VU001
Quad Distribution Amplifier
User/Build Guide

VU001 is a quad distribution amplifier for composite video signals.

When a video signal is sent to the top rca input, the same signal is reproduced on each of the 4 RCA outputs, allowing to display the same signal on multiple monitors/capture cards without loss.

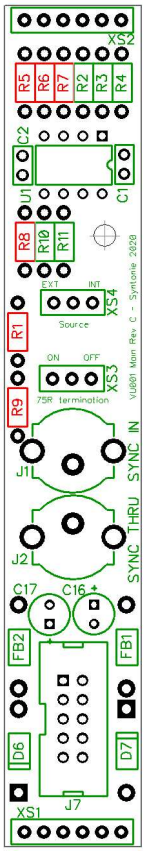
The module can also be used to distribute internal sync to the front panel. There is two jumpers at the back of the module :

XS4/Source : when set on EXT, the module will distribute the signal at the front input, when set to INT, the module will distribute the signal at the « SYNC IN » input on the back of the module.

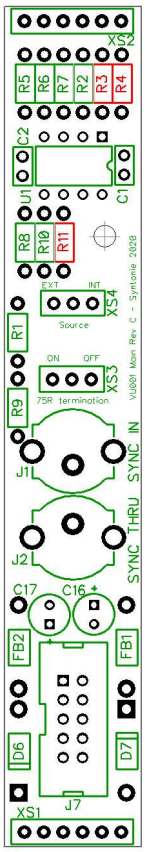
XS3/75R termination : A 75R can be used to terminate the sync chain if VU001 is the last module in chain (jumper set on ON), else the resistor can be disconnected if VU001 isn't last in chain (jumper set on OFF) and the sync signal can be chained to another module using the « SYNC THRU » output. This jumper has no effect when XS4 is set on EXT.

Mainboard build

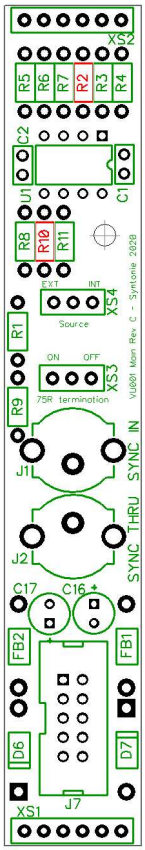
Resistors



75R



1k

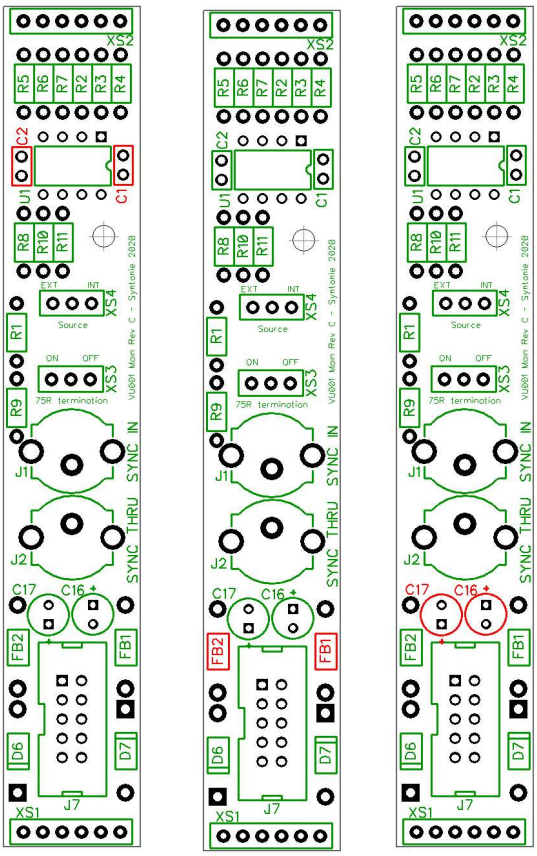


499R

75R : R1, R5, R6, R7, R8, R9
499R : R2, R10
1k : R3, R4, R11

Mainboard build

Capacitors/Ferrites



100nF Ferrites 10uF

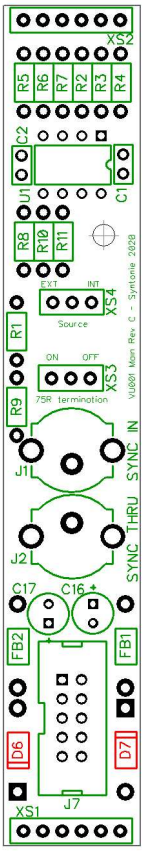
100nF : C1, C2
Ferrites : FB1, FB2
10uF : C16, C17

10uF capacitors are polarized, make sur to make the longer leg/positive side of the capacitor match the + marked/square pad on the board (note that C17 + sign is a bit merged with J7).

