Sound Machines — Modulor 114

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## Soundmachines MODULÖR114 Eurorack Cheat Sheet

**Official Manual PDF:**
[MODULÖR114 Analog Modular Synthesizer Owner's Manual](https://www.

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### Quick Panel Overview

- **Type:** Self-contained full voice modular synthesizer, 84hp, Eu
- **Power:** 5V 300mA via USB (type B), or +12Vdc (Eurorack 250mA).
- **Signal Level Standard:** Control and audio signals ~5V amplitud
- **Patching:** Normalled "SYNTH!" mode for instant play, or fully

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### Module Blocks: Controls, Jacks & Voltage Reference

#### MIDI SECTION

- **BUTTONS:**
  - SYNTH! — Set/clear internal normalled patch.
  - USB Host/Device switch — Connects to PC/MAC or MIDI USB control
- **LEDS:** PWR, STAT (Blue=Host, Green=Device)
- **INPUTS & OUTPUTS:**
  - MIDI USB in/out (type B)
  - MIDI to CV outputs:
    - PITCH CV OUT: 0-5V, 1V/octave (C1—C6 = 5 octaves)
    - GATE OUT: 0V (off), 5V (on, responds to MIDI)
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- MOD/Q OUT: 0-5V (modwheel or quantizer)
    - 16th CLOCK OUT: 0-5V, MIDI clock divided by 6, 16th note timi
    - CV#30, CV#31: 0-5V (MIDI CC#30, 31)
    - CV#32: 0-5V (attenuator via MIDI CC#32)
    - CV#33: 0-5V (slew via MIDI CC#33)

VCO1 (Oscillator 1)

- **KNOBS:**
  - TUNE (coarse), FINE (fine)
  - PWM (Pulse Width Manual)
- **INPUTS:**
  - V/OCT (pitch, 1V/oct, 0-5V)
  - CV (modulation, ~0-5V)
  - SYNC (oscillator sync in, 0-5V pulse)
  - PWM IN (0-5V)
- **OUTPUTS:**
  - SAW, TRI, SQU (audio outs, ~±5V, DC-coupled)
  - SUB (one octave below)
  - MIDI (hardwired MIDI-controlled DCO square output)
  - NOISE (White, Pink; unfiltered, ±5V)

Freq Range: ~30Hz base, tracks 6-7 octaves, sub out as low as 1

VCO2 / LFO1 (Oscillator 2 / LFO)

- **SWITCH:** VCO/LFO (lowers freq ~2 octaves)
- **KNOBS:** TUNE, FINE
- **INPUTS:**
  - V/OCT (pitch, 1V/oct, 0-5V)
- **OUTPUTS:**
  - SAW, TRI (audio outs)
LFO Range: as low as 0.4Hz

ENVELOPE (ADSR)

- **KNOBS:** ATTACK, DECAY, SUSTAIN, RELEASE
- **TOGGLES:**
  - LONG (longer timing), LOOP (envelope cycles with gate held)
- **INPUTS:**
  - GATE (0/5V)
- **OUTPUTS:**
  - ENV OUT (0-5V)
  - GATE OUT (for chaining/clocking)

VCF (Filter)

- **TYPE:** 12dB/OCT Lowpass & Bandpass (OTA based)
- **KNOBS:** FREQ, RESONANCE
- **INPUTS:**
  - IN (signal in)
  - CV (cutoff mod, 0-5V)
- **OUTPUTS:**
  - LP (low pass), BP (band pass)
- Self-oscillates at high resonance (>5V swing)

VCA (Amplifier)

- **TYPE:** Linear, AC-coupled (audio only!)
- **KNOBS:** INITIAL (offset/level)
- **INPUTS:**
  - IN1, IN2 (audio in)
  - CV (amplitude mod, 0-5V)
- **OUTPUT:**

- OUT (audio out, soft saturation at high levels)

MIXERS

- **MIX1:** 2 input DC-coupled mixer w/ attenuation, sum for audio/
- **MIX2:** 3 input DC-coupled, no attenuation.
- **MIX3:** 3 input w/ preset 1/3 attenuation per input.

ATTENUATORS

- **ATT1, ATT2, ATT3:** Passive, for any audio/CV signal (0-5V)

MANUAL CONTROLS

- **GEN1, GEN2:** Manual CV sources, 0-5V via knob.

ADDSUB (Adder/Subtractor)

- **ADDSUB 1/2:** IN+, IN-, OUT (OUT = IN+ minus IN-, saturated to

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RIBBON CONTROLLER

- **TOUCH STRIP:** 10cm, position = 0-5V
- **OUTPUTS:**
  - CV (live voltage), CV HOLD (sampled, held when finger released)
  - GATE OUT (0/5V on touch)

S&H (Sample & Hold) / T&H

- **INPUTS:** IN (CV), SAMPLE (clock/gate in), TRACK (T&H mode)
- **OUTPUT:** OUT (held CV)
- **VOLTAGE:** 0-5V

SLEW

- **KNOB:** Time constant (lag up to 1s)
- **INPUT:** IN (CV)
- **OUTPUT:** OUT (smoothed CV, 0-5V)

LFO2

- **OUTPUTS:** TRI, SQU (0.3-150Hz, 0-5V)

QUANTIZER

- **INPUT:** Q IN (CV 0-4V for 4 octaves)
- **OUTPUT:** MOD/Q (quantized pitch; 0-5V)

MULTI (Multiples)

- **MULTI1, MULTI2:** Passive, 1-to-3 multiples for distributing so

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FX UNIT

- **KNOBS:** DRY/WET, PARAM1, PARAM2
- **BUTTON:** TAP TEMPO
- **INPUTS:** CV for params, clock in (FX sync/select)
- **OUTPUT:** Audio, with clip LED
- **TYPES:** Delay, reverb, chorus etc. with CV modulation

DIGITAL MODULES

- **CLKDIV:** Clock divider with 4 outputs & reset in (0-5V)
- **LOGIC GATES:** AND, NAND, XOR, NOT for gates (0-5V logic)
- **BUTTONS:** Two manual trigger/gate pushbuttons
- **VOLTAGE:** All digital logic/gate IOs are 0V (low), 5V (high).

Typical Signal Flow (Default SYNTH! Mode)

VCO1 (SAW) + VCO2 (SAW) → MIX1 → VCF (LP) → VCA → FX → OUTPUT
VCOs, ENV, filter, and VCA pre-patched for immediate play.

Everything can be repatched manually for full modular exploration.

Key Voltage Ranges

- **CV Pitch/Mod/ENV:** 0-5V
- **Gate/Trigger:** 0V low, 5V high
- **Audio:** Approx ±5V
- **LFO/S&H/GEN:** 0-5V

Installation Notes

- Can be used standalone or installed as 84HP in a Eurorack case (2
- Power via USB, 12V jack, or Eurorack ribbon (16-pin, -12V goes to

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Further Reference

- [**Manual PDF**](https://www.sound-machines.it/download/MODULOR11
- [**Generated With Eurorack Processor**](https://github.com/nstark