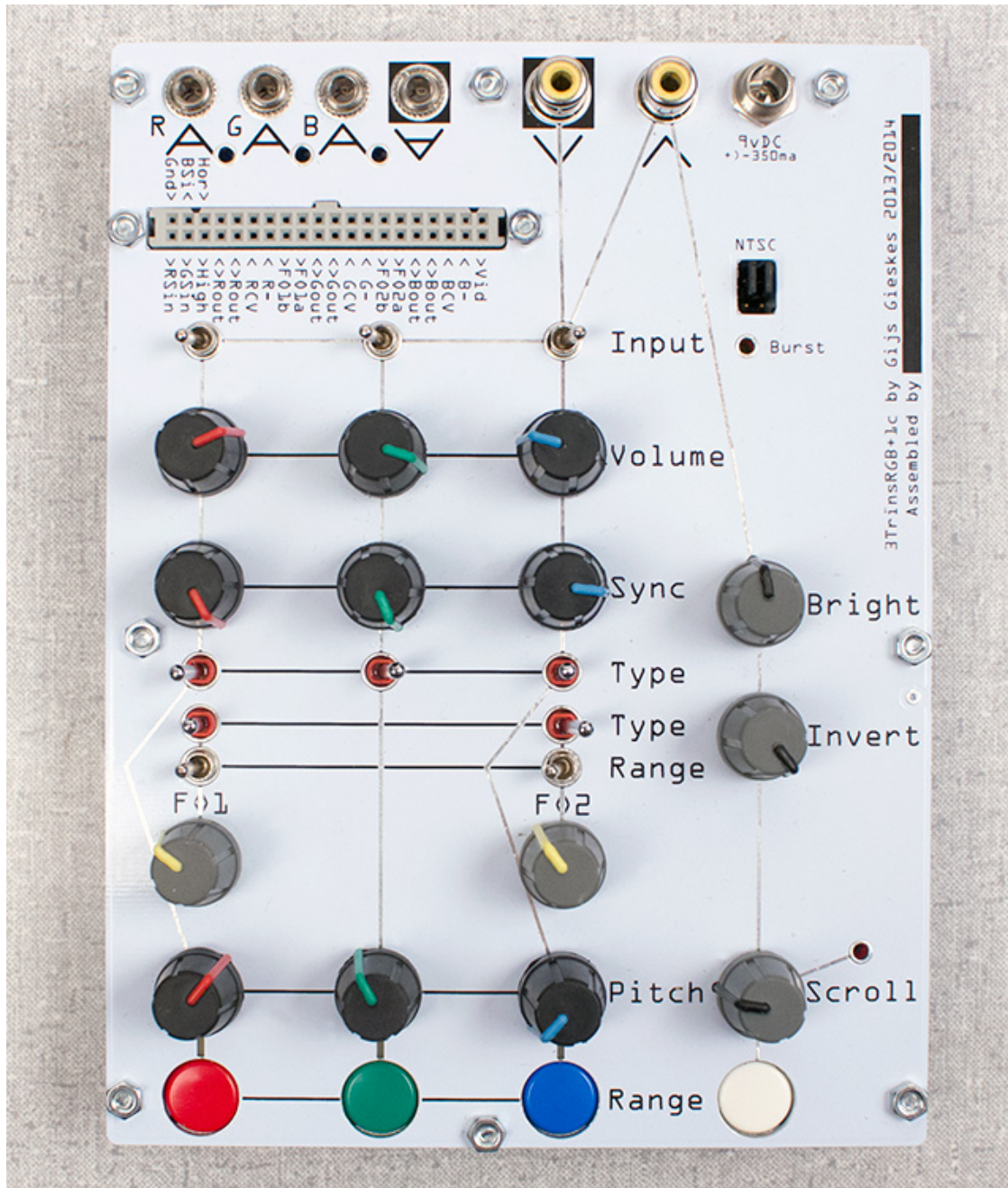# 3TrinsRGB+1c

"3TrinsRGB+1c is a analog audio video synthesizer, with the HEF40106 ic as oscillator source. The reason for using this ic is that it is used a lot by people just starting to make electronics. When I started to make oscillators I was using it often, and am still using this ic quite allot, because it can do a lot with just a small amount of components.. In this case the amount of components used seems to have risen quite a lot because of all the features that are included in the device.. "
-Gieskes

