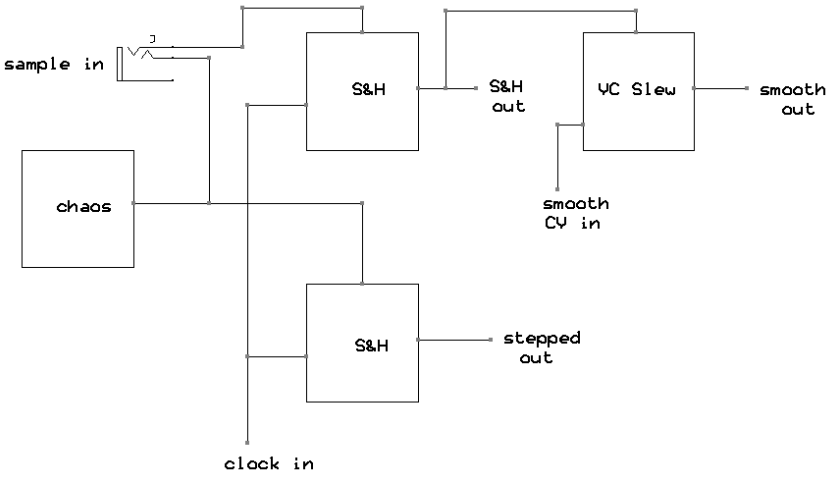
nonlinearcircuits

Helvetica Scenario build & BOM

This module is a dual sample & hold with voltage controlled slew for each channel. It contains a simple jerk chaos circuit running at approx. 300Hz to supply a signal for sampling. So, it is similar to the Buchla 265 Source of Uncertainty except is uses chaos as a source rather than white noise and a 100Hz oscillator, plus a lot less components, no weird power supply voltages……and there are two of them in 8HP.

To get it running, patch a signal into the clock input. Clock 2 is normalled to Clock 1 so a signal on 1 will drive both channels.

The block diagram for one channel is shown below. The Stepped Out only samples from the chaos circuit, whereas the S&H out and Smooth Out are sampled from whatever signal is patched to the Sample In (or chaos if nothing patched in).The chaos signals are taken from different sections of the chaos circuit so if just driving the module with a single clock signal you can get 6 different chaos signals out of it, assuming you turn up the Slew pot a bit.



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

VALUE	QUANTITY	DETAILS
1nF	2	0805 Tayda: A-944
10nF	7	0805 Tayda: A-948 Suggest getting C0G/NP0 tho, such as Mouser Part No: 791-0805N103G500CT
100nF or 104	4	0805 Tayda: A-3511
1uF	2	0805 Mouser Part No: 187-CL21B105KAFNNNE
10uF	2	0805 25V or higher voltage rating Mouser:963-TMK212BBJ106MG-T
RL	4	Resistors to suit vactrols and panel LEDs, see notes.
1k	9	0805
10k	7	0805
22k	2	0805
100k	16	0805
120k	2	0805
220k	1	0805
1M	4	0805 see notes
2M2	2	0805
TL072 or TL082	6	Soic Tayda: A-1139
TL074 or TL084	1	soic Tayda: A-1137 or A-1140
DG211 or DG411	1	Soic Mouser Part No 781-DG211BDY-T1-E3
BC857	2	Tayda: A-1345
single vactrol	2	DIY is fine
LL4148	4	Tayda: A-1213
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	12	Tayda: A-865 or Thonkiconn Jacks (PJ301M-12) from Thonk, Synthcube or Modular Addict
10 Pin 2.54mm Single Row Pin Header Strip	3	Tayda: A-197 (cut to size)
10 Pin 2.54mm Single Row Female Pin Header	3	Tayda: A-1306
100k pot	4	Tayda: A-1848 or similar
LED (3mm or 5mm)	1	For chaos circuit, blue is good
3mm bipolar LED	2	2 lead bi-polar LED Tayda: A-1076

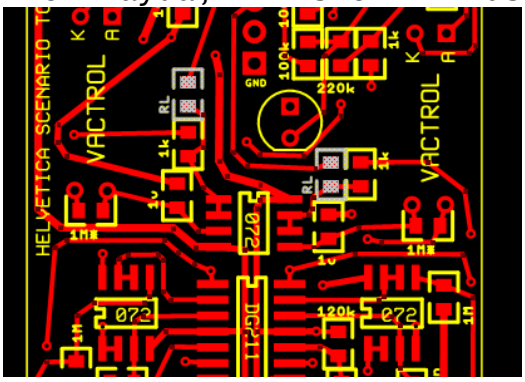
Additional notes:

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.

