Gijs Gieskes 3TrinsRGB-1c --- 3x CV Comparators PCB Build Guide

The CV comparator pcb has 6 inputs and 6 outputs.
There are 3 CV inputs and 3 Comparator inputs.
The CV inputs accept 10v envelope signals and also -5v / +5v LFO and OSC input.
The input signal is rectified and scaled to 3v.
The CV input is added to the bias of the comparator, use the potmeters to scale the effect.
The Comparator has 6 outputs, 2 for each comparator; upper and lower result.
Inputs get compared to the HIGH signal and can be trimmed using the potmeters.
The power comes from the 3TrinsRGB-1c (HIGH and GND)

Resistors:
First solder all 22 resistors.

Diodes:
Then solder the 3 diodes. Beware of the orientation!

Capacitors:
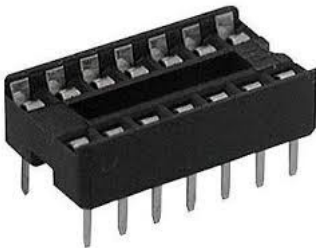The C1 100nf capacitor helps stabilising the power to the 74HC14 IC, but is optional.
C2 is also for the power, use a small 16v electro.
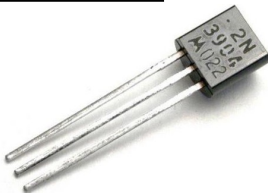
IC socket:
Take care of the orientation!
Solder the IC socket. First two opposite pins. Then check if the socket is flat to the pcb.
If not, heat the soldered pins and push the socket to the pcb. It should click flat.

Transistors:

Solder the 3 transistors. (T1, T2 and T3) (orientation!)
These components are heat sensitive!
First solder one leg of each, let them cool a bit and continue with the rest.

Potmeters:
The 3 vertical pots go on the other side of the pcb.

IC:
Bend the legs of the IC on a flat surface, so that the legs are in a 90 degree angle.
Orientation!
Push the IC firmly into its socket.

Connectors:
The CV inputs are Thonkiconn jacks (on the other side of the pcb)

The comparator inputs and outputs can be connected with pin headers, jacks or any other connector you might like. (Banana!)

If you use pinheaders:
Snip off 1x3 (inputs), 1x2 (power) and 1x6 (outputs) female pin headers
Solder in place.

You can use normal pin cables to patch the comparator to the 3trinsrgb-1c.

The compator PCB has to be powered by the 3trinsrgb-1c. Patch the HIGH to the HIGH, GND to GND.

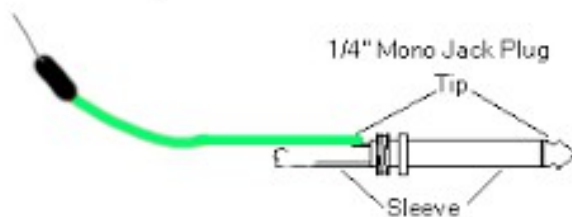**If you use jack sockets:**

Patch connections:
Solder a wire from IN1 to the TIP of the socket, leave GND unconnected.
Do the same for IN2, IN3, OUT1A, OUT1B, OUT2A, OUT2B, OUT3A, OUT3B.

You need to make special cables to connect the jacks to the pin patchbay of the 3TrinsRGB-1c
You can leave the Sleeve unconnected.

patch cable

1/4" Mono Jack Plug
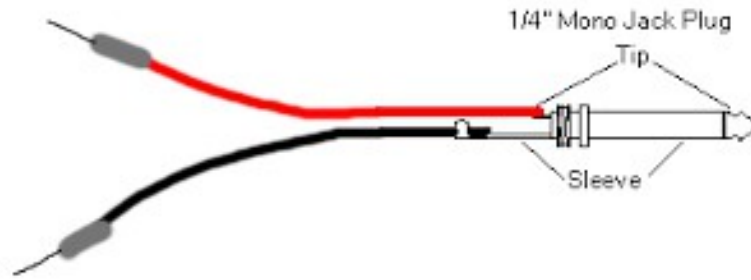Tip
Sleeve

Power connection:
GND and HIGH should be connected to the 3TrinsRGB-1c to give the PCB its power.
Use one jack socket for the power connection.
Connect the jack socket TIP to HIGH, GND to GND.
I recommend that you use this cable to connect to the power:

power cable

This way you cannot confuse patch cables with the power cable!
The pcb's are designed to be 'standing up' , so POT1 is on the top, POT3 is on the bottom.

And you are done!

Patch examples:

connect slow envelopes or LFO's to the CV inputs and try these patches:

video 2 shape:
vid to in1, output to RCV or GCV or BCV

color bar displacement:
F01a to in1, output1a to Rsin, output1b to GCV (lfo range switch to the right)

wobbly mirror:
Rout to in1, output1a to GCV.
F01A to RCV
Bout to in2, output2a to GCV.
F01B to BCV

Oscillator TYPE switches to the right.
LFO RANGE switch to the right, LFO TYPE switch in middle position.
Set all pitch knobs to low rate vertical, lfo to slow triangle wave.

For extra fun, patch out1b to G-

If you have questions: ask 'm in the thread on Muffwiggler or PM me: fetideye

Martijn Verhallen 2016
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