

nonlinearcircuits

LDRama build & BOM

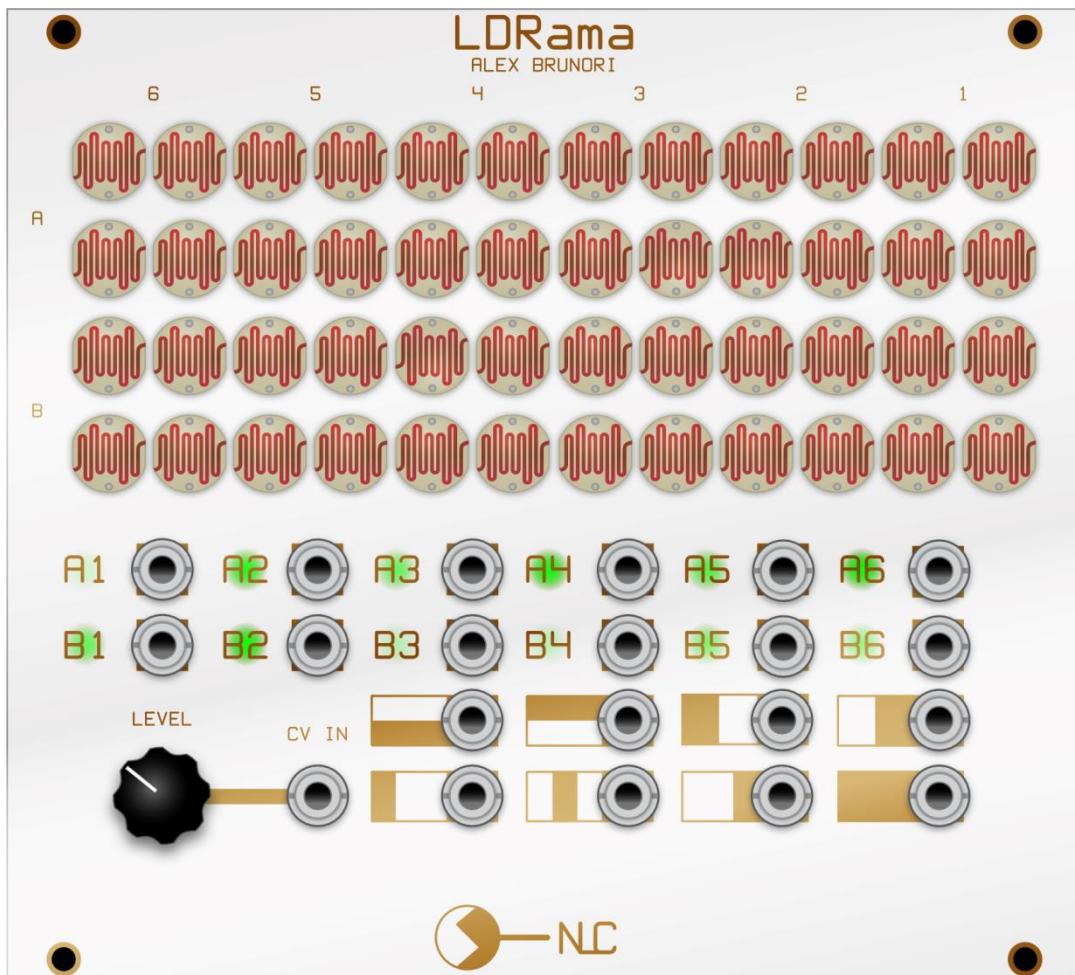
This module was designed based upon suggestions from Alex Brunori. The idea is to play a video (or skype or whatever is the newest thing) fullscreen on your phone and place the phone on the LDR array. The module will generate CVs in response to what is happening in your video.

It is designed to suit a typical 5x2 inch screen, larger screens work fine tho some info around the edges is lost. Ideally the module will sit flat, if on an angle patch-cords into the top row of jacks hold it up very nicely.

There is a pot to set the range, generally tweak this so the LEDs are turning on and off but are not at full brightness all of the time. You can also patch in an external signal, such as a CV from a sequencer, and process this thru the LDRs.

The outputs are taken from each set of 4 LDRs, the top half of the screen, bottom half, left half, right half, left third, centre third, right third and everything.