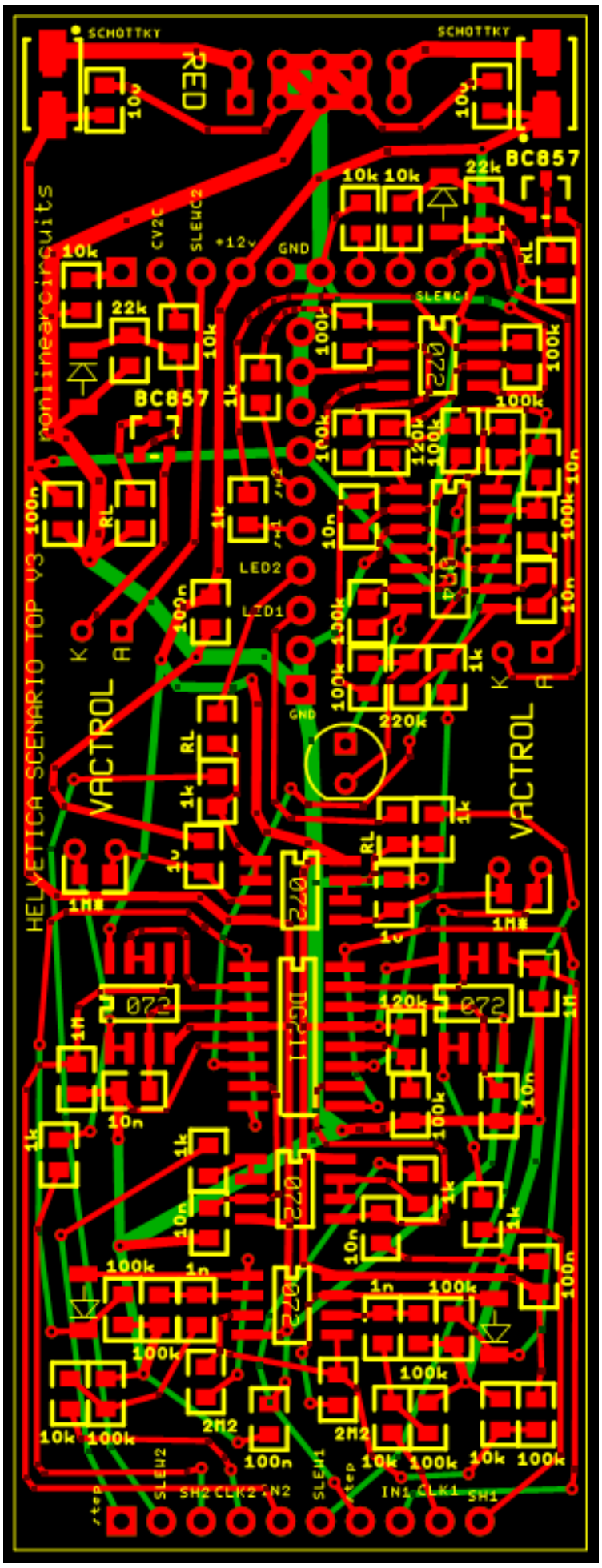
3. Join the Nonlinearcircuits Builders Guild on FB: https://www.facebook.com/groups/174583056349286/ and ask questions there if you have any. If you prefer not to FB then email is fine.

