

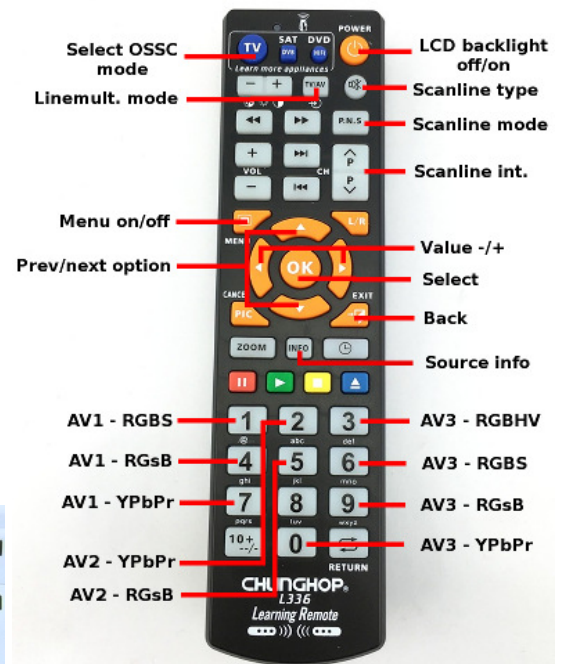
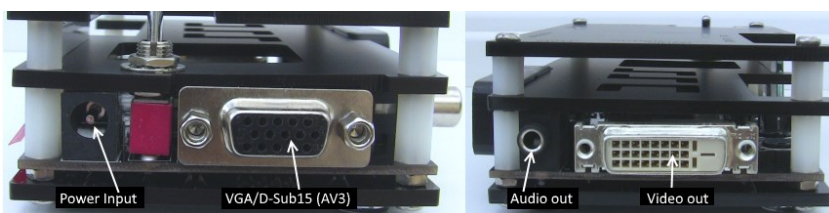
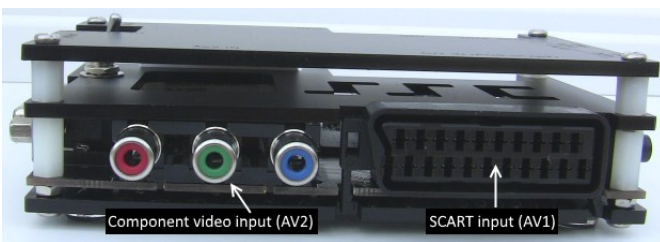
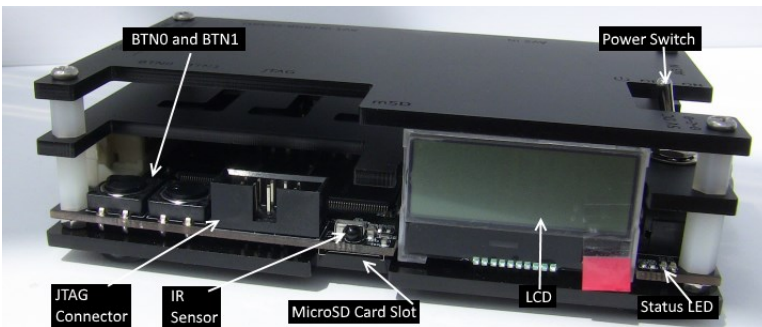
Open Source Scan Converter – Quick Start Guide

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Thank you for purchasing the Open Source Scan Converter (OSSC). Please take time to read through this short document before you start using the unit.

Overview



Remote Control (optional)

Status LEDs – Green LED indicates that power is on. This green LED will go out briefly when an IR remote code is detected. The red LED indicates unstable sync when lit.

LCD – Displays the OSSCs menus and information about the current source.

MicroSD Card Slot – For updating the devices firmware, see “Firmware Updates”.

IR Sensor – Receives commands from the remote control unit. Line of sight is required.

JTAG Connector – For software development purposes and firmware updates.

