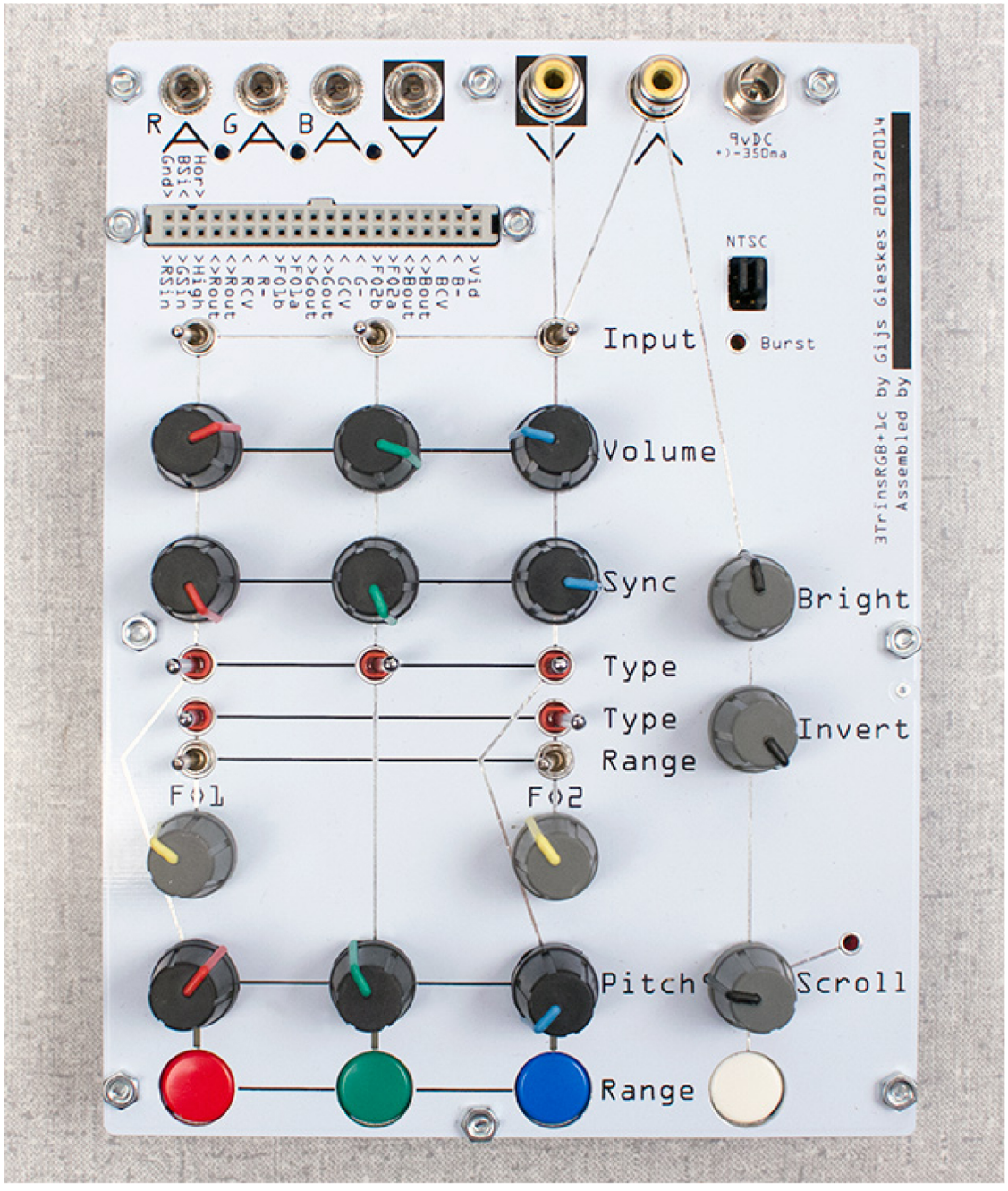
3TrinsRGB+1c Manual V1.1

"3TrinsRGB+1c is a analog audio video synthesizer. The oscillators use the common 40106 ource as this IC is that it is used a lot by people just starting to make electronics.
When I started to make oscillators I was and am still using this ic quite often because it can to a lot with just a little 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

