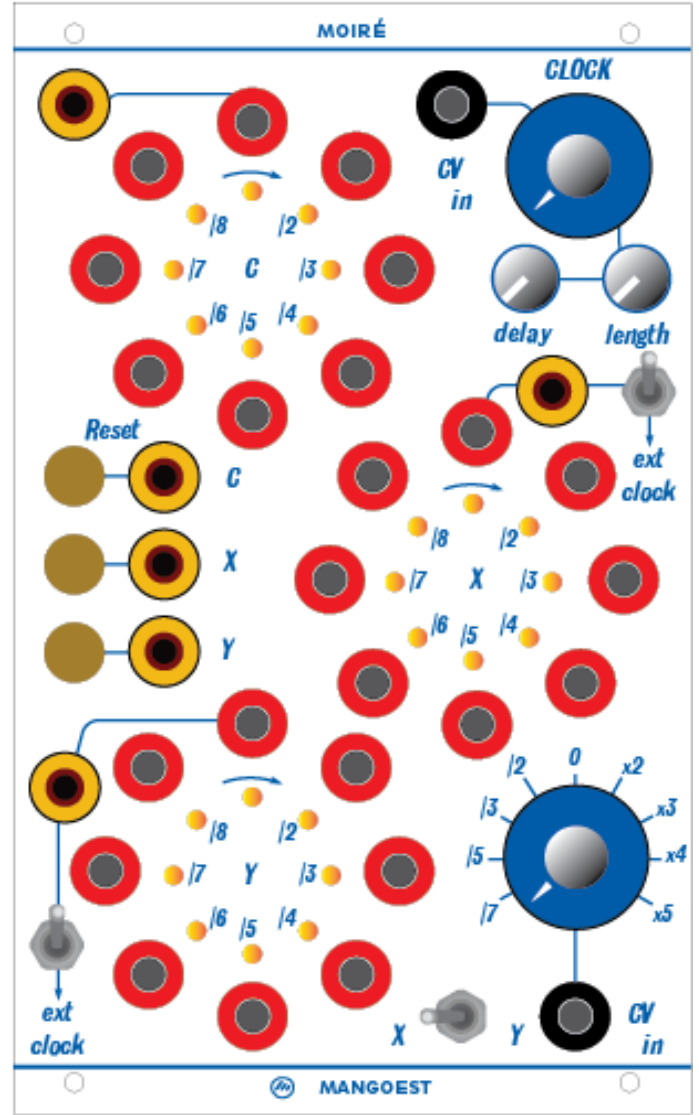
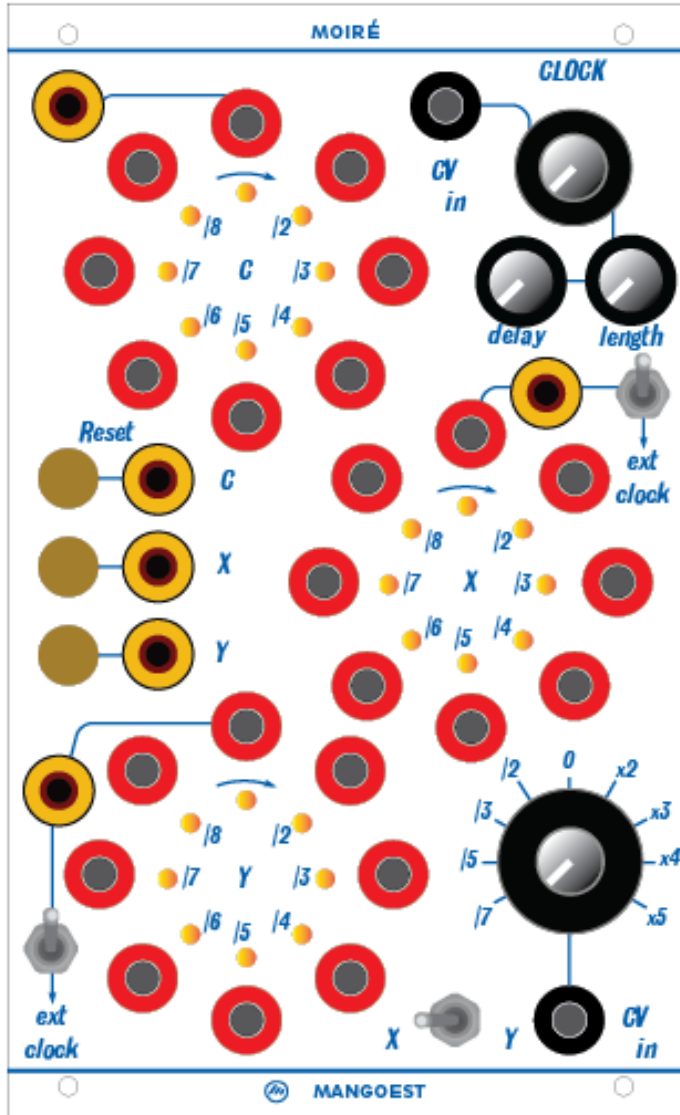


