

VU007

RGB to Component Encoder  
User Documentation / Build  
Guide



VU007 is a 1V RGB to SD Component Encoder.

Uses 14pin sync cable for composite sync and blanking

Specifications :

Input : 0-1V RGB, 499R, jack

Output : 0-700mV YpbPr, 75R, RCA

- 4 HP

- 53mA +12V

- 44 mA -12V

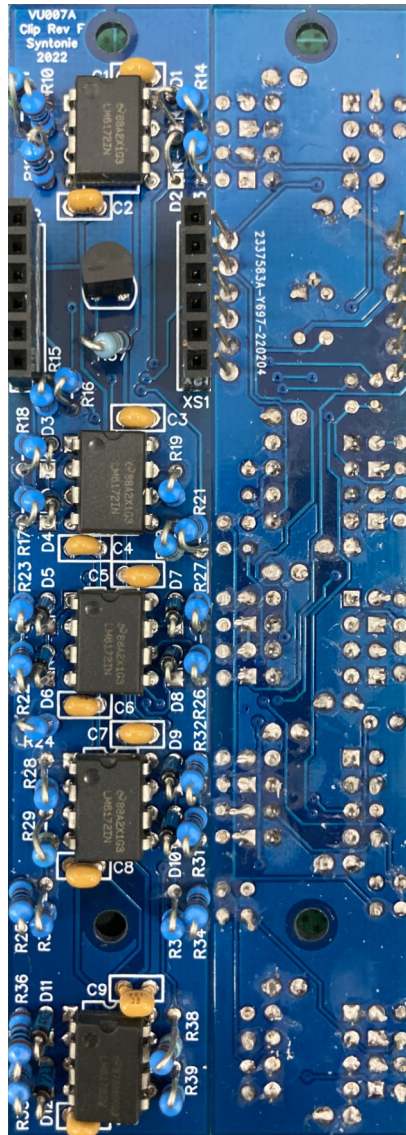
- 0 mA +5V

- 65mm deep

Special thanks :

LZX team for the Cadet serie of modules which have been the starting point to develop this module.  
And everyone who has supported Syntonie until now & those who will support in the future.

Clip board build :



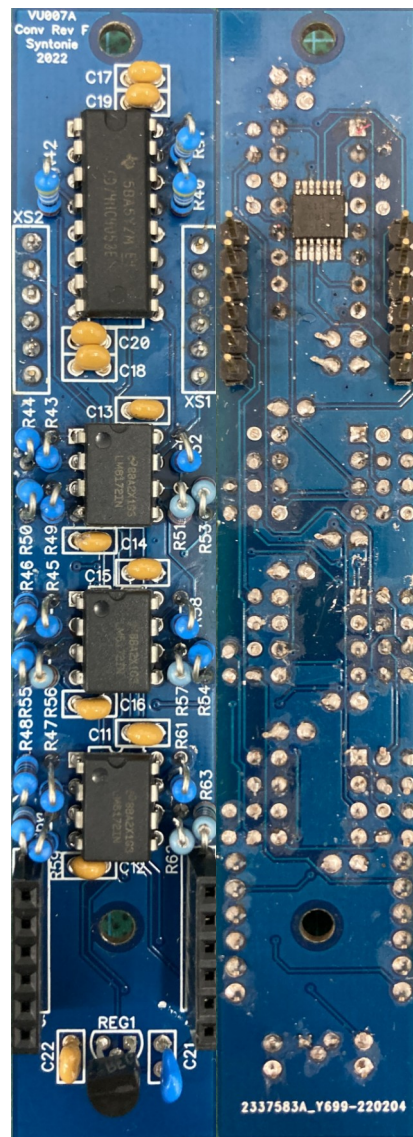
Interactive BOM :

[https://syntonie.fr/wp-content/uploads/2022/07/VU007\\_Clip\\_Rev\\_F\\_iBOM.html](https://syntonie.fr/wp-content/uploads/2022/07/VU007_Clip_Rev_F_iBOM.html)

Place and solder in this order :

- 1) Resistors (be careful not shorting leads as resistors are standing vertically)
- 2) Diodes (be careful of the orientation)
- 3) Capacitors
- 4) IC sockets/ICs (be careful of the orientation)
- 5) 6 pin stackables (socket goes on the component side, headers on the solder side)