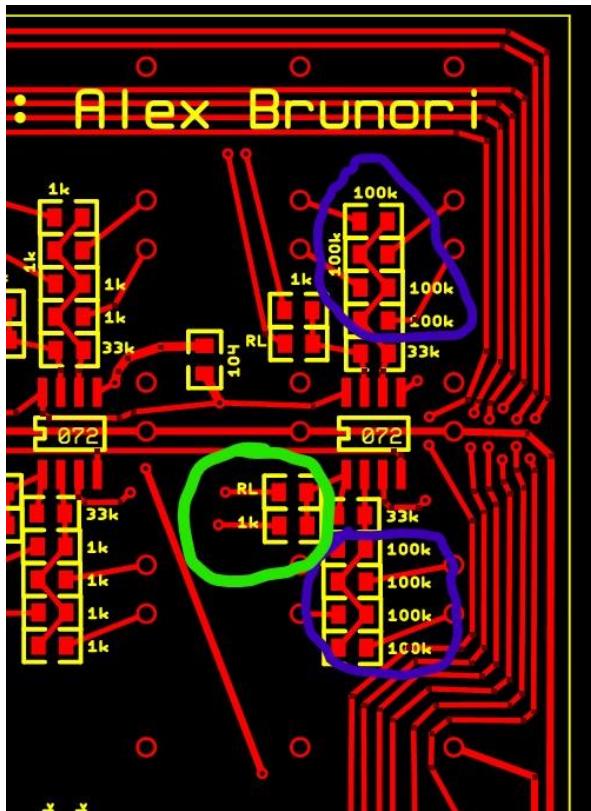
The concept for this module is not entirely novel, the Journal of Experimental Music suggested gluing LDRs to tv screens back in the 70s.



Printing error on PCB

These 8 resistors marked 100k should all be 1k

The RL and 1k should be swapped



Building notes

Test your LEDs before installing and double check they are installed the correct way. Once this module is assembled it is a lot of work to take it apart to change a faulty LED.

After filling the PCB, install the LEDs, jacks and pot then attach to panel and solder parts to the PCB.

I use clear lens, ultra-bright green LEDs and mount them flush to the PCB, it is easier than trying to line them up to the windows, but do whatever suits your LEDs and patience levels.

Clip 5mm or so off one lead of each LDR, this makes it easier to install them. Feed the LDRs thru the panel and into the appropriate holes on the PCB. Do not solder them to the panel. The LDR leads should go in vertically, not horizontally. Start in the middle of the bottom row as it is easier to see the leads when peering desperately into the narrow gap between the PCB and the panel, thinking about all sorts of fruity words to describe my design skills (or lack of).

Once all the LDRs are in place, cover the LDR array with a flat surface (A magazine perhaps? I use a folded pillow of bubble wrap) and turn it over using the magazine/pillow to hold the LDRs in place. Solder one lead of each LDR. Then press the face of each LDR gently with a finger, reheat the lead and push the LDR in so it sits flush on the panel,

repeat for the remaining 35 LDRs. It is not hard just a bit tedious, but well worth the effort to get it looking good.

BOM – The Tayda & Mouser part numbers are given as examples

VALUE	QUANTITY	DETAILS
100nF or 104	6	0805 Tayda: A-3511
10uF	2	0805 25V or higher voltage rating Mouser:963-TMK212BBJ106MG-T
RL	12	Resistors to suit panel LEDs, see notes.
1k	68	0805
22k	6	0805
33k	12	0805
47k	3	0805
100k	54	0805
TL072 or TL082	15	Soic Tayda: A-1139
Eurorack 10 pin power connector	1	Tayda: A-198 cut to size
S1JL, Schottky, power rectifier or 10R, optional - for reverse voltage protection...or not	2	SMD SEE NOTES #1. dot on PCB indicates CATHODE (stripe on component). My current fave is BAT54GWX, Mouser:841-BAT54GWX
3.5MM SOCKET Kobiconn style	21	Tayda: A-865 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
100k pot	1	Tayda: A-1848 or similar
LED (3mm or 5mm)	12	VERY bright ones!
GL12528 LDR	48	Aliexpress seems cheapest for a bag of 50