BTN0 and BTN1 – Perform various functions without the need of a remote.

Video out – Industry standard DVI-D connector outputs digital video at chosen resolution to your display. Does not support/output analogue DVI.

Audio out – Standard 3.5mm stereo headphone plug type connector. Audio fed in through AV1 (RGB SCART) will be output here.

AV1 In – Connect an RGB SCART source to this input. Note the input **must** be RGB or Ypbpr, S-video and composite SCART sources are not supported and require transcoding into RGB first. Only European spec RGB SCART cables are supported, the less common Japanese JP21 cables must be used with a converter, a suitable one can be purchased here - <https://www.retrogamingcables.co.uk/micomsoft-xrgb/european-scart-to-japanese-scart-converter>

AV2 In – Connect component video or RGB with sync on green sources to this input.

AV3 In – Standard D-Sub15 (VGA) connector. You can connect sources such as the Sega Dreamcast or a retro gaming PC. This input does NOT have a sync low pass filter as this is normally not required for VGA connections.

Signals up to a maximum resolution of 720p are supported on all inputs.

Power Switch – Toggles power off and on.

Power input – Connect a suitable 5 volt, 2.1 x 5.5mm positive tip PSU supplying at least 1 amp of current.

The OSSC has been designed as a next-generation line-doubler. Rather than a fully blown video processor, the OSSC is designed to process individual scanlines in real time. Because of this, the unit can convert between the 15khz video that your retro consoles output and the 31khz video that modern displays work best with, with only a few microseconds of input lag.

Connecting your OSSC



Connect a suitable power supply (5 volts, 1 amp positive tip) to the OSSC's power connector. Connect a DVI or HDMI (via a DVI to HDMI adapter) cable between the video out on the OSSC and your display. Any display that supports HDMI or DVI-D can be used. For displays that only have analogue inputs, a converter is required. OSSC does not use HDCP, so any basic converter should work.

Ensure the PSU is turned on at the wall, then power on your OSSC using the power switch, the LCD on the front of the unit should light up and display the current firmware version, as shown in the picture. Switch your display to the correct input. If everything is working correctly, a grey test card pattern should appear.

Connecting a console, PCB or other hardware

Power your OSSC off and connect a suitable source to the AV1, AV2 or AV3 connectors. For most systems, using a properly wired RGB SCART cable connected to the AV1 input is the best option. You can connect either 15khz or 31khz sources to any input on the OSSC, but remember that the AV3 (VGA or D-Sub15) connector does not have the additional filtering that RGB SCART sources often require.

Once you have connected your hardware, power on the OSSC. Select the appropriate input using the remote or by pressing BTN0 until the LCD displays the correct input. Now, power on your console, PCB or vintage computer hardware. You should now see it displayed on your TV or monitor.

Options



To access the OSSC's options menu, press the Menu on/off button on the remote. The LCD on the front of the unit will then change to menu mode, as shown in the picture on the left. In the newer firmwares, options are now organised into sub-categories. You can navigate between categories using the Prev/next option buttons on the remote and select an option using OK button. You can then change the values of

various options using the Value -/+ buttons. For details of all the options, see the wiki page here:- <http://junkerhq.net/xrgb/index.php/OSSC>

Scanlines

Vintage games consoles such as the Sega Megadrive and Nintendo NES used a special screen mode which resulted in alternating lines on a CRT display being left blank. Typically when people in the retro-gaming communities refer to scanlines, they mean the blank lines between parts of an image on a CRT that were a result of this screen mode. OSSC allows you to simulate these scanlines, making the image look more authentic. You can enable or disable scanlines on the OSSC by using

the menu and navigating to “Post-Proc” and then “Scanlines”. Setting scanlines to “Auto” means that scanlines appear only on 240p/288p sources, while Manual scanlines will appear over all sources regardless of original resolution. Alternatively you can toggle scanlines by pressing BTN1 on the device, or by pressing the Scanline Mode button on the remote control.

