Schlappi Engineering — Angle Grinder

- Manual PDF

PDF Manual

Schipp Engineering ANGLE GRINDER Cheat Sheet

A powerful eurorack quad oscillator / filter / waveshaper.

Quickstart Modes

Mode	How To
Quad Oscillator (SPIN)	GRIND→SPIN full CCW, DAMPING full CCW, Input unpatched, set sliders/GRIND to taste
Waveshaping (GRIND)	Patch signal to IN, monitor GRIND OUT, blend with sliders/GRIND CV, try SPIN oscillating or as LFO
State Variable Filter	Patch signal to IN, turn up GRIND→SPIN (CW), DAMPING to taste, SPIN outputs become LP/BP/HP/Inv BP

Inputs & Outputs

Inputs

Jack	Function	Voltage Range
IN	Audio/CV input to GRIND section	Typical Eurorack audio/CV levels
INJECT	Direct input to SPIN core (bypasses GRIND), header-selectable AC/DC coupling	Audio/CV, AC default, spikes for soft sync in AC mode
V/OCT	Exponential 1V/oct for SPIN pitch	0-5V (tracks 4+ octaves)
FM1	FM input for SPIN (linear/ exponential selectable by rear jumper)	?
FM2	Additional exponential FM input for SPIN	?
GRIND CV 1-4	CV over GRIND VCA per stage (added to corresponding slider)	0–5V unipolar

Outputs

Jack	Function	Voltage Range
GRIND OUT	Output of GRIND waveshaping/ mixing section	Up to ±11V (22Vpp, not limited)
SPIN (0°, 90°, 180°, 270°)	Sine outputs/quadrature when oscillating, filter responses when filtering	±2.5V (5Vpp) for sines, up to ±11V when filtering

Jack	Function	Voltage Range
SPIN LP, BP, HP, Inv BP	Same four jacks, but named for filter responses when not oscillating	±11V (22Vpp, not limited)

Controls

Knobs

Name	Function
SPIN	Coarse tuning (frequency)
FINE	Fine tuning (frequency)
DAMPING	Counteracts SPIN oscillation for filter mode
GRIND→SPIN	Feedback from GRIND output to SPIN section (controls filter drive / disables osc)
GRIND IN	Mix amount of internal (or external) signal to GRIND processing

Sliders

Name	Function
GRIND SLIDERS (1–4)	VCAs for each comparator phase; blends corresponding SPIN output into GRIND. Summed with associated GRIND CV input (0–5V)

Other Switches/Headers

Name	Function	Location
RANGE	Oscillator range: LOW (0.3–600Hz) / HIGH (10Hz–20kHz+)	Panel toggle
FM1 EXP/ LIN	Selects FM1 mode (jumper on module rear)	Rear header
INJECT AC/DC	Selects AC or DC coupling for INJECT input	Rear header (AC default)

Operating Notes

- **SPIN** outputs phase-aligned sines when oscillating, or SVF responses when acting as filter.
- **GRIND** outputs highly variable, complex, or distorted waveforms--morphable by sliders/CV and input/CV mixing.
- **GRIND→SPIN** CW: Strong nonlinear feedback, disables self-oscillation, module acts as a filter.
- **Inject jack** can hard-reset oscillator for sync (AC mode for spikes).
- **1V/oct tracking** is good for 4+ octaves at V/OCT. Ensure FM1 is zeroed if unpatched for precise tracking (FM1 is normalled to GRIND OUT).
- Max output from some outputs can reach ±11V (22Vpp)--ensure downstream circuitry tolerates this.

Patch Ideas

- **Quad LFO**: LOW range, patch four SPIN outs to CV destinations for quad panning or modulation.
- **Supersaw**: Feed triangle into IN, GRIND OUT gives thick, animated wave.

- **Metallic Drones**: Patch audio rate to IN, use as filter/waveshaper at high DAMPING and GRIND→SPIN.
- **Stereo FX**: Pan/mix 0°/180° or 90°/270° outputs for spatial effects.
- **Soft Sync**: Use INJECT (AC) with another oscillator to soft-sync Angle Grinder.

Power & Specs

- **18HP**
- +12V 81mA / -12V 78mA