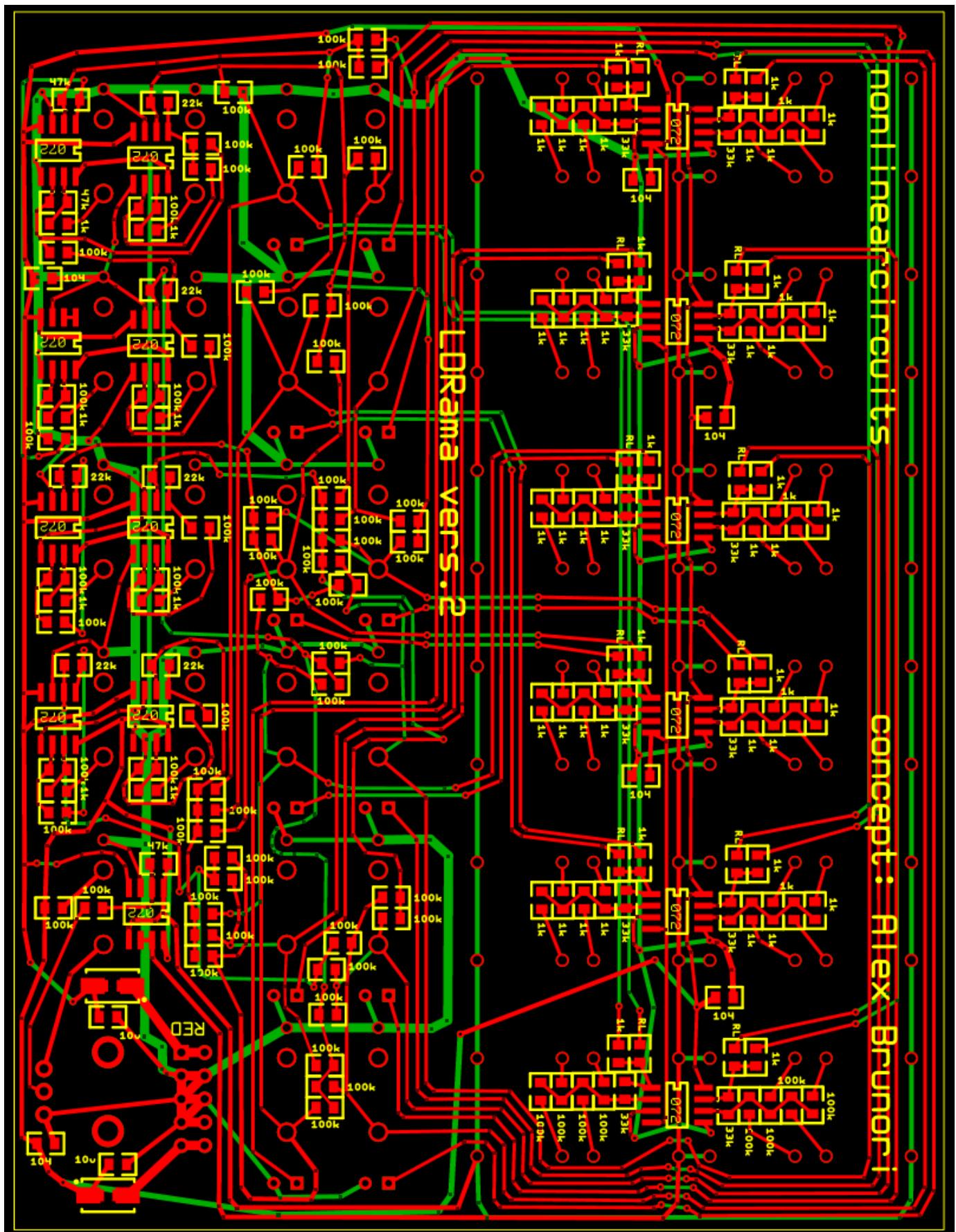
Additional notes:

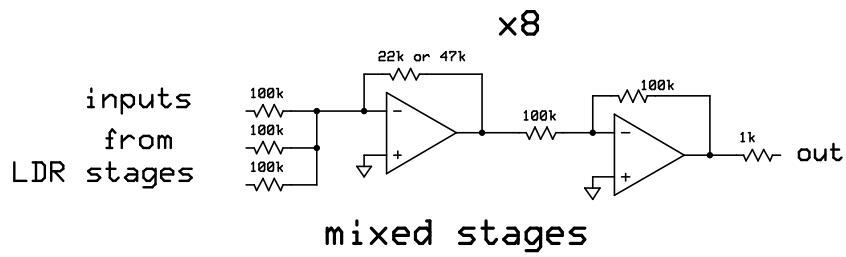
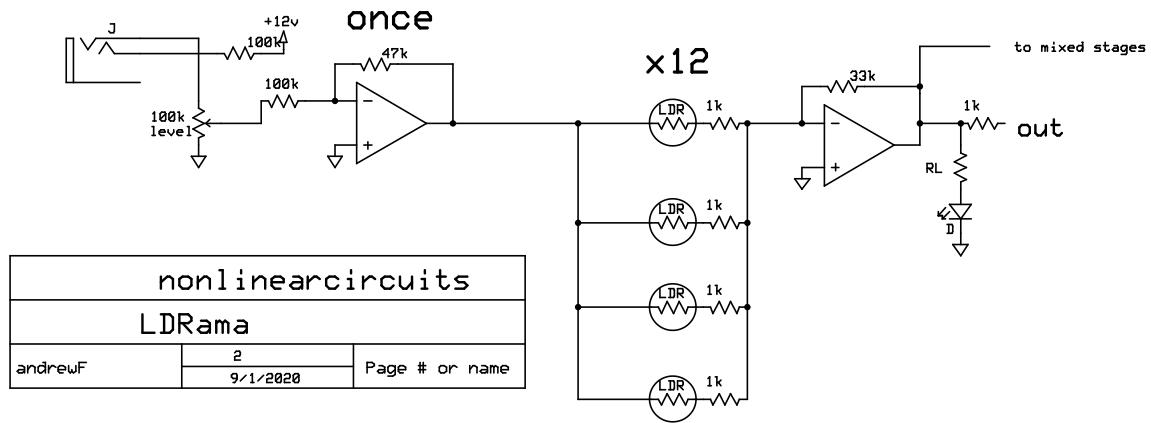
1. Schottky (best option) or standard power rectifier diode 50-600v 1A or more, or use a resettable fuse or just a 10R. Examples: BAT54GWX, PMEG2005EGWX, AEC-Q101, 20v, SOD-123, PMEG2005EH DIODE, SCHOTTKY, 0.5A, 20V, 1N400x or S1JL or similar.

