

Based on Electric Druid design
<https://electricdruid.net/multimode-filters-part-2-pole-mixing-filters/>
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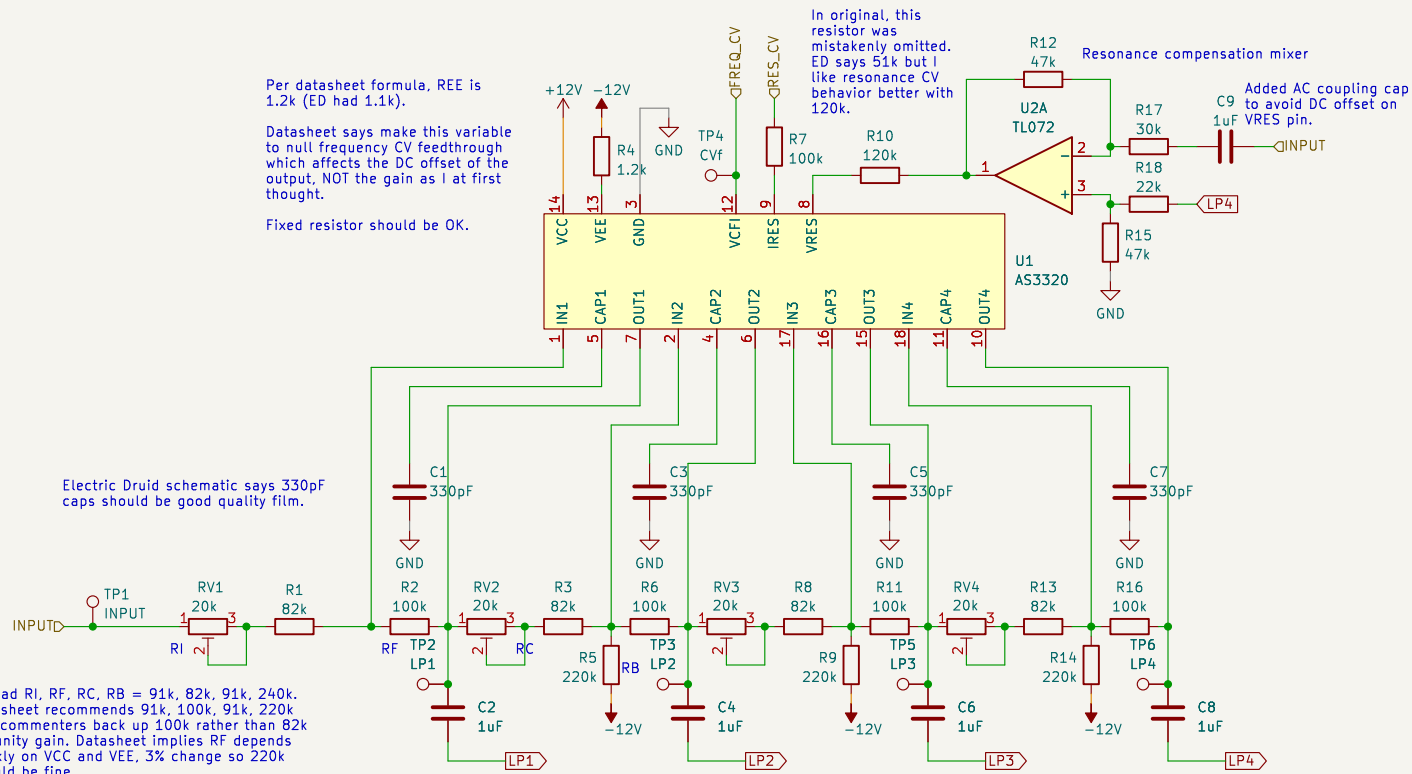
mods by Rich Holmes / Analog Output

Sheet: /
File: pmf.kicad_sch

Title: Pole mixing filter

Size: USLetter | Date: 2022-03-29
KiCad E.D.A. | kicad-cli 7.0.0-da2b9df05c~171-ubuntu22.04.1

Rev:
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Per datasheet formula, REE is 1.2k (ED had 1.1k).
 Datasheet says make this variable to null frequency CV feedthrough which affects the DC offset of the output, NOT the gain as I at first thought.
 Fixed resistor should be OK.

In original, this resistor was mistakenly omitted. ED says 51k but I like resonance CV behavior better with 120k.

