Schlappi Engineering — 100 Grit

- Manual PDF

Schlappi Engineering 100 Grit Manual (PDF)
(Manual also available via Schlappi Engineering website)

Schlappi Engineering 100 Grit Cheat Sheet

Module Overview

- Analog filter-based distortion/VCA with touch points for chaotic interaction.
- Based on a transistor ladder low-pass filter, OTA VCA, and distortion circuit.
- 8 Touch Points for “circuit bending”-like performance.

Panel Controls & Functions

Knobs

- **IN 1 / IN 2**: Audio input gain for each input.
- **FREQUENCY (large center knob)**: Filter cutoff frequency.
- **FM 1 / FM 2 (with CV pots under each)**: Control cutoff via external CV.
- **RES**: Filter resonance.
- **RES CV (with CV pot under RES)**: External CV to resonance.
- **GAIN**: Output/VCA gain and distortion amount.

- **GAIN CV (with CV pot under GAIN)**: External CV to gain stage.

Switches

- **Gain x100**: Massive distortion/feedback switch.

Input, Output, & Touch Point Reference

Audio Inputs

Jack	Voltage Range	Notes
IN 1	±12V (24Vpp)	Main audio in (mixes to filter).
IN 2	±12V (24Vpp)	Second audio in (mixes to filter).

CV Inputs

Jack	Voltage Range	Function	Normalling/CV Action
FM 1	±12V	Filter cutoff CV (sums w/ FM 2).	Norm: DIST (distortion output FM).
FM 2	±12V	Filter cutoff CV (V/Oct okay for tracking).	-
RES CV	±12V	Resonance CV.	Norm: DIST (audio-rate resonance mod).
GAIN CV	±12V	VCA gain and distortion depth.	Norm: POLE 2 (second filter pole out FM).

- *Unity gain at 5V for GAIN and RES CV. Higher voltage = more gain.*

Audio Outputs

Jack	Voltage Range	Source
OUT	up to ±11V	Post-filter, pre-distortion (VCA/clean).
DIST	~±6V	Distortion circuit output.

Touch Points

- **Eight brass balls** (shown in touch point map).
- Each is a direct circuit node for “patching” with fingers, cables, clips, or conductive objects.
- Used for chaotic control and feedback.

Touch Point Functions (Clockwise from top left)

Left Set: - DIST 2 OUT – Second distortion circuit out (audio). - GAIN CV – VCA gain CV node. - DIST 2 AMP PIN – Dist 2 amp core (capactive/ feedback). - RES CV – Resonance CV node.

Right Set: - DIST 1 AMP PIN – Dist 1 amp core. - FREQ CV – Filter cutoff CV node. - DIST OUT – Main distortion out. - GAIN CV – Same as left.

Headers (Jumpers)

- **J9: Input to Resonance** – ON by default. Removes “bass drop” at high resonance. Remove for classic, whistling, self-oscillation style resonance.
- **J10: Output Source** – Default right two pins (“VCA” output, OUT is post-VCA). Move to left pins for filter direct output.

Calibration

- **RV3: Resonance Amplitude** – Sets self-oscillation threshold.

- **RV4/RV8: Symmetry** – Factory adjusted; do not touch.

Typical Patch Setups

VCF/VCA

- Audio In via IN 1, monitor OUT.
- GAIN above 75%: heavy distortion.
- ADD Env to GAIN CV for VCA.
- V/Oct to FM 2 = pitch tracking.

Distortion

- Monitor DIST output.
- GAIN and GAIN CV = distortion level.
- Use RES CV for unique feedback sounds.

Noise Box

- No input; monitor DIST out.
- All knobs ~25-60% up.
- Play touch points for chaotic noise.

Extra Notes

- **All CV/audio inputs:** Protected to ±12V (rails).
- **Touch Points:** Safe to bridge/patch, always current-limited.

Voltage Reference

- **Nominal input signals:** ±5V (10Vpp), but up to ±12V is fine.
- **OUT:** up to ±11V, rails possible with hot input/gain.
- **DIST:** Up to ~±6V (clipped/limited by circuit).

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