MOIRÉ | VC MULTIPLY DIVIDE



MANGOEST

Moiré is a voltage-controllable master clock generator, clock divider, and multiplier module designed specifically for modern 4U Buchla-format modular systems.

Named after the optical interference patterns created when overlapping independent grids, **Moiré** provides three distinct clock generators—**C**, **X**, and **Y**—each equipped with its own ring of 7 divided outputs (/2 through /8). Featuring CV-controllable rate, variable pulse delay and length, independent clock resets, external sync routing, and a assignable clock division/multiplication engine, Moiré acts as the rhythmic core for generative patches, complex polyrhythms, and phase-shifted sequences.

Technical Specifications

Parameter	Specification
Format	Buchla 4U Standard
Inputs (CV)	0–10V CV Compatible (Black Jacks)
Inputs (Clock/Reset)	Buchla Standard Pulse Inputs (Orange)
Outputs (Pulse)	10V Standard Pulse Outputs (Red Jacks)
Manual Controls	Heavy-duty rotary knobs, momentary pushbuttons (Green), toggle switches
Power Supply	Standard Buchla system power cable

Features & Signal Architecture

- **Master Clock Engine (C):** Internal voltage-controlled master clock generator with dedicated manual rate control and **CV in**.
 - **Global Timing Controls:** Independent **delay** and **length** (gate width) controls for the master clock phase and pulse width.
 - **Three Dedicated Division Rings (C, X, Y):** Independent clock divisions ($/2$, $/3$, $/4$, $/5$, $/6$, $/7$, $/8$) available simultaneously across three separate sections.
 - **External Clock Routing:** Dedicated external clock inputs with toggle switches for sync options across generator channels. The EXT/INT switch for X and Y can be used to mute X and Y.
 - **Individual Resets:** Dedicated manual reset buttons and pulse inputs for channels **C**, **X**, and **Y**.
 - **Variable Multiplier / Divider Engine:** A switchable **CV-controllable** division/multiplication rotary control assignable to section **X** or **Y**, offering division factors ($/2$, $/3$, $/5$, $/7$) and multiplication factors ($\times 2$, $\times 3$, $\times 4$, $\times 5$), plus a neutral ground state (0) identical to the master clock.
 - **Buchla Format Hardware:** Standardized 4U banana jack interface with standard Buchla color-coding conventions (black for CV inputs, orange for clock/trigger inputs, red for output pulses, and green for manual pushbuttons).
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Control & Panel Reference

1. Master Clock Section (C)

Located at the top right and top left of the panel, channel **C** serves as the central timekeeper for the module.

