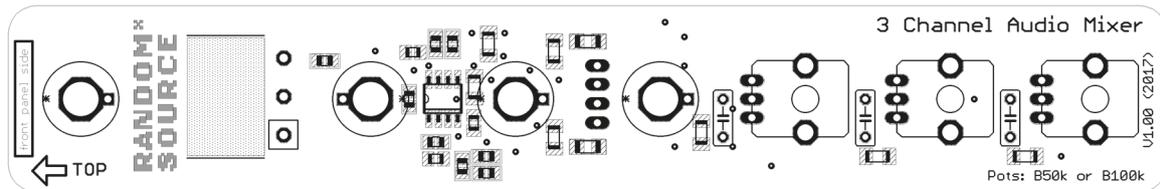


Audio Mixer

The Audio Mixer is an active design using an **NJR MUSES** operational amplifier. It offers 3 input channels, where the phase of the first input can be inverted for phase cancellation effects.



The Audio Mixer can be built as **either AC-Coupled** (for pure audio) **or DC-coupled** (for audio and CV):

- AC-coupled:** there is a 100nF C0G (SMT) capacitor at each input. In addition, the pcb provides for a through-hole film capacitor (next to each input potentiometer, 5mm lead space) - this capacitor increases the 100n, so if you install 470nF you have a total of 570nF. The total value determines the lowest frequencies that pass (i.e. are not removed as DC). To really bring this down, you can use a bipolar (BP / NP) electrolytic capacitor for audio use, e.g. 22uF or 47uF from the Nichicon Muse series - please note that if you want to use an electrolytic, the type must be BP or NP - do not use a normal electrolytic cap! You may have to bend the legs of electrolytic caps a bit to fit into the 5mm footprint.
Black jacks are recommended for the pure audio version, indicating the bipolar inputs.
- DC-coupled:** to avoid removing any DC offset, so that the mixer can be used for (static) control voltages, too, you have to insert a link (wire) instead of a capacitor at each input.
White jacks are recommended in this case, to indicate that the inout allows unipolar (CV) signals.

Please note:

- Orientation of the pcb: the SMT parts are towards the front panel.
- All SMT pcbs are highly sensitive to static electricity - make sure you use adequate antistatic precaution.

Bill of Materials (Audio-Mixer)

Capacitors

3	470nF or 1uF or 10uF or more	or	for AC-coupled version see text above	Film (Polyester) or BP electrolytic for audio use (Nichicon Muse)
3	links / wires		for DC-coupled version - see text above	

Misc

1	MTA-100	PWR	MTA-100 power connector
4	Banana Jacks	black (bipolar) for AC-version or white (unipolar) for DC-version	Emerson-Johnson, Thonk or Mouser: 530-108-0903-1 (black) 530-108-0901-1 (white)
1	SPDT switch	(ON - NONE - ON)	NKK M2012SS1W01 (no cap) or NKK M2012SS1W01-BB (white cap)
3	Potionmeter 100K or 50K	linear (B100K or B50K)	Alpha 9mm vertical pcb mount available from Thonk, Tayda

Building

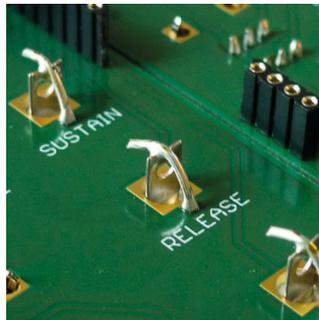
This is simply a suggestion - you might find a different workflow more practical:

1. Mount the Banana jacks and the switch onto the front panel.
2. Mount the 3 pots onto the component pcb. Pots should sit on the printed side - this side faces the front panel. Don't solder them in yet.
3. Solder either the 3 capacitors onto the pcb (for AC-version) or install 3 links (for DC-version). Caps can sit on either side - check space when using electrolytics. Solder the power-connector, too.
4. Carefully mount pcb (with the pots inserted) onto the front panel - you may have to wiggle a bit to get the pots through. Make sure the threads of the pots go through.
5. Fasten the pots to the front panel using washers and nuts.
6. Once everything is nicely in place, solder the pots onto the pcb (while the front panel is attached).

7. Solder short pieces of (stiff) wire - about 10mm long - from the pads for the switch to the solder lugs of the switch. These wires should only go through the pcb as much as required to solder them in (i.e. should not stick out much on the other side):



8. Solder the banana jacks in. You can either solder them directly to the surrounding vias (rings around) or - which makes removing easier should you ever need to do that - by inserting a stiff (bare) wire into the little hole (via) and solder that wire to the top of the banana jack:



9. Connect a power cord supplying +12V, GND, GND, -12V to the MTA-header on the main board and you should be ready to go :-)

Calibration

Module does not require any calibration.

(Version 16 Feb 2015)

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