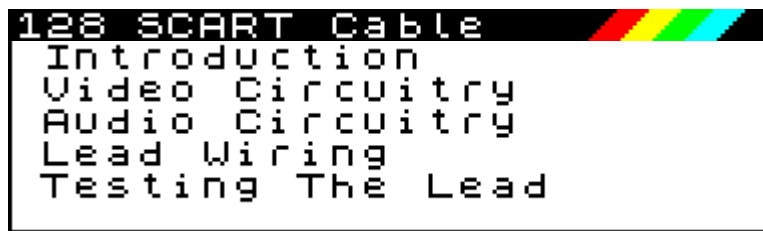


Spectrum 128 SCART Cable

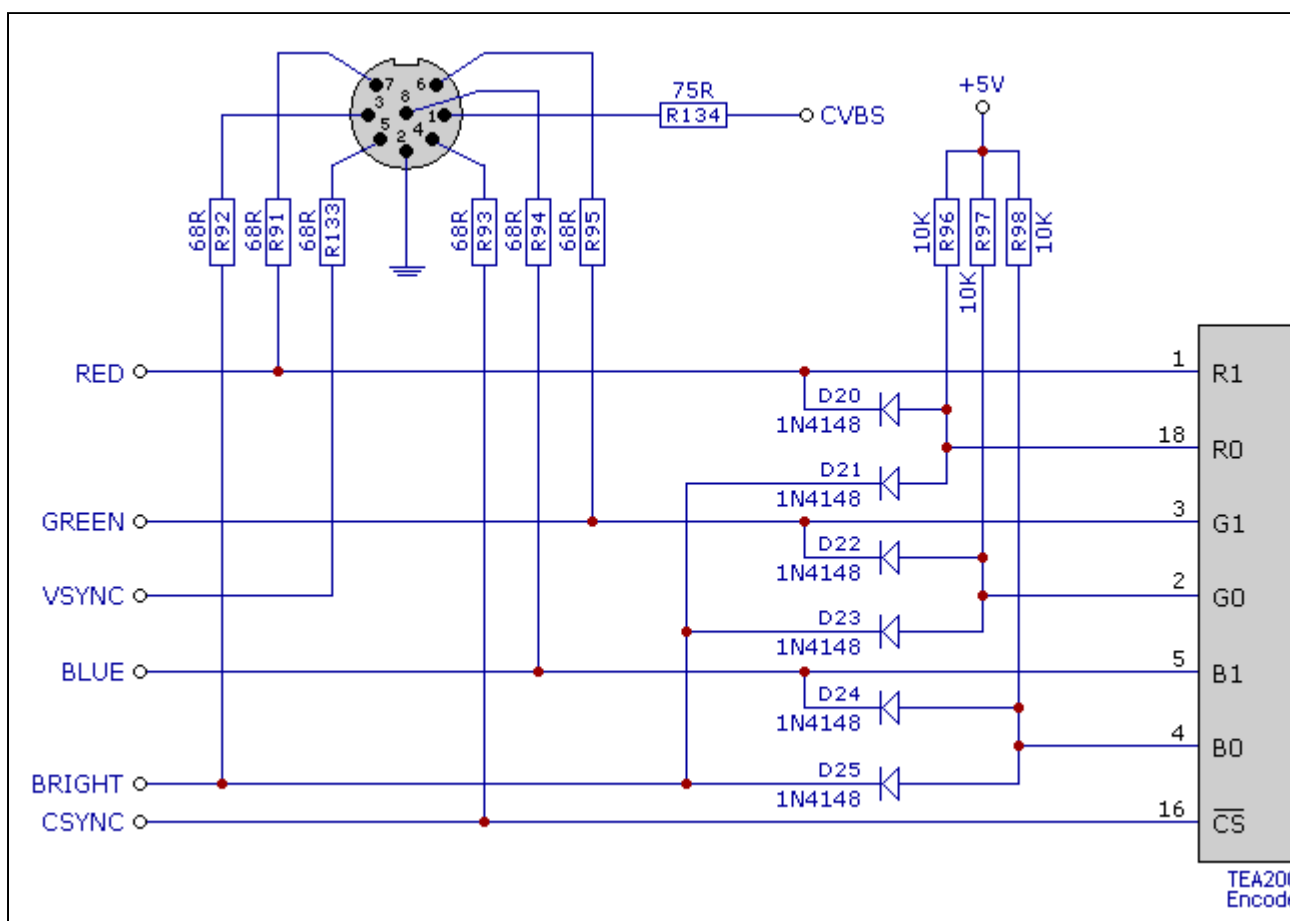


Use the Spectrum 128 style menu below to navigate to the various sections detailing the SCART cable.