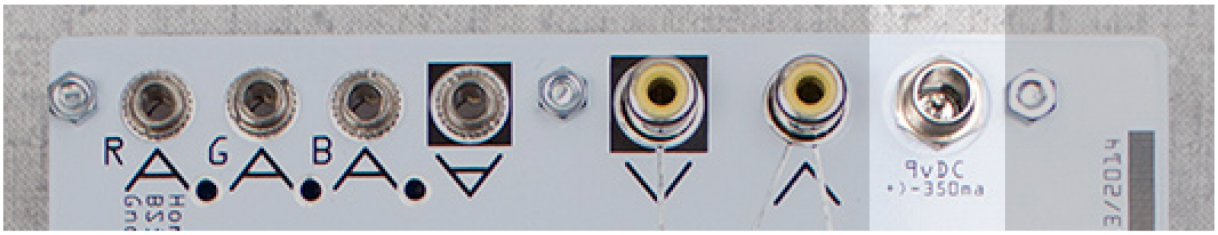


Designed By Gieskes
Assembled by Bleep Labs

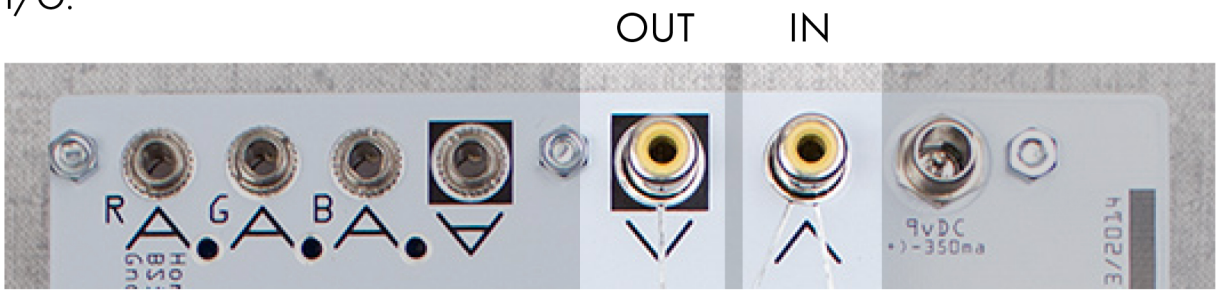
Power:

If you aren't using our power supply make sure the one you have is 9v and provides at least 350mA. It must be center positive, with a symbol like this: ⊖—⊙—⊕ Otherwise you will damage the device.

To see if the device is on, pressone of the range buttons. The coresponding light should light up.



I/O:

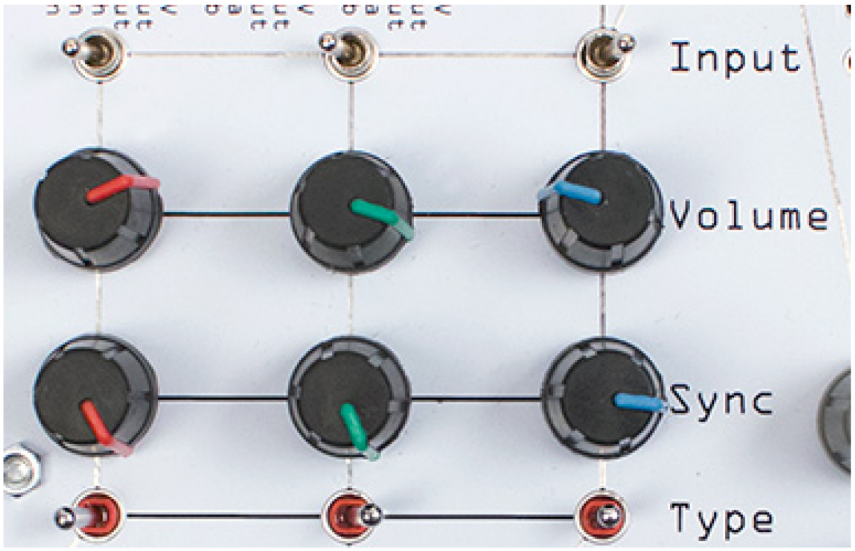


The composite video in and out can be switched between PAL and NTSC using the three jumper switches. Two bellow the power switch, one between the blue and white buttons on the front edge.

