

Forum from the Newsgroups comp.sys.oric

RGB to SCART

From Stig Rune xxxx < no spam >:

I just want to let you know, finally after a lot of research and frowning, I have made a RGB to SCART cable that really works. It is quite simple, no resistors or extra power supply needed. And the picture on my tv is crystal clear and steady as a rock. The colors have never been better. Here it is:

RGB = Oric manual	to	SCART
1 red	-	15
2 green	-	11
3 blue	-	7
4 sync	-	20
5 gnd	-	13, 9, 5, 17 (together)

Have fun now! Regards from Stig the viking.

From Mickaël xxxx < no spam >:

Does it work for all Orics, on all tv sets? No risk? Dbug

NDLR: See the Ceo-Mag n°94 and n°102 for articles related to this problem. The cable above is an Oric-1/Atmos one and will not work with Telestrat, because there is a big difference in Oric pin n°5 (ground for Oric-1/Atmos but sound for the Telestrat). In addition, it will not solve the SCART commutation problem (12V required on SCART pin n°8).

From Stig Rune xxxx < no spam >:

Well, I assume that the euro/SCART contact is the same on all tv sets, and my Orics all have the 5 pin DIN RGB out.

However, I was too quick in my excitement, I have experienced some trouble with the colors. It took some minutes at first to get all colors, maybe the machine needed to get warm or it might be an unstable soldering in the cable.

I cannot guarantee that there is no risk. After all there are so many different types of tv sets and even more various hobby electronics out there. But what the heck, you have to take some risks. I have tried several configurations of the cable, and every time I prayed that it would'nt smoke the Oric. All though I have 3 of them, I have none to spare. The tv set is not so hard to replace (it's an old Telefunken).

Just the excuse I need to upgrade to a widescreen. The Orics are in fine condition and so is the tv set, that's all I can say.

I know that some say you have to get the voltage right to get the tv set to switch between RGB and y/c or c-video mode, I don't know anything about this, On my tv I can choose from the menu with the zapper.

Hope this can help, and please let me know if anybody has some experiences with the cable to share. By the way, my cable is about 2 metres long, no problem with interference.

From Mark xxx < no spam >:

The Oric has a resistor array on the output to make the signals roughly compatible with the 75 ohm input from the SCART or most other video inputs. However, this makes that the signals are roughly the right level, but are NOT really 75 ohm. However, this ensures that there is hardly any risk (although don't come and complain to me if something does go wrong...)

I've developed a driver for my Oric which realizes a 75 ohm output which is quite simple to build and does not have any problems, except... that it requires an extra power source. This allows a much longer video cable, even over 10 meters is then possible without problems....

From Stig Rune xxxx < no spam >:

Hi Mark. Thanks for your reply, it cleared out some issues at least for me. It seems that my solution of the RGB to SCART cable is a bit too simple, it is not stable enough with the colors. Would it be too much to ask for the wiring diagram of your magic box?

From Mark xxx < no spam >:

It is not a complex diagram, which also means it is not an expensive circuit to build. So far it has worked with any SCART plug and TV I've found and has given me a razorsharp picture. Furthermore, it complies with the official video signal levels, so it can be used safely.

From Mickaël xxxx < no spam >:

I'm interested! Perhaps it could be published in the next Ceo-Mag?

From Mark xxxx < no spam >:

No problem of course. Regrettably I don't have a website and it's not possible to attach files to postings in this newsgroup, so I have to mail it to each person individually so a posting in CEO is an option to make it available to a wider audience.

NDLR Done! Thanks to you Mike and to André xxxx

From Mickaël xxxxx < no spam >:

I published the schematics sent by Mark Vermeulen on my site, on the following page:
<http://www.defence-force.org/computing/oric/hardware/video/index.htm>

From Andre xxxx < no spam >:

The modified version (french translation) is at: <http://www.teaser.fr/~amajorel/oric/scart.html>

From Jean xxxx < no spam >:

A few questions about this drawing. Which pin is used for blanking (16 or 8)? What are the pros (the cons are to solder the chips) of this solution? In France (and elsewhere?), we directly connect:

Oric		TV set (SCART socket)	
1	R	15	
2	V	11	
3	B	7	
4	sync	20	
5	ground	13	and + 5V on pins 8 and 16.

