Rows (Horizontal, 8 each):**
  - Pattern Select (P1–P8), Channel Select (I–VIII), Channel Mute, Live
- **Pattern/Channel Parameter:**
  - `AND`, `OR`, `XOR`, `flop`, `width`, `burst`, `ratchet`, `chance`, `divide`, `rotate`, `events`, `length`
- **Others:**
  - Mute, Live, Flop, Logic, Pattern Select, Pattern Parameter

## Encoder

- **Navigation** through channels/patterns/parameters/menus
  - **Adjust** values (press for coarse/fine adjustment)
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# CHANNEL AND PARAMETER STRUCTURE

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- **8 Channels, each with 8 Patterns** (64 patterns total)
  - Each pattern: Divide, Length, Events, Rotate, Burst, Ratchet, Chance
  - Patterns combine via Logic (AND/OR/XOR).
- **Channel Parameters:**
  - Logic, Flip-flop (gate vs. trigger behavior), Width

## PATTERN MODIFIERS

- **Burst:** Each trigger = sequence of triggers (one per clock).
  - **Ratchet:** Each trigger repeated between clocks (dense cluster).
  - **Chance:** 0–100% probabilistic gate per event.
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# NAVIGATION & MENUS

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- **Edit Mode:** Default, full parameter editing.
  - **Clock Menu:** BPM (internal clock, tap tempo), main clock div/mult, swing, channel clocks per channel.
    - `width` button: main clock swing (50–90%).
    - `mute` button: stops/starts internal clock.
    - `AND` button: tap tempo.
  - **Mute Menu:** Mute channels/patterns; press again to unmute.
  - **Save/Load Menu:**
    - Save/Load any channel/patterns into 20 slots per bank (999 banks).
    - Save/load channel mutes, main clock, input assignments as options.
    - `reset` in load menu: forces re-sync.
  - **Live Mode:**
    - Play save slots "momentarily" (release = revert).
    - Momentarily mute channels.
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# CV INPUT MODULATION SUMMARY

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| Parameter | Volt. Range   | Behavior                               |
|-----------|---------------|--|
| Divide    | 0–5V unipolar | 1 to base value (set)                  |
| Length    | 0–5V unipolar | 1 to base value (set)                  |
| Events    | -5V–+5V       | 0 to length, centered at base value    |
| Rotate    | -5V–+5V       | 0 to length, centered at base value    |
| Burst     | -5V–+5V       | 1 to max burst, centered at base value |
| Ratchet   | 0–5V unipolar | 1 to base value (set)                  |
| Chance    | -5V–+5V       | 0-100%, centered at base value         |

| Parameter | Volt. Range  | Behavior                            |
|-----------|--------------|-------------------------------------|
| Width     | -5V–+5V      | 0–100%, centered at base value      |
| Mute      | Gate/Trigger | Mutes/unmutes on gate/trigger edge  |
| Load      | Gate/Trigger | Loads selected save slot while high |

- CV is sampled once per rising edge of the channel clock.
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## TIPS AND UTILITIES

- **Pattern Reset:** Hold pattern button + press reset.
  - **CV Inputs Cascade:** Inputs I–VIII cascade L → R for multi-parameter modulation; can disable in settings ( cv\_norm = 0 ).
  - **Save/Load Individual Channels:** In save menu, press only channels to save.
  - **Autosave:** Module autosaves every few seconds.
  - **Factory Reset:** Delete all bank folders from SD card for blank state.
  - **Restore Quickstart Patterns:** Download 000.zip from Acid Rain website.
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## LOGIC MODES (Channel):

- **AND:** Only outputs high if all active patterns are high.
  - **OR:** Outputs high if any active patterns are high.
  - **XOR:** Outputs high if odd number of patterns are high.
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## FIRMWARE UPDATES

1. Power off, remove/inject micro SD to PC.
2. Download latest firmware; place Fw.BIN on root.
3. Reinsert SD, power on, wait for update animation.

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## QUICK REFERENCE: BUTTON SHORTCUTS

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| Function            | Action   |
|---------------------|--|
| Pattern Reset       | Hold Pattern + Press Reset                               |
| Enter Mute Menu     | Press <code>mute</code>                                  |
| Save/Load Bank      | <code>save</code> / <code>load</code> , select bank/slot |
| Enter Clock Menu    | Press <code>clock</code>                                 |
| Live Mode           | Press <code>live</code>                                  |
| Coarse Adjust       | Encoder short press (flashing display)                   |
| Randomize Parameter | Press <code>random</code> with parameter selected        |
| Remove CV Assign    | Hold Reset + Input button in Input Menu                  |
| Tap Tempo           | Press "AND" button in Clock Menu                         |

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### Manual & Resources:

- [Constellation Firmware Manual PDF](#)
- [Generated With Eurorack Processor](#)