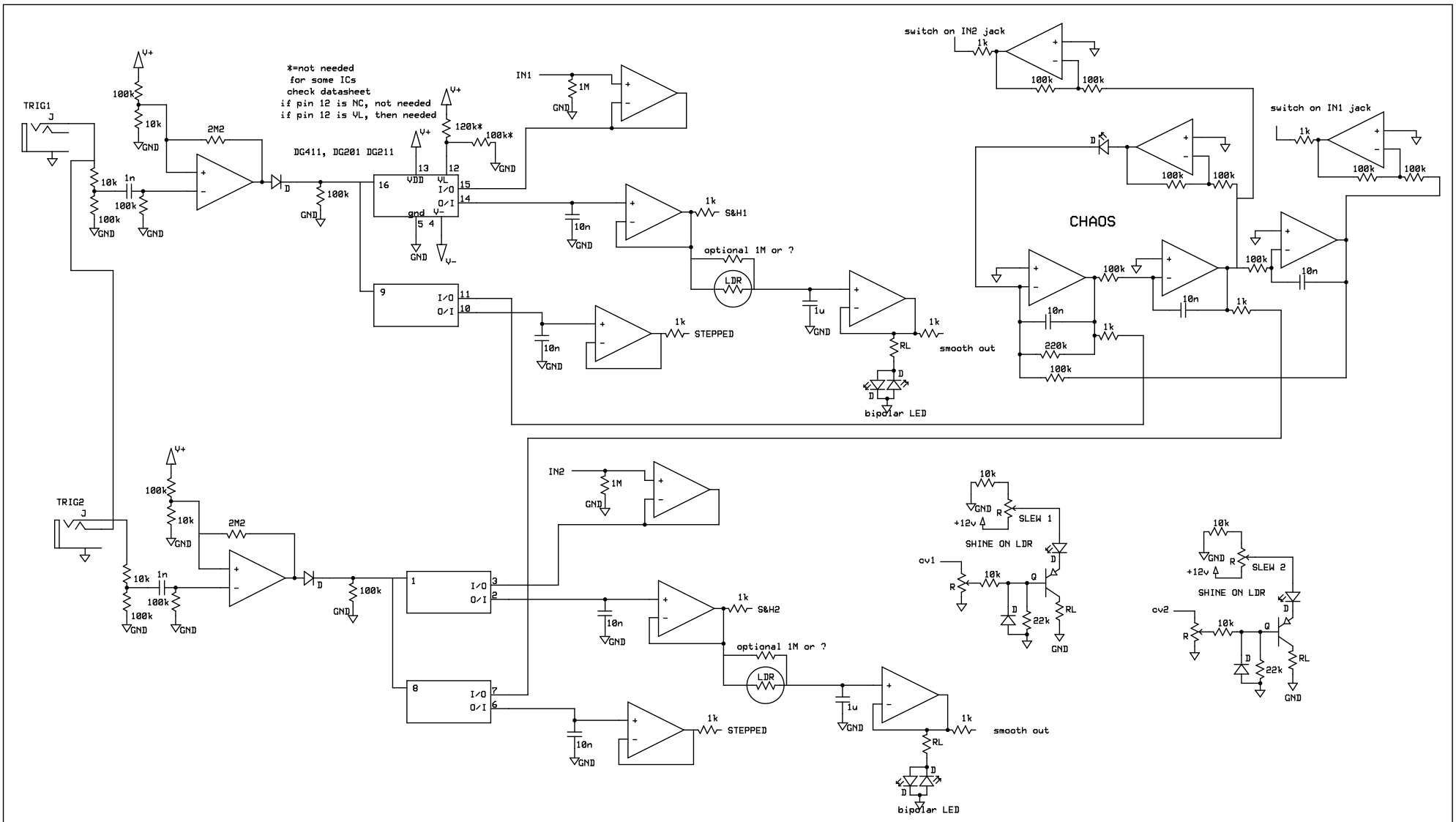
4. These are the resistors for the panel LEDs, if using red/green from Tayda, 1k is ok. If using red/blue, probably 4k7 is best.



5. If using factory vactrols , maybe try 1k for RL. If making your own vactrols, select RL to suit your LEDs, generally 4k7 is a good starting point for modern bright LEDs.

6. The 1M* at the base of the vactrols set the maximum slew rate, feel free to leave them off or change to suit your needs (lower resistance = less slew). If not sure, just install 1M for now.


HELVETICA SCENARIO TOP V3 nonlinearcircuits
SCHOTTKY
SCHOTTKY
RED
BC857
BC857
CV2
SLEW2
+12v
GND
SLEW1
LED2
LED1
VACTROL
VACTROL
072
072
072
072
072
072
IN2
CLK2
SH2
SLEW2
IN1
CLK1
SH1
SLEW1



nonlinearcircuits		
Helvetica Scenario v5		
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