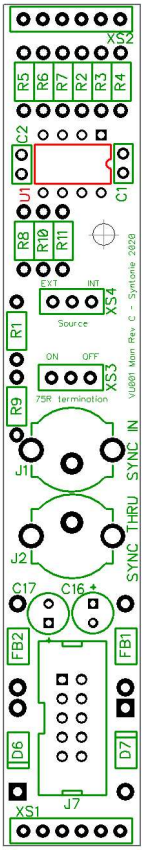
100nF capacitors and Ferrites are not polarized, can fit either way.

Mainboard build

Semiconductors



1N4001



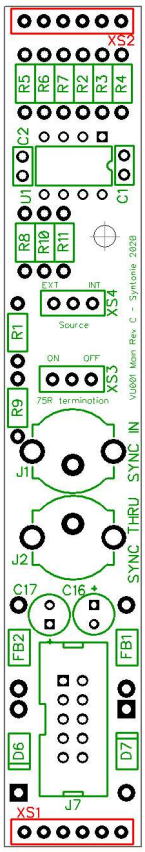
LM6172

1N4001 : D6, D7
LM6172 : U1

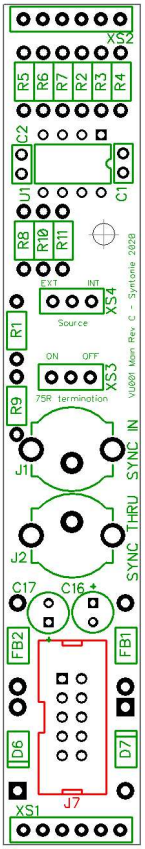
Diodes are polarized, make sure that the ring on the diode matches with the line on the circuit board.
LM6172 is polarized, make sure that then notch on the chip matches the notch on the circuit board.

