

nonlinearcircuits

SIGNUM Hyperchaos

build and BOM

This is an expansion of Primal Hyperchaos, based on the description in [a paper by C Li, et al](#). The internal signum switch has been brought out to the panel. It can be used as a stand-alone switch (don't expect it to be clean and nice) or it can be used to inject signals into the hyperchaos circuit or control the switching of the hyperchaos. Some actions will make the oscillations stop; others will make them go nuts; experiment!

It can be built to run at different speeds simply by installing different capacitors. Very easy build, no special components needed. There are 5 different CV outputs and 1 gate output. The CV IN is associated with the CLIMAX pot which determines how high the peaks go. The module can be greatly influenced by the CV in signal and can exhibit some fairly nutty responses at times.

IN1 and IN2 are the inputs for the Signum switch, they are also connected via their switching pins to the internal workings of the hyperchaos circuit. SW2 is also the internal switch for the hyperchaos circuit so if you use this input you will find that switching only occurs with an external signal. Use SW1 if you want to control the switching of the hyperchaos with an external signal.

As 'signum' implies, the switching signal is +1 or -1. This means you need a signal crossing 0 to make switching occur. A regular gate may or may not work, depending whatever else is going on at the time.

The signum output is also the w output, as indicated on the panel.

BOM

| component | quantity | notes |
|--------------------------|----------|--|
| 1M pot | 2 | Tayda A-1882 |
| 100k pot | 1 | Tayda A-1848 |
| 3.5mm jack | 11 | Kobiconn style, get from Modular Addict, Synthcube or Thonk or Tayda A-865 |
| 3mm LED | 4 | note – 3mm |
| LL4148 diodes | 6 | Mouser 512-LL4148 |
| TL074 | 3 | SOIC Tayda A-1137 |
| S1JL or similar | 2 | Mouser 821-S1JL, dot=cathode |
| Eurorack power connector | 1 | Tayda A-198 |
| 10uF | 2 | 0805, 25V or higher voltage rating |
| CAP | 4 | 0805 – see notes |
| 470R | 2 | 0805 |
| 1k | 8 | 0805 |
| 2k2 | 1 | 0805 |
| 10k | 8 | 0805 |
| 100k | 13 | 0805 |
| 220k | 1 | 0805 |
| 680k | 1 | 0805 |
| 1M | 1 | 0805 |
| | | 0805 |

notes

CAPS - choose these to suit the speed you want Primal to run at, anything from 100nF to 10uF will work. All caps should be the same value and must be voltage rated for 25V or more. Check the demo vid on youtube to see 1uF and 10uF versions in action.

If using 10uF, you may want to increase the value of the 470k resistor to prevent the output signals hitting the rails, not a big deal if you don't, just turn the Climax pot low to reduce the peaks.

Probably all the LEDs should be the same, feel free to experiment tho.