You can also configure scanline strength from the OSSC menu, or by using the Scanline Int button on the remote. How pronounced the scanlines would look on a real CRT varies greatly between displays, so set the scanline strength to taste.

Line triple

By default the OSSC takes in one scanline and outputs two, resulting in a lag free conversion of 240p to 480p. Line triple mode attempts to triple each scanline instead. This can result in a very sharp image on compatible displays. Unfortunately, not every display is compatible.

To enable line triple mode, press the Menu on/off button so that the OSSC menu is displayed on the LCD and then navigate to “Output opt”, select this and then navigate to “240p/288p Line X3” and set it to ON. For most sources you should also check that “Linetruple Mode” is set to “Generic 4:3”.

You cannot damage your display by trying the line triple mode. If your display refuses to show a picture, simply use the LCD to turn line triple mode off again. There are a small number of displays that are more compatible in line triple mode.

Fine tuning the image

By exploring the OSSCs menus you will notice “Video LPF”, “Analog Sync LPF” and “H-PLL Post-Coast” and various other options. These options can be used to fine tune the image or to fix compatibility problems. The OSSCs default settings are fine for most sources. For specific recommendations, see the wiki page here <http://junkerhq.net/xrgb/index.php/OSSC>

A note about audio

Please note the OSSC does not support audio over DVI/HDMI. This was done because adding the components and acquiring the HDMI license to do this would have significantly increased the cost of the unit. We recommend connecting your OSSC's audio to an external hi-fi or home theatre system via the 3.5mm audio connector and routing the image directly to your display. If this is not possible, the wiki page has further suggestions as to how to hook up the audio.

Remember, routing your OSSCs video output through equipment such as home theatre receivers or video processors can in many instances add input lag. Routing the signal through home theatre receivers, switches, splitters, audio integrators or other video processors can also increase the time it takes to re-sync the signal on game titles which switch between 480i and 240p screen modes.

Firmware updates

New features are periodically added to the OSSC in the form of firmware updates. The devices firmware can be updated using an SD card. The SD card should first be formatted with the new firmware. Once this is done, insert the card into the OSSC, enter the menu and choose “FW. update”.

To check for the latest firmware and to see a tutorial on how to correctly update the firmware on your device, visit this page:- videogameperfection.com/oss-c-fw

Troubleshooting

Symptom	Possible Cause	Solution
Certain Genesis/Megadrive games (Sonic 2, Fix it Felix) do not work	Coast values need changing	Set H-PLL coast pre 3 and post 3
Image has a vertical flicker/shimmer effect	Interlace source connected	This is a normal side effect of lag-free deinterlacing, no action is required
Image unstable and/or flickers on and off	Nintendo SNES/Super Famicom console connected	Try a different display
Horizontal jitter/wobble on image	Fine tuning required	Try adjusting low pass filter settings. See the wiki for recommendations
Missing pixels in the image	Wrong line triple mode selected	Use generic 4:3 or Generic 16:9 line triple mode instead
No image	Sync mode set wrong	Press the source button again to change sync mode. Most common sync type is RGBs for SCART, YPbPr for component and RGBHV for DSub15/VGA
No image	Line triple enabled	Disable line triple. Line triple mode is not compatible with all displays
No image	HDMI/DVI handshake failed	Power cycle the OSSC
No image	Unusual sync signal	Power off OSSC and your source. Power on the OSSC and select the correct input, then power on your source
No image and LCD says NO SYNC	Source not powered on	Check power to source device
No image and LCD says NO SYNC	Source not outputting RGB or YPbPr	Make sure your source device outputs RGB and your SCART cable is wired for RGB
OSSC Resets/reboots	Power supply not suitable	Use a different PSU with at least 1 amp of current. You can purchase a suitable PSU at Videogameperfection.com

More information

For more information on using your OSSC, see the OSSC Wiki page here - junkerhq.net/xrgb/index.php/OSSC