Mainboard build

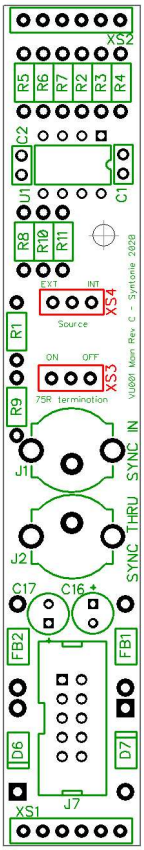
Connectors



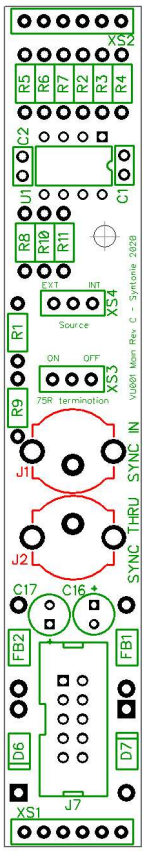
6pin male



10 pin IDC



3pin male



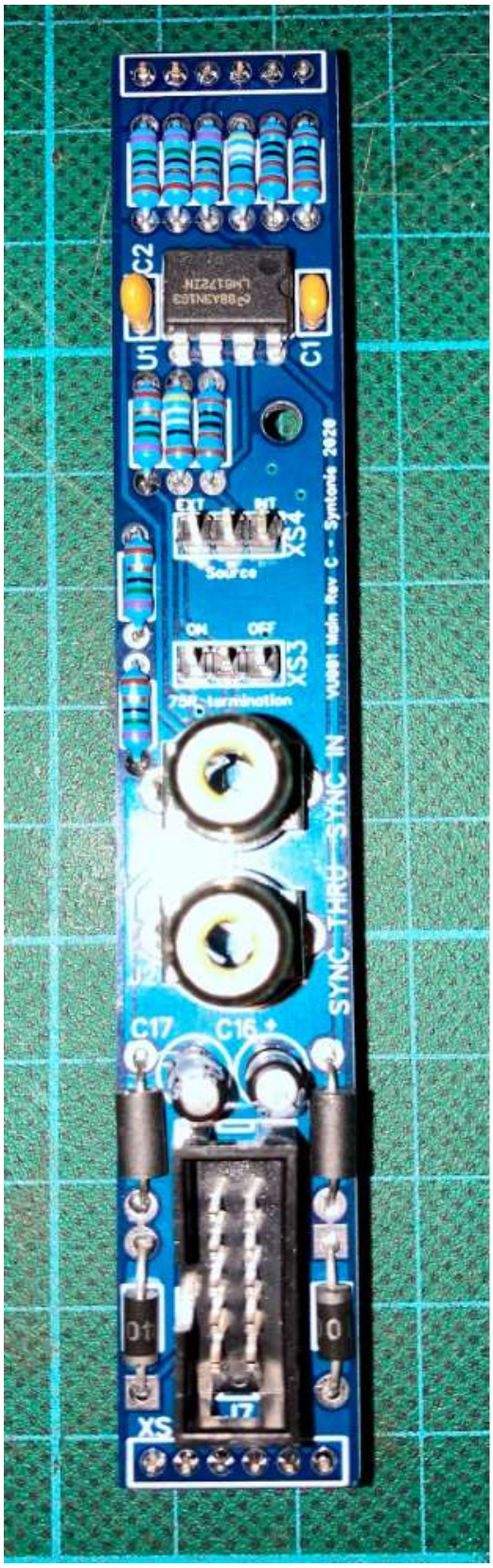
RCA

XS1, XS2 : 6pin male connector
J7 : 10pin power header
XS3, XS4 : 3pin male connector
J1, J2 : RCA

XS1 and XS2 longer pins should be on the solder side of the board, and soldered from the component side.

XS3 and XS4 longer pins should be on the component side, and solder on the solder side (as all the other components except XS1/XS2)

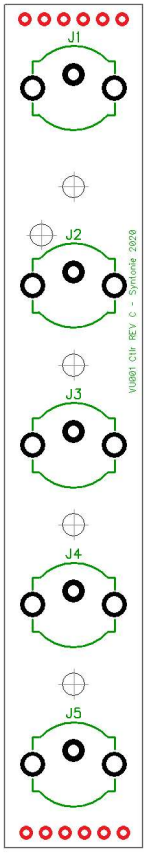
Mind the orientation of J7.



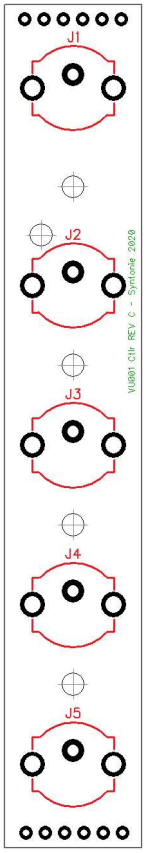
This is how the board should look once all the components are populated. Let's move on to the Control Board.

Controlboard build

Connectors



6pin female



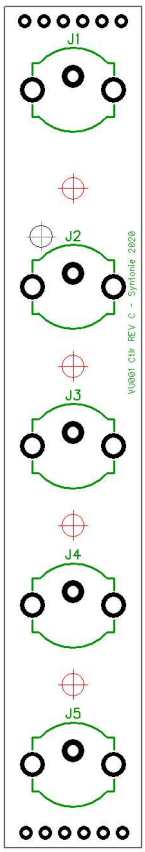
RCA

XS1, XS2 : 6pin female connector
J1, J2, J3, J4, J5 : RCA connector

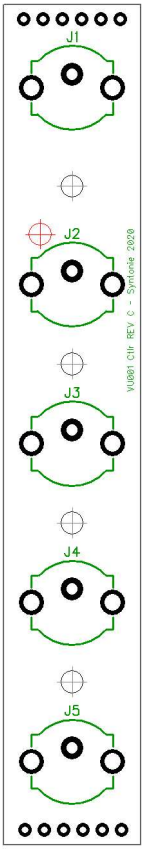
XS1 and XS2 are soldered on the opposite side of the RCA

Controlboard build

Spacers



10mm
spacers



11mm
spacer

10mm spacers are mounted on the RCA side
11mm spacer is mounted on the solder side

The front panel can now be mounted to the control board using 5x M3 6mm screws. Once both board are plugged together (mind the orientation XS1 on the mainboard should match XS1 on the controlboard, XS2 label is missing from the first batch of mainboard). Both boards can now be secured using the last M3 6mm screw.

Testing :

- Set XS3 on OFF, and set XS4 to EXT. Input a composite video signal to the top RCA on the front of the module, the signal should be available on each of the 4 RCA at the bottom

- Set XS3 on OFF, and set XS4 to INT. Input a composite video signal to the SYNC IN input at the back of the module. The signal should be available on each of the 4 RCA at the bottom. When XS3 is on ON, the signal at the outputs should be less bright.

(Here we're using a composite video signal to test, but the goal is to distribute sync, it is however untested at the time I write this guide, as I don't have any modules that outputs sync through RCA, any feedback is welcome)