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.

The inputs are tied to the rate control of the three oscillators. You can use a small screwdriver to reduce the level of the incoming signal but it is recommended that they be left in the middle and adjusted from the source. All the way right is for low signals (no attenuation) and all the way left is for high signal

The Oscillators



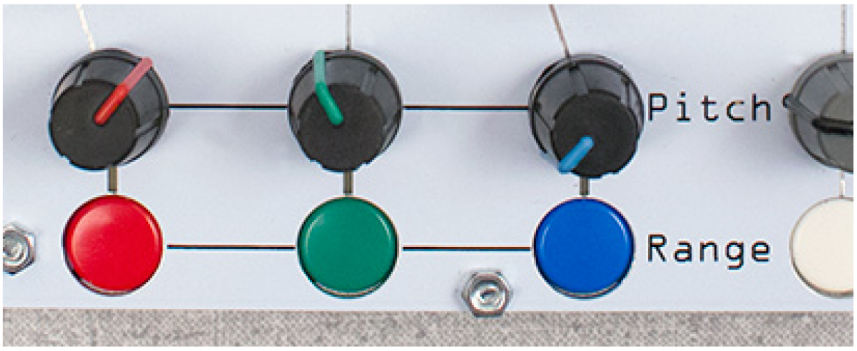
The 3Trins is laid out in three columns, one for the each of the oscillators attached to the red, green, and blue channels.

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. 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 rate of the video itself it appears to be stationary or moving slowly. Un-synced and it's chaos. By adjusting the amount 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.

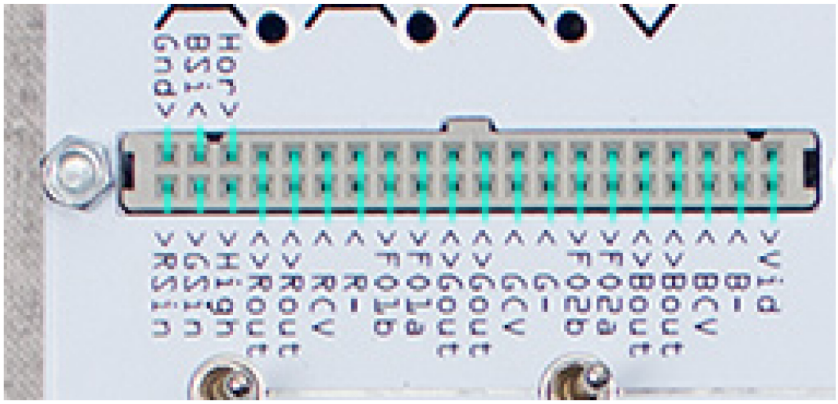


At the bottom of the device there are controls for the pitch and range of the oscillator.

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

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

The Patch Bay



The 2x20 pin gray header can be used to make patches using jumper cables.
Do not connect any external signals directly to this header, it is only for internal use. 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 will be available online.

Arrow to the header means Input, arrow away from the header means Output. Both means it can act as both.

Hor - Input to scroll adjustment (see scroll description below)
Gnd - Ground (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 - This is the same as the input jacks. Controls of the color's oscillator frequency. Try connecting them together.

R-, G- , B- : Used to cut another signal. Great for attaching to the vid in or a color's output.

