

Moog – Mother 32

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[Moog Mother-32 User Manual \(PDF\)](#)

Moog Mother-32 – Eurorack Cheat Sheet

A semi-modular analog synthesizer & sequencer in 60HP. Includes 32-point patchbay, 100% analog signal path, and patchable control voltage inputs/outputs.

Panel Controls

Knobs: - **VCO FREQUENCY:** Coarse tune oscillator (± 1 octave) - **PULSE WIDTH:** VCO pulse wave duty cycle (2%-98%) - **VCO MOD AMOUNT:** Modulation depth for selected mod source/destination - **LFO RATE:** LFO frequency (0.1Hz – 350Hz normal, 600Hz max via CV) - **MIX:** Blend VCO wave (CCW) vs Noise/EXT AUDIO (CW) - **CUTOFF:** VCF cutoff frequency (20Hz–20kHz) - **RESONANCE:** VCF feedback / self-oscillation (CW > 3 o'clock) - **VCF MOD AMT:** Amount of modulation applied to VCF cutoff - **ATTACK:** Envelope generator attack time (fast←→slow) - **DECAY:** Envelope generator decay time (fast←→slow) - **GLIDE:** Portamento time (smooth note transitions) - **VOLUME:** Final output level

Switches/Toggles: - **VCO WAVE:** Sawtooth or Pulse wave output - **VCO MOD SOURCE:** LFO, EG, or External - **VCO MOD DEST:** Frequency or Pulse Width - **LFO WAVE:** Square or Triangle - **VCF MODE:** Low Pass or High Pass

- **VCF MOD SOURCE:** LFO or EG - **VCF MOD POLARITY:** + or - - **VCA MODE:** EG or ON (drone) - **SUSTAIN:** EG sustain enabled/disabled

Buttons: - 13-note keyboard (C-C) - 8 Step buttons (pattern editing/selection) - LEFT/RIGHT arrows (octaves/pages) - SHIFT - PATTERN (pattern select) - RUN/STOP - HOLD/REST - RESET/ACCENT - REC

Patchbay

Inputs

(all 3.5mm unless noted, all unipolar CVs are 0 to +5V unless indicated)

Label	Function	Range
EXT AUDIO	Audio in (replace noise in mixer)	±5V typical
MIX CV	Mixer crossfade CV	-5V to +5V
VCA CV	VCA level (mod for tremolo, etc.)	EG: 0-+8V / ON: ±5V
VCF CUTOFF	Filter cutoff	-5V to +5V
VCF RES	Filter resonance	-5V to +5V
VCO 1V/ OCT	Main pitch CV input	-5V to +5V
VCO LIN FM	Linear FM input	-5V to +5V
VCO MOD	VCO mod (overrides MOD switch, goes through attenuator)	-5V to +5V
LFO RATE	LFO speed	-5V to +5V

Label	Function	Range
MIX 1	VC MIX input A (default 0V)	–5V to +5V
MIX 2	VC MIX input B (default +5V)	–5V to +5V
VC MIX CTRL	VC mix crossfade	–5V to +5V
MULT IN	Buffer/splitter input	–5V to +5V
TEMPO	Clock/Tempo in (see manual for DIN/clock/CV modes)	–5V to +5V
GATE IN	Envelope trigger (0/+5V, up to +10V tolerated)	0V or +5V
RUN/STOP	Gate: run seq while +5V	0V or +5V/up to +15V
RESET	Gate: resets seq to step 1 while +5V	0V or +5V/up to +15V
HOLD	Gate: repeats current seq step while +5V	0V or +5V/up to +15V

Outputs

Label	Function	Range
VCA OUT	Post-VCA (pre-volume)	±5V
NOISE	White noise	±5V
VCF OUT	Post-filter audio	±5V
VCO SAW	Sawtooth wave	±5V
VCO PULSE	Pulse wave	±5V

Label	Function	Range
LFO SQUARE	LFO square	±5V
LFO TRIANGLE	LFO triangle	±5V
VC MIX OUT	VC mixer blended output	±5V
MULT 1/2	MULT outputs (buffered copy of MULT IN)	±5V
ASSIGN	16 programmable outputs (clock, accent, MIDI CC, random, etc.)	See manual
EG OUT	Envelope (env gen) output	0 to +7.5V
KB OUT	Keyboard/sequencer/MIDI CV out	−5V to +5V
GATE OUT	Keyboard/sequencer/MIDI gate (note ON)	0V or +5V

Performance/Sequencer

- 32-step sequencer (8 banks x 8 patterns)
 - Two input modes: Keyboard (KB) for step record/play, or Step mode for direct editing
 - Pattern editing: notes, rests, ties, gate length, accents, glide, ratchets (1–4 per step), swing
 - Save/recall 64 patterns (Hold SHIFT+RUN/STOP, then specify bank/location)
 - MIDI IN (5-pin DIN): Notes, clock, CC, program change, etc.
 - **Preset Functions:** Reset, restore factory patch, transpose, live accent/mute/ratchet, rotate patterns
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Typical Patch Examples

- **Basic Patch:** VCO → VCF → VCA → OUT (all internally routed)
 - **Blend VCO/Noise:** MIX knob
 - **Modulate PWM:** LFO to VCO MOD, switch to Pulse Width
 - **Filter FM:** VCO to VCF CUTOFF input
 - **Audio-rate modulation:** LFO or VCO to VCO LIN FM input
 - **Process external audio:** EXT AUDIO IN, MIX knob CW
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Voltage & Eurorack Details

- Power: +12V DC, 230mA max ([Red Stripe] -12V, not used)
 - Input CVs typically -5V to +5V (unless stated)
 - Audio IO: ±5V = Euro standard
 - Patch cables: 3.5mm TS
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Manual Reference: [Moog Mother-32 User Manual PDF](#)

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