- **CLOCK (Knob):** Sets the base tempo/frequency of the internal master oscillator.
 - **CV in (Black Jack):** Control voltage input for modulating the master clock tempo.
 - **delay (Knob):** Adjusts the phase delay of the clock pulse, allowing phase-shifting against external equipment or internal subdivisions. Can go up to 8 seconds in theory.
 - **length (Knob):** Adjusts the pulse width / gate duration of output pulses generated by the master clock. When the length pot is completely counter clockwise, the clock will not be able to run C because the pulse has ZERO length.
 - **ext clock (Orange & Switch):** Input jack for syncing Channel C to an external clock source. Toggle the adjacent switch to select between internal oscillator driving or external clock synchronization.
 - **C Ring Outputs (7 Red Jacks):** Dedicated pulse outputs for the Master Clock divisions: **/2**, **/3**, **/4**, **/5**, **/6**, **/7**, and **/8**.
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2. Clock Channels X & Y

Channels **X** and **Y** operate as secondary clock channels/divider networks that can run synchronously or independently.

Channel X (Middle Section)

- **X Ring Outputs (7 Red Jacks):** Dedicated pulse outputs for divisions **/2, /3, /4, /5, /6, /7, and /8**.
- **ext clock / Input Routing:** Allows section X to be driven by external clock signals or internally routed clock sources via panel toggles. When ext clock is used, the multiply and divide knob will have no effect.

Channel Y (Bottom Left Section)

- **Y Ring Outputs (7 Red Jacks):** Dedicated pulse outputs for divisions **/2, /3, /4, /5, /6, /7, and /8**.
- **ext clock (Orange & Switch):** External clock input and toggle switch for syncing channel Y to external clock pulse sources. When ext clock is used, the multiply and divide knob will have no effect.

3. Resets Section

Located on the middle-left edge of the module:

- **Reset Pushbuttons (3 Brown Buttons):** Manual momentary switches for resetting channels **C, X, and Y** to zero on demand.
 - **Reset Pulse Inputs (3 Yellow/Black Jacks):** CV/Pulse inputs corresponding to **C, X, and Y**. Applying a gate or pulse resets the respective channel's internal division counters.
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4. Multiply / Divide Section

Located at the bottom right of the panel, this control modifies the clock timing of a target channel (**X** or **Y**) by either dividing or multiplying its incoming rate.

- **Mode Rotary Knob:**
 - **Divisions (/2, /3, /5, /7):** Subdivides the targeted clock signal by the selected factor.
 - **0:** Neutral position / identical to master clock.
 - **Multiplications (x2, x3, x4, x5):** Multiplies the targeted clock frequency, generating faster pulse streams.
 - **X / Y Target Toggle Switch:** Directs the multiplication/division engine to process either Channel **X** or Channel **Y**.
 - **CV in (Black Jack):** Control voltage input to dynamically sweep, in respect to the position of the knob, through division and multiplication factors via external CV sources (such as envelopes, sequencers, or random voltages).
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Suggested Patch Applications

1. Polyrhythmic Clock Hub

1. Set **CLOCK** to a steady tempo.
2. Run the **/2**, **/3**, and **/5** outputs from section **C** into separate envelope generators or function generators driving different voices.
3. Patch a rhythmic sequence CV into the **CV in** of the **Multiply/Divide** section assigned to Channel **X** to generate shifting polyrhythmic patterns.

2. Dynamic Phase Shifting & Swing

1. Send the main clock output from section **C** to your primary sequencer.
2. Route a secondary pulse output through channel **X**.
3. Adjust the **delay** and **length** knobs to introduce micro-timing offsets and groove variations to percussion or trigger sources.

3. Generative Pattern Reset

1. Take an irregular clock division (such as **/7**) from section **Y** and patch it into the **Reset C** input.
 2. Use dynamic CV modulation on the **CV in** of the Master Clock to create constantly evolving, non-repeating sequence lengths.
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Videos :



Warranty

Beginning from the date of purchase a 1-year warranty is guaranteed for this device in case of any manufacturing errors or other functional deficiencies during runtime. The warranty does not apply in case of:

- damage caused by misuse
- mechanical damage arising from careless treatment (dropping, vigorous shaking, mishandling, etc)
- damage caused by liquids penetrating the device
- heat damage caused by overexposure to sunlight or heating
- electric damage caused by improper connecting (wrong power supply/ jacks/ MIDI connections/ voltage problems).

If you have any complaints please contact your dealer or send an e-mail to:
info@mangoest.be