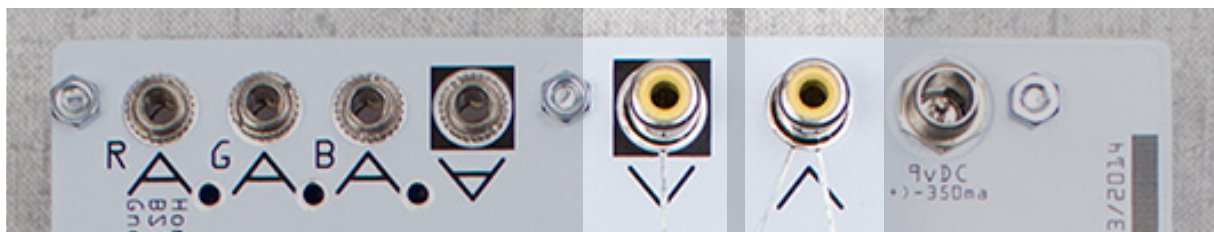"Take care not to fall into the video hyperverse when using the 3TrinsRGB +1c"
-Dr. Bleep

Designed By Gieskes
Assembled by Bleep Labs

Power:
Accetps a standard 9v, center positive power supply. 350mA minimum.
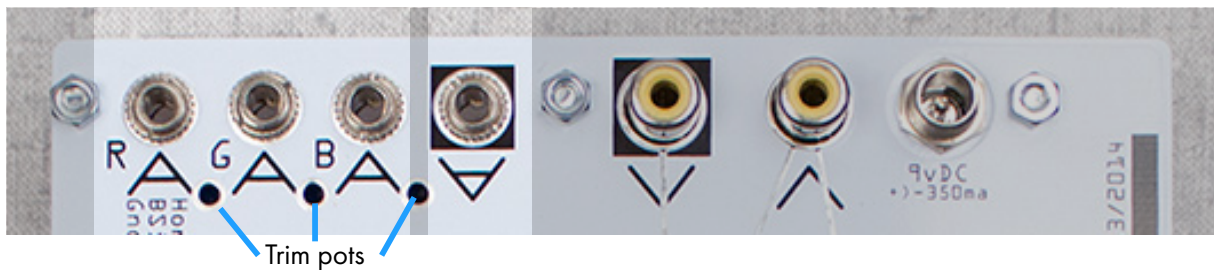

VIDEO OUT   VIDEO IN

The composite video in and out can be switched between PAL and NTSC using the three jumper switches.
Two bellow the power switch, one between the blue and white buttons on the front edge.
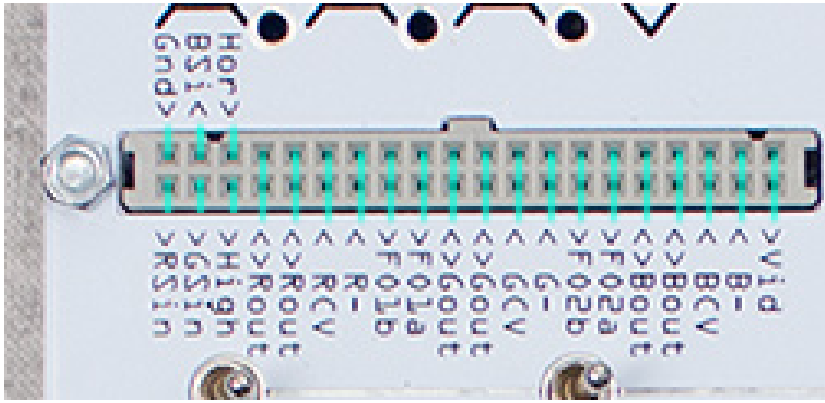
CV / AUDIO INPUTS   AUDIO OUT

Trim pots

The audio out can be used if you want to listed to the internal oscillators. It makes some great drones but is
not the main use of the device. If you're not hearing anthing it might be that the oscillators are over 20kHz.