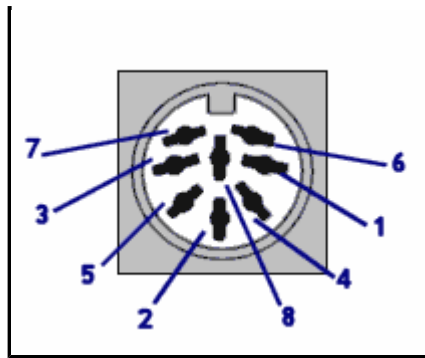


Video Circuitry

The ULA in the Spectrum 128 outputs TTL level red, green, blue and sync signals and from these a TEA2000 Encoder video chip produces a composite video signal. The TTL level signals are taken to the monitor socket via 68 ohm resistors and the composite video signal is taken to the monitor socket via a 75 ohm resistor, as shown in the diagram below.



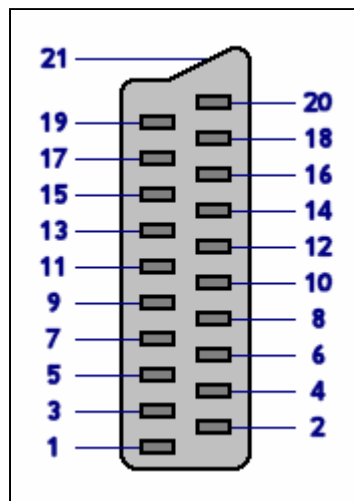
The monitor socket of the Spectrum 128 is a female 8 pin DIN (type 45326) and the signals available are:



Pin	Signal	Level
1	Composite Video	75 ohm, 1.2V pk-pk
2	0 Volts DC	0V
3	Bright Output	TTL
4	Composite Sync	TTL
5	Vertical Sync	TTL
6	Green	TTL
7	Red	TTL
8	Blue	TTL

The Spanish version of the Spectrum 128 has a different RGB socket pin out, which can be viewed [here](#).

The layout of the SCART socket (also known as a Peritel or a Euro connector) is as follows:

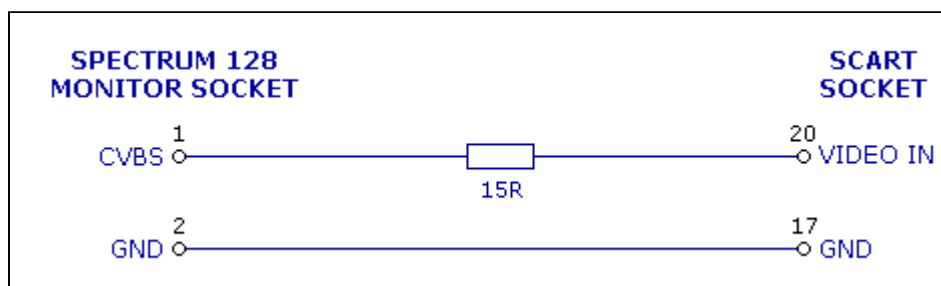


The pin signals available on a SCART socket are shown below, but note that some TVs may only support a subset of these.

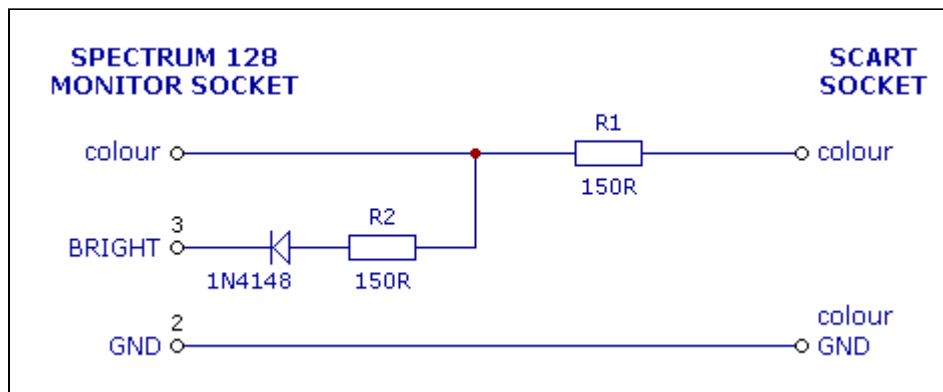
Pin	Signal	Level
1	Audio Output Right	0.5V RMS, <1K output impedance
2	Audio Input Right	0.5V RMS, >10K input impedance
3	Audio Output Left	0.5V RMS, <1K output impedance
4	Audio Ground	0 Volts
5	Blue Video Ground	0 Volts