Resonance compensation mixer

Added AC coupling cap to avoid DC offset on VRES pin.

Electric Druid schematic says 330pF caps should be good quality film.

ED had RI, RF, RC, RB = 91k, 82k, 91k, 240k. Datasheet recommends 91k, 100k, 91k, 220k and commenters back up 100k rather than 82k for unity gain. Datasheet implies RF depends weakly on VCC and VEE, 3% change so 220k should be fine.

With DC input, expect a change at INPUT to give an equal magnitude change at test points LP1, LP2, LP3, LP4. (There will be an offset.) Any inequality will not be canceled out in HP filters, leading to incorrect low frequency behavior.

On breadboard, different (~2%) gains are seen on different stages. Also gain seems to depend on signal amplitude?? Use trimmers for RI and RC.

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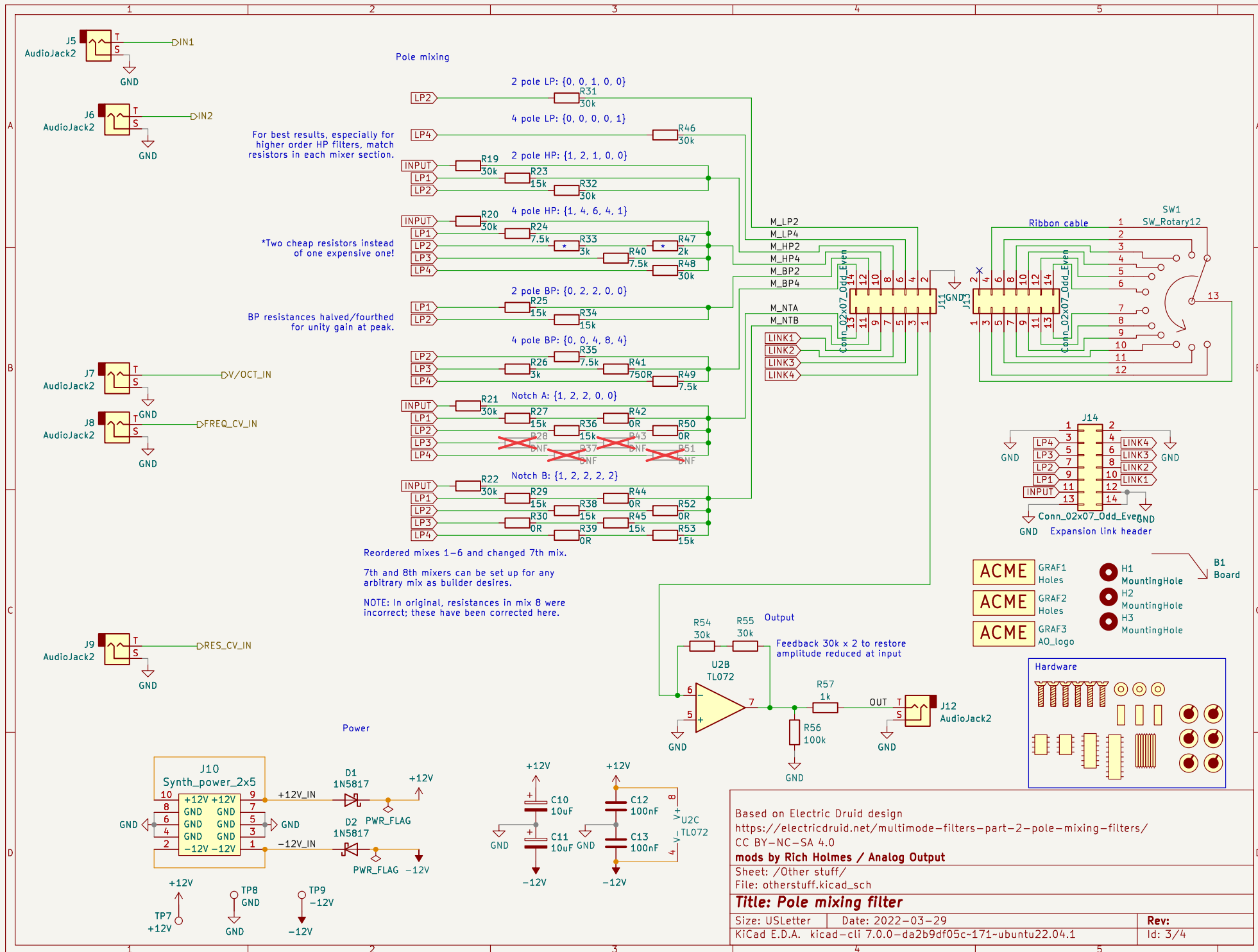
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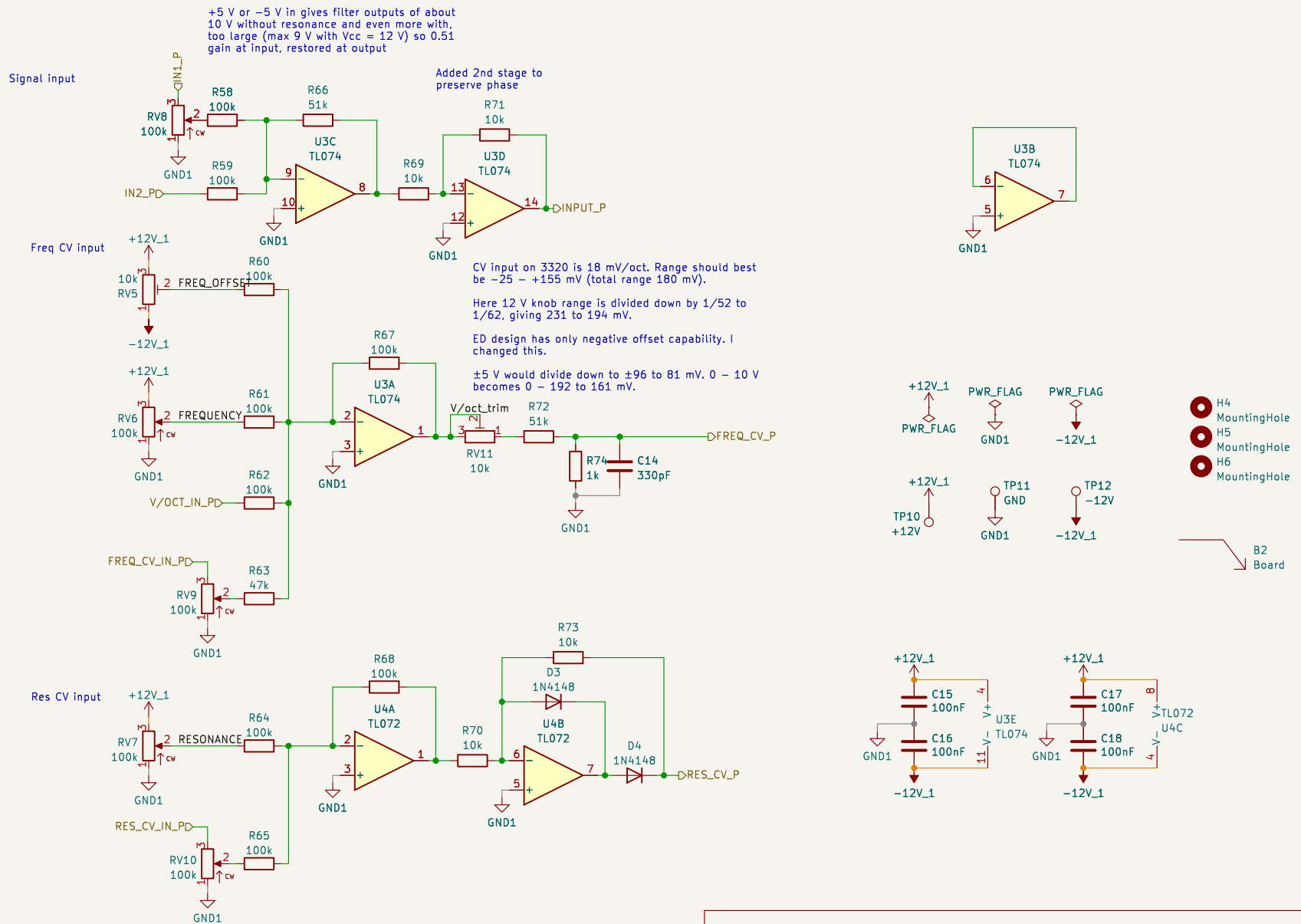
Sheet: /Filter core/
 File: core.kicad_sch

Title: Pole mixing filter

Size: USLetter Date: 2022-03-29
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Sheet: /Pots board/
 File: pots.kicad_sch

Title: Pole mixing filter

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