## Converter board build :



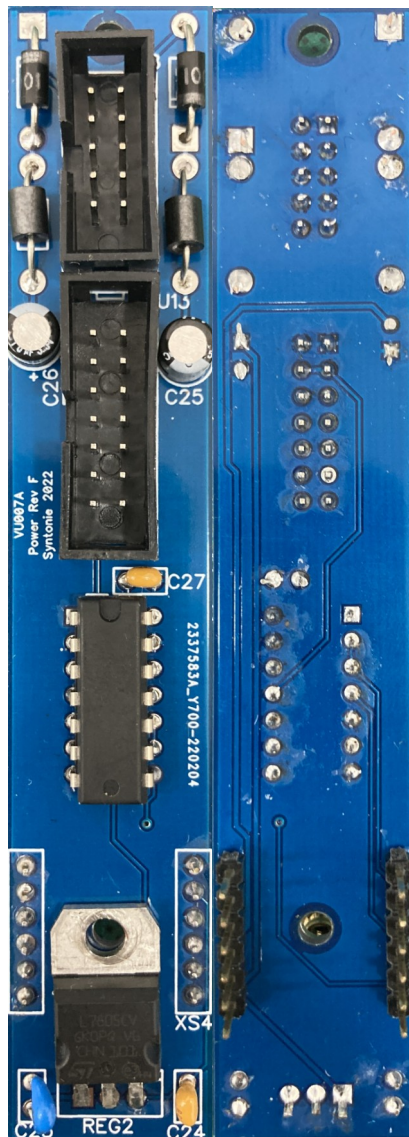
## Interactive BOM :

[https://syntonie.fr/wp-content/uploads/2022/07/VU007\\_Conv\\_Rev\\_F\\_iBOM.html](https://syntonie.fr/wp-content/uploads/2022/07/VU007_Conv_Rev_F_iBOM.html)

## Place and solder in this order :

- 1) Resistors (be careful not shorting leads as resistors are standing vertically)
- 2) Capacitors
- 3) IC sockets/ICs (be careful of the orientation)
- 4) 6 pin headers (XS1/XS2) (soldered on the components side, long pins goes on the solder side)
- 5) 6/8 pin sockets (soldered on the solder side, sockets are on the components side)

## Power/Sync board build :



Interactive BOM :

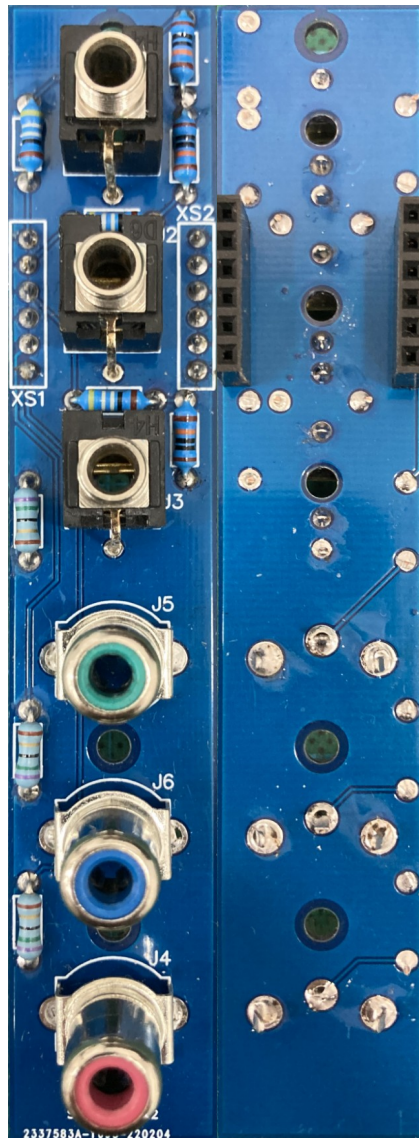
[https://syntonie.fr/wp-content/uploads/2022/07/VU007\\_Power\\_Rev\\_F\\_iBOM.html](https://syntonie.fr/wp-content/uploads/2022/07/VU007_Power_Rev_F_iBOM.html)

Place and solder in this order :

- 1) Diodes/Ferrite (be careful of the orientation of the diodes)
- 2) Capacitors (be careful of the orientation of the electrolytics)
- 3) IC sockets/ICs (be careful of the orientation)
- 4) 10/14pin box headers (be careful of the orientation)
- 5) 6/8pin headers (soldered on the component side, long pins on the solder side)

Note : U14, the +5V regulator needs to be mounted parallel to the board and ensure the hole in the regulator tab aligns with the hole in the board, as it is used for mounting the spacer.

## Controlboard build:



Interactive BOM :