2. The chips, resistors, caps are cheapest from Tayda. Schottky diodes, CMOS & 1uF, 10uF 25V 0805 caps from Mouser/E14/Farnell/etc.

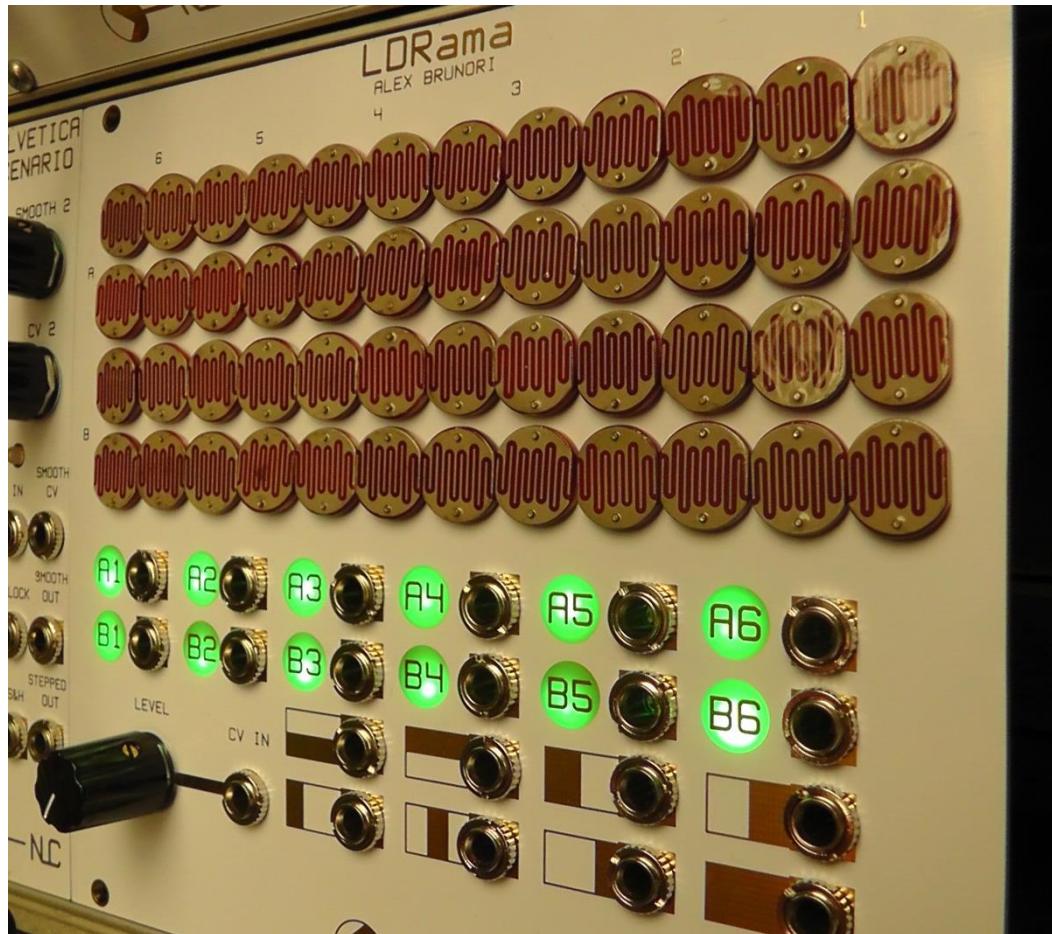
3. Join the Nonlinearcircuits Builders Guild on FB:
<https://www.facebook.com/groups/174583056349286/> and ask questions there if you have any. If you prefer not to FB then email is fine.

4. The LEDs need to be very bright to shine thru the PCB panel. I used clear lens green ultra-bright with 2k2 resistors for RL





Schematic – no need to show the whole mess. It is just the same circuit repeated several times.



non linear circuits

concept: Alex Brunori

LDRama vers.2

