

# Moog – Subharmonicon

---

- [Manual PDF](#)
- 

[Moog Subharmonicon User Manual PDF](#)

## Moog Subharmonicon Eurorack Cheat Sheet

---

**Type:** Semi-modular analog polyrhythmic synthesizer (60HP Eurorack compatible)

**Main Features:**

- 2 VCOs (each with 2 subharmonics, 1-16 integer division undertones)
  - 4 Rhythm Generators (integer tempo divisions, create polyrhythms)
  - 2 x 4-step Analog Sequencers
  - Moog 4-pole Ladder Filter
  - Dual Envelope Generators (Attack/Decay, for VCF & VCA)
  - 32-point Patchbay (17 In, 15 Out)
- 

## Quickstart

---

1. **Power:** +12V only, 360mA max (no -12V). See manual for safe installation.
2. **Audio Out:** 1/4" on the back, or **VCA OUT** on patchbay (Eurorack level, 10Vpp).
3. **Basic Flow:** Oscillators > Mixer > Filter > VCA > Audio Out.
4. **Rhythm Generators:** Divide master tempo by 1-16 (per generator), assign to sequencers for polyrhythms.
5. **Sequencers:** 4 steps per, pitch (and optionally integer division for subosc), assign to VCO, Sub 1, and/or Sub 2.

6. **Patchbay:** Use to break internal routing and integrate with external CV/midi/eurorack.
- 

## Panel Controls

---

### Knobs

- **VCO FREQ (1 & 2):** Oscillator frequency, 4 octave range (Middle C to C6).
- **SUB FREQ (x4):** Division from 1-16 (clockwise = unison, counter = /16).
- **Waveform Select (toggle, x2):** Square / PWM + Sub Saw / Saw.
- **Mixer Levels:** VCO 1, SUB 1, SUB 2, VCO 2, SUB 1, SUB 2.
- **CUTOFF:** VCF Cutoff, 20Hz–20kHz.
- **RESONANCE:** Self-oscillate at max.
- **VOLUME:** Main output level.
- **VCF EG:** ATTACK (1ms–10s), DECAY (5ms–10s), AMT (bi-directional).
- **VCA EG:** ATTACK (1ms–10s), DECAY (5ms–10s).
- **TEMPO:** .333Hz–50Hz (20–3000 BPM).

### Buttons

- **SEQ n ASSIGN:** Assign step CV to VCO, Sub 1, and/or Sub 2.
- **Quantize:** 12-ET, 8-ET, 12-JI, 8-JI, OFF.
- **SEQ OCT:**  $\pm 1$ ,  $\pm 2$ ,  $\pm 5$  step range.
- **PLAY:** Sequencers on/off.
- **RESET:** Resets sequencers/rhythm.
- **NEXT:** Advances step.
- **EG:** On/Off/Held (Hold to tune with EGs open).
- **TRIGGER:** Manual envelope retrigger.

### Rhythm Gen Section

- **RHYTHM (x4):** Integer clock divider [1–16].
- **SEQ 1 & SEQ 2 assign (x4):** Assign rhythm output to sequencers.

---

## Patchbay Reference

---

### Inputs (Normal text):

Jack	Function	Range			
VCO 1 IN	VCO 1 1V/Oct pitch CV	-5V to +5V		VCO 1 SUB IN	CV
	choose Sub 1/2 divisor	-5V to +5V		VCO 1 PWM IN	PWM Mod for VCO
	1 & subs	-5V to +5V		VCA IN	VCA CV (volume)
				VCO 2 IN	
	VCO 2 1V/Oct pitch CV	-5V to +5V		VCO 2 SUB IN	CV choose Sub 1/2
					divisor
				VCO 2 PWM IN	PWM Mod for VCO 2 & subs
					-5V to +5V
	CUTOFF IN	Filter cutoff modulation	-5V to +5V	PLAY IN	Play/
					stop gate (rising/falling)
				RESET IN	Sequencer/rhythm
					reset/trig/hold
					0V to +10V
	TRIGGER IN	EG trig input	0V to +10V		
	RHYTHM 1-4 IN	Integer value, Rhythm (centered)	-5V to +5V	MIDI IN	
	Mini-jack, Type A	—		CLOCK IN	External clock override
					0V to +10V

### Outputs (Reverse text):

Jack	Function	Range			
VCA OUT	Main Eurorack level audio out	10Vpp		VCO 1 OUT	VCO 1
					audio/CV
					10Vpp
	VCO 1 SUB 1/2	Sub oscillator outputs	10Vpp		
				VCO 2 OUT	VCO 2 audio/CV
					10Vpp
	VCO 2 SUB 1/2	Sub oscillator outputs	10Vpp		
					10Vpp
	SEQ 1 OUT	Seq 1 CV out (follows quantize)	-5V to +5V		
				SEQ 1 CLK OUT	Seq 1 clock pulse
					0V to +5V
				SEQ 2 OUT	Seq 2 CV out
					(follows quantize)
					-5V to +5V
				SEQ 2 CLK OUT	Seq 2 clock pulse
					0V to +5V
				CLOCK OUT	Master clock (all sources)
					0V to +10V
				TRIGGER	
				OUT	EG trigger pulse
					0V to +5V
				VCA EG OUT	VCA envelope CV
					0V to +8V
				VCF EG OUT	VCF envelope CV
					0V to +8V

---

## Voltage Ranges

---

- **Pitch CV inputs (VCO 1/2 IN):** 1V/oct, -5V to +5V
- **PWM, Subharmonic, Rhythm inputs:** -5V to +5V
- **CUTOFF, VCA CV IN:** CUTOFF: -5V to +5V; VCA: 0V to +8V
- **Gate/Trigger/Reset:** 0V (low), +10V (high, trigger/gate)
- **Audio Outputs:** 10V peak-to-peak (Eurorack level)
- **Envelope Outputs (VCA/VCF EG):** 0V to +8V

---

## MIDI & Other Notes

---

- MIDI input via included Type A minijack adapter: clock, note, CC messages (see manual for full CC list).
  - Supports just intonation and equal temperament quantization.
  - All functions can be decoupled from quantization/seq octave settings for advanced patching.
  - All internal routing can be overridden with patch cables.
- 

## Links

---

- [Moog Subharmonicon Manual PDF](#)
- [Generated With Eurorack Processor](#)