From Stig Rune xxxx < no spam >:

I have used my easy version of the RGB to SCART cable for some time now and tested it out a bit. It works fine now. The trouble I had was related to my tv set, I think, I had to turn on the Oric first and then the tv, and everything was fine. Today I came across a Commodore 1084 monitor. It has RGB, SCART and COMPOSIT input connections on the backside. And the cable works fine with it to. So maybe you to can get away with the easy version of the RGB to SCART cable.

From Mark xxx < no spam >:

The first step, the IC, is to improve the quality and the levels of the video signal. It is generated by a simple 74LS365A, which has TTL compatible outputs. The IC improves, the quality of this signal and makes sure that it is once again 5V/0V, depending on the signal level. The resistors behind the IC make the signal the right level for SCART video. The transistors make that the output current can be handled. The 68E resistors make the outputs compatible with the 75E inputs of a SCART connector. That's all there is to it. The BLNK pin is not always necessary, but some TV's expect a CVBS signal if this level is NOT applied. It is always safe to add and makes the circuit universal for ANY TV which can handle RGB. So far I've only found ONE TV which could NOT handle RGB, and this was a prototype which was never sold. I hope this clarifies things a bit.

From Jani xxxx < no spam >:

Funny... Schematics show that it's 75HCT244 (should it be 74HCT244) and states that only HC/HCT part should be used _no_ LS or others. But I think that schotky parts are better (generates more sharp signal). Well, if someone really wants to generate HQ-output, connect that IC _directly_ to outputs of ULA. A bit more work, but gives best quality that you can achieve.

From Mark xxx < no spam >:

Indeed the 75HCT... should read 74HCT. The reason why HCT is preferred over LS is that it really has 5V outputs when the signal is HIGH. LS has any voltage from 3V onwards. The speed is not an issue, the video signal of the Oric is very low frequency, so a HCT IC can easily handle it. You're ABSOLUTELY RIGHT when you state that a direct connection to the ULA is much better. The circuit I've developed (you can hardly call it a circuit) can be connected externally, which was for me a target. I doubt whether you can actually see the difference in quality though, but elimination of components results nearly always in an improved quality. Perhaps the new Oric can have 75E outputs using emitter followers as I have done, directly connected to the new ULA!

From John xxxx < no spam >:

TTL (LS etc.) uses a totem-pole output - a (bipolar) transistor pulling high, and another pulling low (not both at once of course!). The 3V (actually 2.4 or 2.8, depending on family) is the lowest it is guaranteed to be if you suck the maximum rated current out of it; under light or no load, it does indeed go to near supply (5V) - less the saturation voltage of the transistor, which under light load isn't much. CMOS (HC etc.) has a pair of FET transistors in more or less the same arrangement. These have a lower saturation voltage, so under light load the output really does get closer to 5V, but their maximum rated output current can be less.

The T on the end of HCT means TTL compatible, which usually means CMOS innards to the chip with TTL interfacing, but I'm not sure if that means the output stages are beefed up, or just that the input threshold is lower.

Un Convertisseur Oric Vers Périitel

An Oric To SCART Video Converter

par Mark xxxx
by Mark xxxx

d'après une page oueb de Mickaël xxxx, traduction française de André xxxx
from a web page by Mickaël xxxx, french version by André xxxx

Le schéma est simple, quoique fonctionnel:

- 1) Le 74HCT244 remet en forme le signal de l'Oric et le remet au niveau TTL.
- 2) Les résistances de 100 et 75 ohms ramènent la tension à approximativement 2,4 V. On choisit des résistances de faible valeur pour éviter de déformer le signal.
- 3) Les signaux sont bufferisés par des transistors montés en collecteur commun, ce qui fait encore perdre environ 0,7 V.
- 4) Les résistances de 68 ohms adaptent le signal à l'impédance d'entrée de la télévision, qui est 75 ohms. Le signal final ne dépasse pas 0,7 V.

The schematics are quite simple, yet effective:

- 1) You 'polish' the ORIC RGB signal up, and make it again TTL level compatible.
- 2) You divide it down to the required levels using the 100E/75E resistor combination so it approximates 2,4V. The resistors have low values to make sure the signals are not distorted too much.
- 3) You buffer the signals using emitterfollower transistors. In this step you lose once again about 0,7V
- 4) You make the outputs again 75 ohm so a TV can handle them. The extra termination of the 75 ohm input of the divides the signal again by a factor of 2. Endresult is a signal of 0,7V peak.