The inputs are tied to the rate control of the three oscillators. You can use a small screwdriver to adjust the trim
pot and reduce the level of the incloming signal but it is recomended that they be left in the middle and adjust-
ed from the source.
All the way left is for low siganls (no attenuation) and all the way right is for high siganls (10V peak to peak-
modular).

The Header

The 2x20 pin gray header can be used to make patches using jumper cables.
Do not connect any external signals directly to this header. If you do want to connect external gear use the mono mini jack RGB inputs.
You can also power circuits on a breadboard from the "High" and "Gnd" points. More info about making your own "pluggin" circuits is availbe at bleeplabs.com/store/3trinsrgb/

An arrow towards the header means Input, away is output. Both means it acts as both.

Hor : Input to scroll adjustment (see scroll description below)
Gnd : Gound (used for powering header plugins).
BSi,RSi,GSi : Sync signals for the three colors. Most used for plugin devices.
High : Voltage source with 22ohm impedance. Can be used to set a RGB channel to full solid.

The rest of the connections use the top and bottom rows. For example a wire in the bottom hole of "Vid" is also connected to the one above it as shown with the blue lines.

Rout, Gout, Bout : Output for color signal. This can be used to directly send a signal, like an LFO to the red channel output or use the output to cut another signal.

RCV, GCV, BCV : These are the same as the 1/8" input jacks. They control of the ocillators frequency. Try connecting them together to link colors.
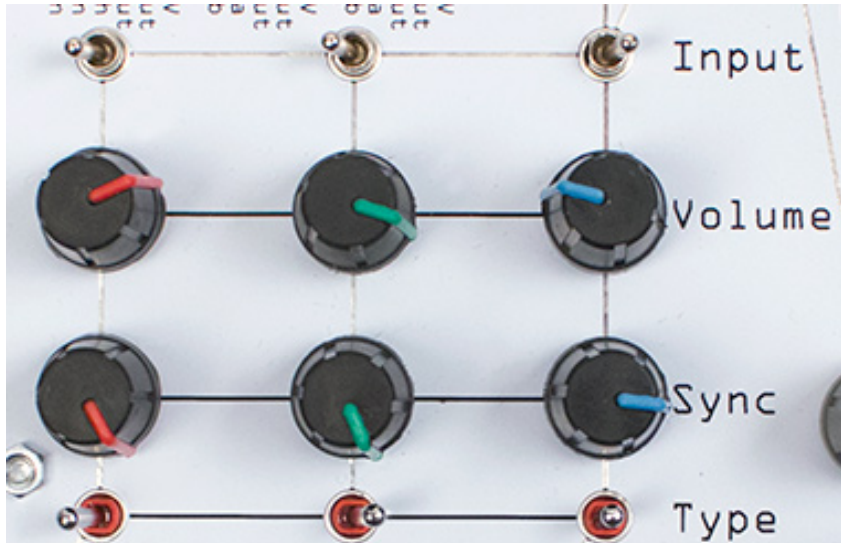
R-, G- , B- : Used to cut another signal. Great for attaching to the vid in or a color's output.

FO1a, FO1b : LFO 1 outpus. Controlled by the grey knob on the left (more info below) and the the switches aboue it. "a" and "b" are the same singal but buffer so connecting the to differnt sources does not mix those sources.
This is the basic method of animation. Can be tied to any input.

FO2a, FO2b : LFO 2 outputs. Grey knob and switches on the right.

Vid : Incoming video signal. Can be tied to any input for great effects.

The 3Trins is layed out in three coloums, one for the each of the oscillators attached to the red, green, and blue channels.

INPUT
When switched right the color channel is coming from the black and white video coming in. The oscillator is still running but not attached to that output channel. For example if blue is switched to thr right you'll see the input video tinted blue. When all inputs are right you only see the black and white input singal.

VOLUME
This adjusts the intensity of each oscillator.

