

# 2X-SCART

## User Manual

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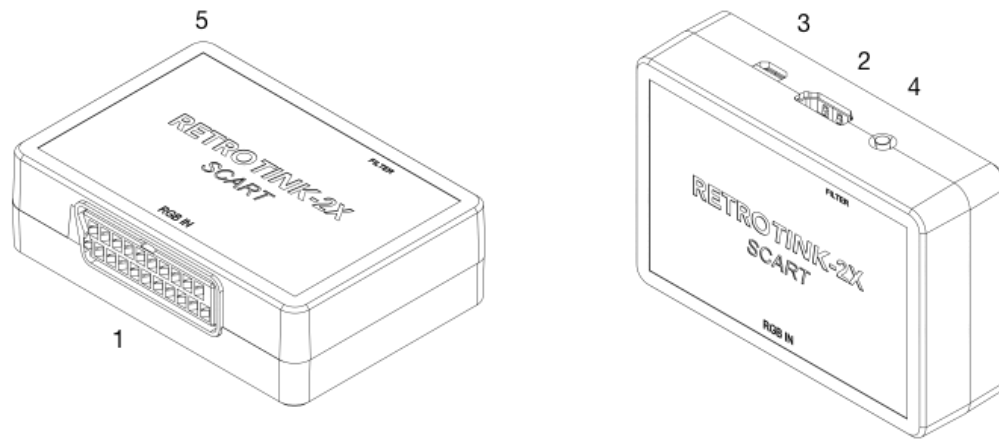
## **Introduction**

The RetroTINK-2X SCART is the next evolution of the original 2X for converting RGB video signals from retro consoles to a modern Digital Video display. The 2X-SCART is specifically designed to handle 240p off-spec signals and output 480p with low latency and minimal artifacts to preserve the original gaming experience.

The SCART version adds a scanline generator, USB firmware upgrade support and is housed in an injection molded enclosure. In addition, the 2X-SCART is fabricated on a 4-layer PCB with improved routing, power supply and filtering for lower video noise.



## Description



1. RGB SCART input.
2. Digital Video output.
3. microUSB power input. Connect to any microUSB power source capable of supplying 500 mA or more.
4. FILTER button. Cycles between normal, smoothed and scanline filters.
5. Indicator LED.



## **Quick Start**

First insert a microUSB power cable to the device. You may use any source capable of supplying at least 500 mA.

Second, connect your console to the device via the SCART connector.

Third, connect the device to your display via a Digital Video cable. You should now see the output from your console on your display.

Finally, press the 'FITLER' button until your desired effect is shown. The effect cycles between normal (blocky), smoothed and scanline effects.

The RetroTINK-2X SCART remembers the filter settings between power cycles.



## **Firmware Upgrade**

The 2X-SCART has the ability to upgrade the firmware over USB using a PC-based application. No special tools are needed.

Firmware upgrades requires that the 2X be started in bootloader mode. Hold the 'FILTER' button down while connecting the 2X to a PCB via USB cable. The LED indicator should remain solid RED.

If the upgrade process fails, simply restart by powering off the device and re-entering the bootloader. Since the bootloader resides in a protected region on memory on the microcontroller, bricking the device is extremely unlikely.

To exit bootloader mode without upgrading, disconnect the microUSB cord from the 2X, then reinsert without holding the 'INPUT' button down.

Detailed instructions may be found on [www.retotink.com](http://www.retotink.com)



## Troubleshooting

*Q: No image is shown.*

A: Double check that the 2X is powered up and that the Digital Video cable from the 2X is securely plugged into your TV. Try another TV and Digital Video cable. Without any console connected, you should see a colorbar test pattern. If you do not, contact your seller for additional assistance.

*Q: Some consoles work but other consoles show a black screen on the TV*

A: Retro-consoles deviate from standard video refresh rates and timing. The 2X is a low-latency line doubler and thus, does not alter these off-spec timings. It is likely your TV does not like the output rate of a specific console. Try another TV or monitor.

*Q: Picture is noisy and/or interference is seen.*

A: In almost every case, the noise originates from the console, console's power supply and/or the cables used to connect the console to the 2X. The noise almost never originates from the 2X itself. In addition, to preserve image sharpness, the 2X does minimal filtering to attempt and smooth out noisy sources. For the best image quality, always use official power supplies for your console and shielded video cables.

*Q: No sound is heard.*

A: Double check to make sure the audio cables are connected correctly. Try another TV. The off-spec video timing of some-retro consoles causes some displays to reject the audio stream in the Digital Video connection. Alternatively, directly connect the audio output from your console to your sound system and bypass the 2X.

## Specifications

<b>Input Connections</b>	RGBs over SCART, Sync on Composite or CSYNC
<b>Output Connection</b>	Digital Video*, TMDS
<b>Supported Formats</b>	240p, 288p, 480i, 576i
<b>Latency</b>	< 100 $\mu$ S from analog input to Digital Video output
<b>Data Interface</b>	FTDI USB Virtual Serial Port, 115200 bps 8-N-1 RTS/CTS Flow Control
<b>Power</b>	< 300 mA over microUSB, 500 mA PTC fuse for overcurrent protection

## Disposal

If your RetroTINK malfunctions, please contact the place of purchase via e-mail or through their website to arrange repair or replacement. All RetroTINK units come with one years warranty. Outside of warranty, resellers may also offer repair services at their discretion.

If you do need to dispose of the unit, in most countries you can recycle the unit for free at your local recycling centre. To find your nearest centre in the UK, visit the Recycle More website at <http://www.recycle-more.co.uk> and type in your postcode. In the Republic of Ireland, visit <https://www.weeeireland.ie/household-recycling/where-can-i-recycle/>.

If you live outside of the UK or ROI, please check with local authorities or contact us to arrange for a return of your unit.