6	Audio Input Left	0.5V RMS, >10K input impedance
7	Blue Video	0.7V pk-pk +/- 2dB, 75 ohm input and output impedance
8	Function Switching	0 to 2V = TV (default if unconnected). 5 to 8V = TV wide screen. 9.5 to 12V = AV mode. >10K input impedance [When an AV source becomes active it sets 12V on pin 8 and causes the TV to automatically switch to that SCART input. When the source stops, the signal returns to 0V and TV viewing is resumed. If a 16:9 program is present, the source raises the signal on pin 8 to only 5V.]
9	Green Video Ground	0 Volts
10	Comms Data Line 2	This signal allows devices to communicate serial data
11	Green Video	0.7V pk-pk +/- 2dB, 75 ohm input and output impedance
12	Comms Data Line 1	This signal allows devices to communicate serial data
13	Red Video Ground	0 Volts
14	Comms Data Ground	0 Volts
15	Red Video	0.7V pk-pk +/- 2dB, 75 ohm input and output impedance
16	Blanking	75 ohm input and output impedance. 0V to 0.4V: TV is driven by the composite video input signal on pin 20 (default if unconnected). 1V to 3V: TV is driven by the Red, Green, Blue signals and composite sync signal on pin 20.
17	Video Ground	0 Volts
18	Blanking Ground	0 Volts
19	Video Output	1V pk-pk including sync, +/- 2dB, 75 ohm output impedance
20	Video Input	1V pk-pk including sync, +/- 2dB, 75 ohm input impedance
21	Common Ground	0 Volts

The Spectrum 128 can be connected to a SCART socket via composite video (CVBS) and only requires a single 15 ohm resistor, as shown in the circuit diagram below. The resistor reduces the 1.2V pk-pk signal output by the Spectrum 128 to 1V pk-pk required by the SCART.

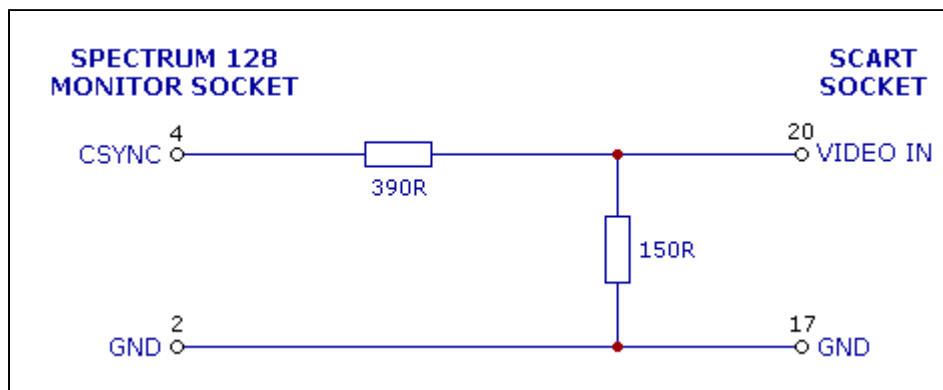


The circuitry required to connect the Spectrum 128 to a SCART socket via RGB consists of only resistors and diodes. The diagram below shows the circuit required for each of the colour signals.



Resistor R1 reduces the colour signal down to a level suitable for the SCART socket. When the BRIGHT signal is high, it has no effect on the colour signal level due to the diode and the bright shade of the colour is produced as a result when the colour signal is high. For the normal intensity colour, the BRIGHT signal is low and resistor R2 reduces the signal level coming out of the Spectrum 128. The internal 68 ohm resistor on the colour line provides short circuit protection.

The other output required from the Spectrum 128 when connecting via RGB is the composite sync signal and this should be connected to the SCART socket's VIDEO IN line via a 390 ohm series resistor and 150 ohm parallel resistor, as shown in the circuit below.



The FUNCTION SWITCHING signal (pin 8) on the SCART socket is used to allow the TV set to automatically select to show the SCART input when a signal is present. The BLANKING signal (pin 16) on the SCART socket is used to inform the TV set whether the SCART input to show is composite video or RGB. If the BLANKING signal is left disconnected then composite video is the default AV input type. If the FUNCTION SWITCHING signal is left disconnected then the AV input must be selected manually. The table below shows the different permutations:

FUNCTION SWITCHING (Pin 8)	BLANKING (Pin 16)	TV Mode
0V - 2V	0V - 0.4V	Composite Video, Manual Selection

0V - 2V	1V - 3V	RGB, Manual Selection
9.5V - 12V	0V - 2V	Composite Video, Automatic Selection
9.5V - 12V	1V - 3V	RGB, Automatic Selection

For TV sets that allow manual selection of the SCART socket's composite video and RGB inputs, the FUNCTION SWITCHING and BLANKING signals can be left disconnected. For TV sets that allow manual selection of the SCART input but not whether the input should be composite video or RGB, then leaving the BLANKING pin disconnected will cause the composite video input to be selected. To specify that the input should be RGB, it is necessary to connect the BLANKING pin to 1V - 3V. The Spectrum 128's RGB socket does not provide a +5V or a +12V output, which would have been useful when connecting the FUNCTION SWITCHING and BLANKING pins. Instead, power must be taken from either the RS232 socket, the KEYPAD socket or the edge connector and converted down to the appropriate voltage. If either the BLANKING or FUNCTION SWITCHING pins are connected then the BLANKING GND (pin 18) should be connected to 0V at the Spectrum 128.

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