SYNC
When a video signal is synced with the video rate itself it appears to be stationary or moving slowly. Unsyced and it's chaos. By adjusting the amout that the internal oscillators sync you can make all kinds of glitch visuals.
All the way to the right is fully synced.

TYPE
Shape of the oscillator's signal. Left is saw, middle is triangle, right is ramp.

At the bottom of the device there are controls for the pitch and range of the oscillator.

PITCH
Full counter clockwise is off. Left half is very slow. 12 o-clock starts to be visable.

RANGE
Selects between high and low rate. In use this means that the oscillator will be visible horizontally when the light is scscon and vertically when it's off.

The LFOs
These oscillators are not connected to anything untill you patch them.
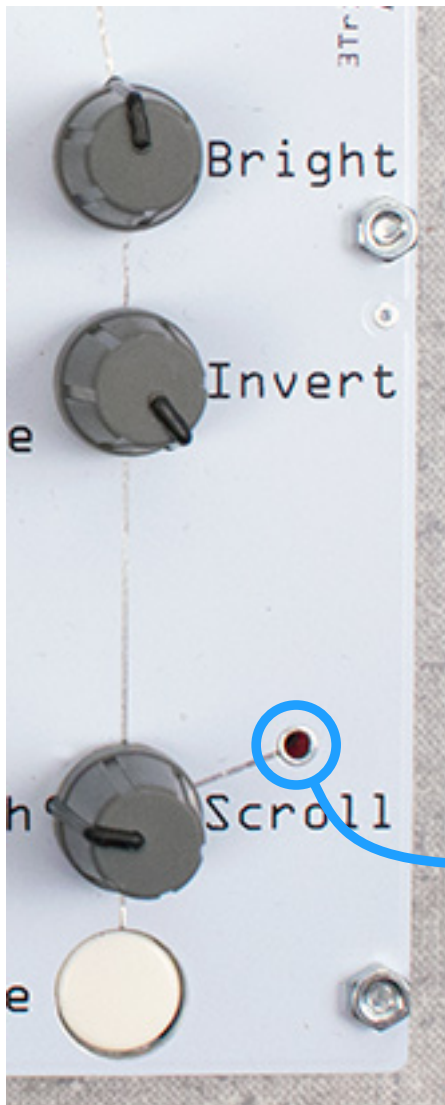
TYPE
Shape of the LFO's signal. Left is saw, middle is triangle, right is ramp.

RANGE
Low left, high right.

The grey knobs coltrol the pitches

BRIGHT and INVERT control the level of the incoming black and white signal.

Brigtness all the way right is full on but might not always be the best as it can overpower other elements on screen.

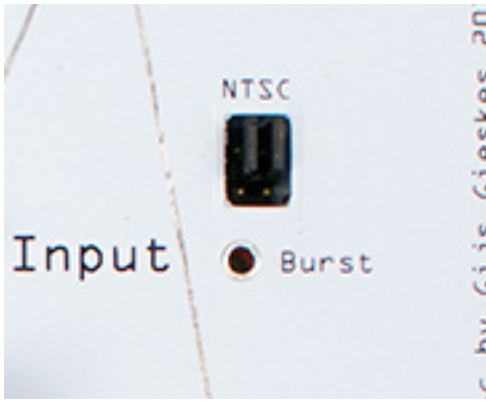Invert all the way left is normal. Right is inverted. Try putting in around 9 or 3 o'clock and changing the brightnes.

These controls are still useful when no singal is coming in.
Try turning invert all the way to the left, switching one channel's input to the right and turning the brignthess knob. This allows you to mix colors in different ways.

Scroll adjusts the rate at which the input sigal is moving horizonatlly.
To set it up popperly, turn the knob to the middle the use the tiny screwdriver included to adjust the fine tuning unitll it is going as slow as possible.

The white button moves the video vertically and locks it in place. Hold it down to shift the video up.

Burst is another fine tune adjustment for the screwdriver. if your input vided is flickering, try fiddling with it.

Move both the jumpers down for PAL and up for NTSC.
Be sure to also move the jumper between the blue and white button underneath the top board.

Email drbleep@bleeplabs.com with any questions about the #TrinsRGB+1c