

Experimental Prototype Kit v0.2

Some info's about & step by step building instructions



RGBend is a **Video FX kit** for the ancient VGA Video standard. It forwards sync signals received from any VGA input source and plays with the red, green and blue channels.

The kit is built around a **video feedback loop** by CMOS CD40106 Hex Schmitt-Trigger and an **audio input mashup circuitry**. Everything is controllable for each color channel individually.

Since the kit is **not finished for official release** at this time, there will be some extras you should be aware of. This instruction will guide you through the single steps.

There are **many solder joints that need to be set**, of which some of them are pretty **small** though. So this kit is perhaps **not generally suitable for beginners**, but has already been successfully soldered by some.



The parts of the kit

An interactive parts list can be found here: <u>Bottom PCB</u> | <u>Top PCB</u> General soldering instructions for noisio kits here: <u>Link</u> Let's start with the bottom PCB. Some **preparation** of the board is needed because of a fabrication fault. Solder masks were not set right for the 3.5mm jacks. Take the sandpaper and **grind the surface carefully** until the hidden copper plates emerge.



The board is designed the way that the legs of the diodes and resistors should be bent **close to the body** downwards before inserting them:



Start soldering the first diode, **following the direction printed on the PCB** (black diode ring to white mark on PCB).



Solder in the **resistors**. The values can be determined from the colour codes or can being measured with an ohm meter:

3x 75ohm = violet green black gold brown 3x 1k = brown black black brown brown 3x 27k = red violet black red brown 9x 1Meg = brown black black yellow brown



In the next step solder the **3x 47pF capacitors**.



Then **10x 104** disc capacitors. Take attention: here the leg spacing is too big. **Bend them carefully** until they fit.



In the next step the **electrolyte** needs to be soldered with the **white line (-) to the marking on the PCB**. Since I've found out that 10uF is not filtering enough of the PSU noise we need to set a bigger one. For this you have one with a value of more than or equal to 100uF. Try to bend and solder this that this can be **layed down to some free space** on the PCB.



Now another special step. The **3** foot prints for the 1V **Zener diodes** are way too small. They can't even be put through the holes. **Bend and cut them** thes way you can see on the photo and **solder from TOP**. **Take care of the right direction** (rings to marks on PCB).







Now 4x IC socket with the markings to the left

And the **2x10 row connectors**.



It's time to attach the **DC socket** from top. The leg on the side is not needed.



Now take the 15pins D-Sub connectors and solder them carefully.



In the next step we will build a connector for the VGA Signal Generator 9V link. For this you need to crack up the Connector with a screwdriver or similar tool. Cut the cables and outside plastic ring until everything is flat, as you can see on the image.



Now there must be brought some solder to the back. By doing this you must be **AS FAST AS POSSIBLE!** because of the plastic, which will melt soon.

Also put some **solder to the PCB** to the designated place. Now connect both, with a short heating. Again - be as **fast as possible** to not melt the plastic!





Bottom PCB is ready now. You can carefully **check all solder joints again** and put the **IC's to its designated places, in the right direction, following the markings.**

For the $Top\ PCB$ start with the $3.5mm\ audio\ connectors\ at$ the place grinded in the first step .



Now solder the 2 2x10 row connectors, fitted from bottom and soldered on top side.



Go over to the **6 slide switches**. Always solder the **center leg first** then **realign again** til they are straigth on top. Then solder the rest of the legs.



In the **last step** you'll need to **solder the potentiometers**. Again starting with the center leg and realign for a straight fit. Assign the **correct potentiometers to the printed values**. **A2k's are replaced by B5k**.



You made it!

Before assembly and testing for the first time **check all solder joints again** for unwanted bridges or bad solder joints.