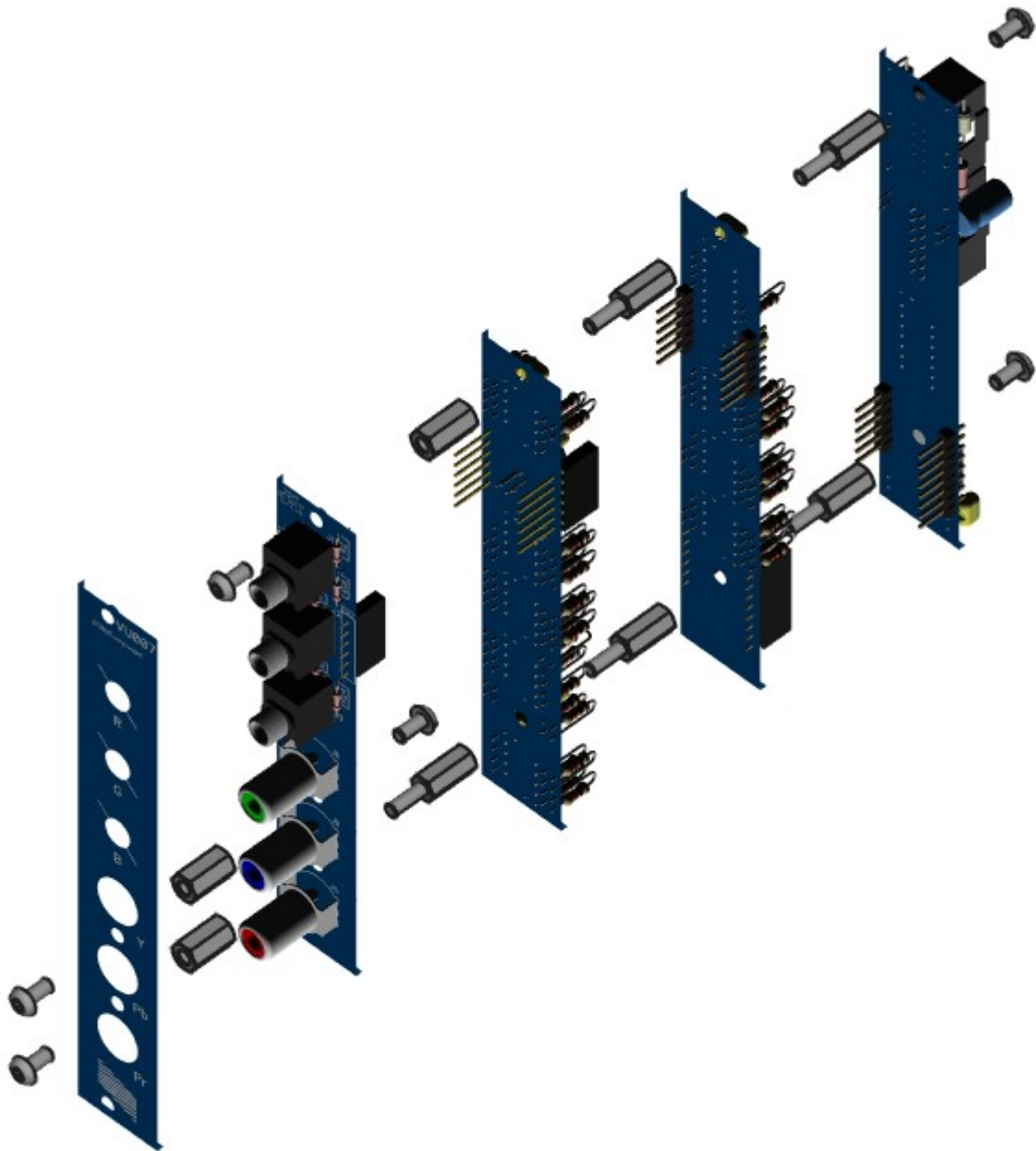
[https://syntonie.fr/wp-content/uploads/2022/07/VU007\\_Control\\_Rev\\_F\\_iBOM.html](https://syntonie.fr/wp-content/uploads/2022/07/VU007_Control_Rev_F_iBOM.html)

Place and solder in this order :

- 1) Resistors
- 2) Jacks/RCA (solder one pin and check that the part is sitting straight, if so, solder all the other pins)
- 3) 6 pin sockets (soldered on component side of the board, socket on solder side)



## Module assembly :



Boards order (from left to right) :

- 1) Front panel
- 2) Control board
- 3) Clip board
- 4) Conv board
- 5) Power board

Note : use the 2x 10mm spacer to secure the front panel to the control board (and also with the 3x jack nuts). All other spacers are 11mm

## Revisions log :

- Rev F : initial release

## References :

- Video Demystified Fourth Edition – YCbCr Color Space, p.17  
[http://www.r-5.org/files/books/computers/algo-list/compression/Keith\\_Jack-Video\\_Demystified-EN.pdf](http://www.r-5.org/files/books/computers/algo-list/compression/Keith_Jack-Video_Demystified-EN.pdf)
- Jon Rhees – VGA RGB->YPrPb  
[http://www.keohi.com/keohihdtv/interfaces/diytranscoder\\_johrhees.html](http://www.keohi.com/keohihdtv/interfaces/diytranscoder_johrhees.html)
- elm-chan.org - RGB2YUV  
<http://elm-chan.org/works/yuv2rgb/rw/rgb2yuv.png>
- LZX – Cadet RGB Encoder  
<https://github.com/lzxindustries/lzxdocs/blob/master/Cadet%20I%20RGB%20Encoder/Cadet%20I%20RGB%20Encoder%20Schematics.pdf>
- LZX – Reference Designs  
<https://github.com/lzxindustries/lzxdocs/blob/master/Reference%20Designs/LZX%20Interface%20Examples%20RevA.pdf>