

Posted Thu Oct 16, 2014 12:59 AM

Android8675, on 14 Oct 2014 - 5:54 PM, said:

Hey can you show how you wired up your cable? (Drawing) Maybe a photo of the "finished" product?

Thanks much, I have a hard time wrapping my head around 4TDP switches and wiring. Also, a link to a switch sold by newark or digikey would be cool too.

-A.

I think a circuit diagram might be a bit confusing, so here's a description of the pin to pin connections.

Firstly, here's what the number of the two connectors looks like, note which side these are viewed from:

```
SVGA DB-15 socket looking at monitor from outside (pins
are numbered on many sockets)
 5  4  3  2  1
 10 9  8  7  6
 15 14 13 12 11

ST monitor socket looking at computer from outside:
 4  3  2  1
 8  7  6  5
12 11 10 9
   13
```

The simplest ST->VGA cable is just a colour one, everything is just connected straight through. You might need to play with the values of the resistors a bit; too low and the colours wash out (bright red becomes the same as very bright red, etc.), too low and the picture becomes dark and/or noisy:

```
Colour Monitor Cable
=====

Atari ST                               SVGA DB-15
~~~~~                                  ~~~~~

7 (red) -----[50Ω]----- 1 (red)
6 (green) -----[50Ω]----- 2 (green)
10 (blue) -----[50Ω]----- 3 (blue)
9 (hsync) ----- 13 (hsync)
12 (vsync) ----- 14 (vsync)

                                   /-- 5 (ttl ground)
                                   /--- 6 (red ground)
13 (ground) -----+---- 7 (green ground)
                                   \ -- 8 (blue ground)
                                   \-- 10 (sync ground)
```

The mono cable doesn't use the ST's RGB pins, using the ST's mono out instead. Connecting the 'mono detect' pin tells the ST to switch to Mono mode, rebooting if necessary.

```

Mono Monitor Cable
=====

Atari ST                                SVGA DB-15
~~~~~                                  ~~~~~

                                           /-- 1 (red)
11 (mono out) ---[100Ω]--+----- 2 (green)
                                           \-- 3 (blue)

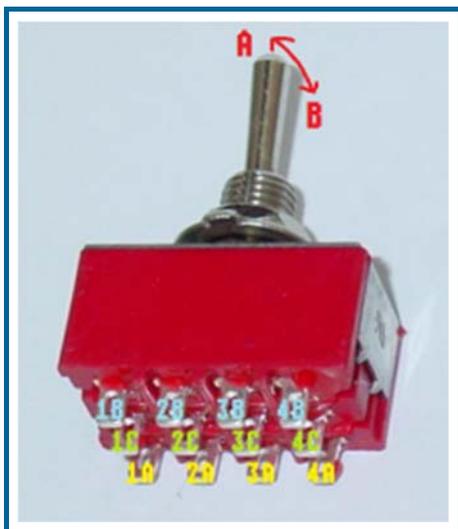
9 (hsync) ----- 13 (hsync)
12 (vsync) ----- 14 (vsync)

                                           /-- 5 (ttl ground)
4 (mono detect) ----. /--- 6 (red ground)
13 (ground) -----+----- 7 (green ground)
                                           \ -- 8 (blue ground)
                                           \-- 10 (sync ground)

```

So it would be pretty simple to make one of those cables, or make both and just plug and unplug them to switch from colour to mono, but it is more convenient to add a switch.

I'm using a bog-standard 4 Pole 2 Throw 2-position switch. Electrically speaking this is 4 separate switches (poles), each of which has a common pin that is connected to one of two other pins (2 throw) depending on the position of the toggle lever. Here's a photo of one of these switches, I've numbered the separate switches 1-4, labeled the common pins C for each switch, and called the two positions A and B. When the toggle is in position A, 1C is connected to 1A, 1B is not connected, 2C is connected to 2A, etc. Note that position 'A' is up in the diagram, but the A pins are on the bottom- might be confusing when you wire it up and label it if you don't notice that.



So I use the switch to create a single cable that can behave as if it were either of the the above two cables, by wiring it up like this. Pin-numbering on the switch is my own, just to match with the picture above.

Mono-Colour Switched Cable

=====

Atari ST DB-15	4PDT Switch	SVGA
~~~~~ ~~~~~	~~~~~ ~~~~~	
4 (mono detect)	----- 1B	1C ----- ground
	/-- 2B	2C ----- 1
(red)		
11 (mono out)	---[100Ω]--+---	3B 3C ----- 2
(green)		
	\-- 4B	4C ----- 3
(blue)		
	(not connected) --	1A
7 (red)	-----[50Ω]-----	2A
6 (green)	-----[50Ω]-----	3A
10 (blue)	-----[50Ω]-----	4A
9 (hsync)	-----	13
(hsync)		
12 (vsync)	-----	14
(vsync)		
		/----- 5 (ttl
ground)		
		/----- 6 (red
ground)		
13 (ground)	-----+-----	7
(green ground)		
		\ ---- 8
(blue ground)		
		\----- 10
(sync ground)		