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

FO2a, FO2b - LFO 2

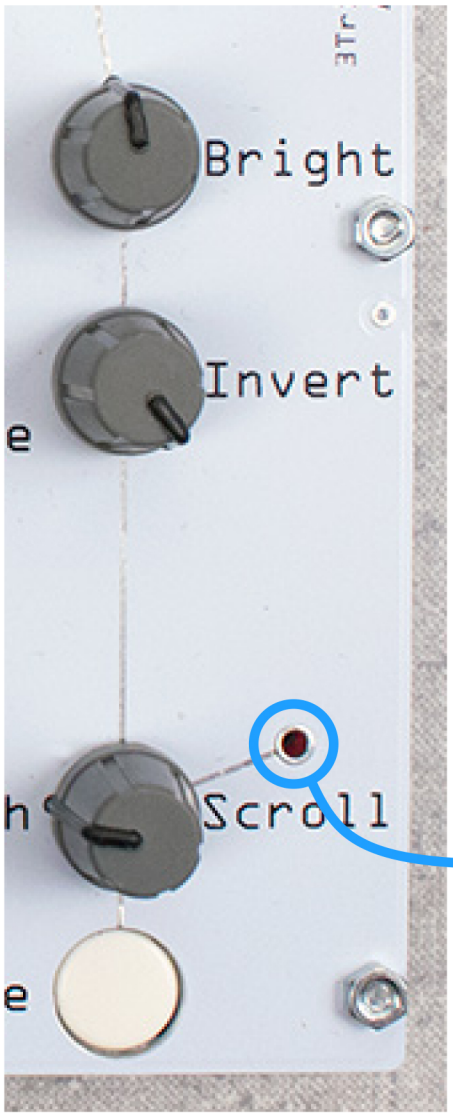
Vid : Incoming video signal. Can be tied to any input for great effects.
Attach it to an out to see the signal, a "-" to cut subtract the signal from that oscillator, or the CV to use the video intensity as a modulator.

The LFOs
These are not connected to anything until 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 with yellow lines control the LFO's rate.



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

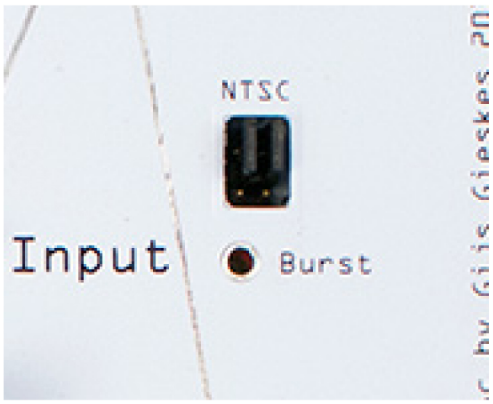
Brightness all the way right is full on but might not always be the best as it might overpower other elements on screen.

Invert all the way left is normal. Right is inverted. Try putting in around 10 and 2 o'clock and change the brightness

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

Scroll adjusts the rate at which the input signal is moving horizontally.
To set it up properly, turn the knob to the middle the use the tiny screwdriver included to adjust the fine tuning until 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 video 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.

Troubleshooting:
If you aren't using our power supply make sure the one you have is 9v and provides at least 350mA.
It must be center positive, with a symbol like this: ⊖—⊂—⊕ Otherwise you will damage the device.

To see if the device is on, press one of the range buttons. The corresponding light should light up.

If you're not getting any video :
Start by putting the controls in these default position. and removing everything from the patch bay.
If the pitch is all the way down you might not see anything from that oscillator
If there's nothing in the video input and the invert is to the left the input switch will turn that color off.
Check that you are using the video output jack
Outputs are black, inputs are white.

If you're getting scrambled video :
Check that all three PAL/NTSC jumpers are in the correct places.
Turn the sync knobs all the way to the right.
Tune the scroll knob to the middle.
If it's the input that's scrambled you might need to use another device. Most older VCRs and games systems don't work well with the 3Trins.

If you're still having issues
Check out our Facebook user group, Muffwiggler thread, or email drbleep@bleeplabs.com