

# VIRTUALTAP

Installation manual v1

## WHAT'S NEEDED

- A 4.5mm "game bit" or filed flat-head screwdriver.
- Insulated, flexible wire. Multi-core preferred.
- A socket to plug in the cable you want:
  - VGA uses a female DE-15 socket with straight pins. Don't forget the screws.
  - RGB NTSC can be anything you want, DIN, Nintendo AV, Coax...
- A push button or momentary SPST switch for palette selection.
- A tool able to make holes in plastic. Drill, Dremel...
- A reasonable quality soldering iron. A simple 30~40W one with a 1mm tip is enough.
- Solder (leaded is easier to use).
- Optional: liquid or gel flux for soldering, and IPA for cleaning.

## SOLDER POINTS REFERENCE

S	• COMPOSITE SYNC
T	• RED
G	• GREEN
B	• BLUE
+	• FAST SWITCH
5	• +5V
V	• VERTICAL SYNC
H	• HORIZONTAL SYNC
G	• GROUND
M	• BUFFER MODE
P	• PALETTE SWITCH
GN	•

Analog outputs are 75Ω. If using SCART, make sure that the cable doesn't have resistors on the R, G and B lines.

+ is used to switch the display to RGB mode when using SCART. It should measure 3.3V when disconnected and around 1.7V when connected to a TV.

+5V is not used for now.

Palette switch: Wire the switch between P and GN. You can directly connect both if you only want to use the red palette.

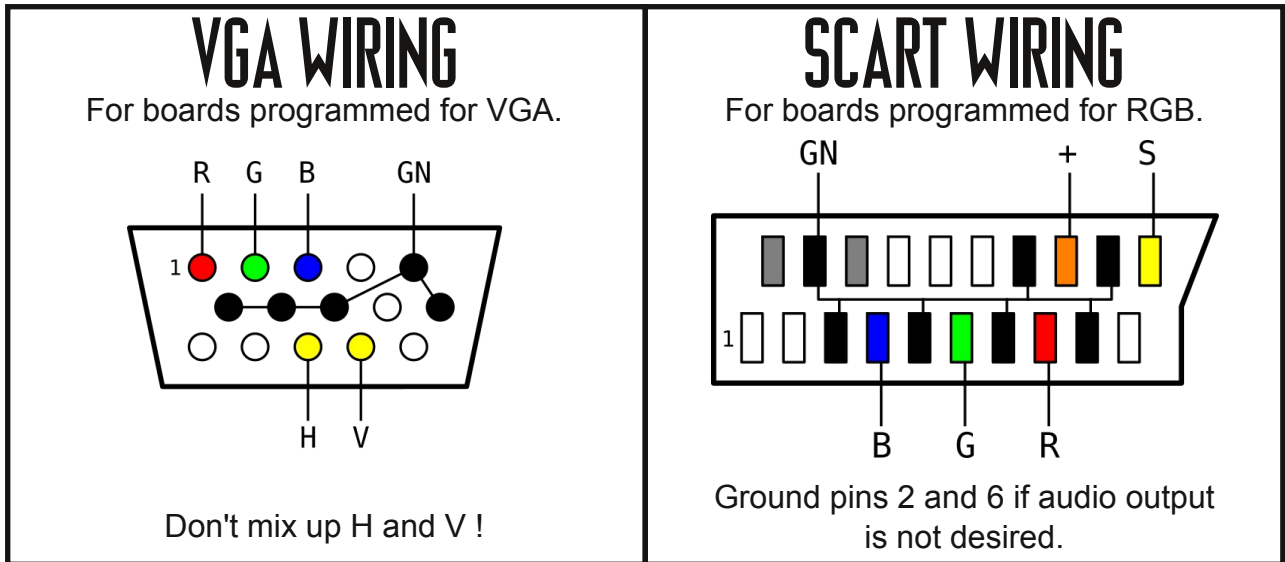
## BUFFER MODE

You can chose between two buffering modes to convert the VirtualBoy's 50fps video to the required 60fps:

	Fast buffer mode	Quad buffer mode
Tearing	Yes	No
Introduced lag	Max. 20ms	Between 20ms and 37ms
Solder jumper	Set	Not set

To set the jumper, bridge the M and GN points. By default, quad buffer mode is used.

The mode setting is read continuously, so a switch can be wired between the M and GN points if needed.



# INSTALLATION

The Virtualtap's ribbon connectors have white flaps. Lift them with tweezers before inserting or removing the ribbon cables, and press them back down afterwards.

Open up your VirtualBoy by removing all the visible screws and lifting the black side of the casing. Disconnect one of the displays from the main board by gently pulling on the white tab of the ribbon cable. Be careful: those **are known to be very fragile**.

Insert the Virtualtap's ribbon cable instead, **blue stripe facing up** (metal contacts down). If you want to keep the original display functional, insert its own ribbon cable in the Virtualtap's second connector.

The drilling location for the video output socket is up to you. VGA connectors can fit on the side, below the speakers. DIN sockets can fit next to the volume wheel.

The Virtualtap can be tucked between the original display and the speaker. This keeps the ribbon cables straight and will still allow IPD adjustment.

Make sure the board isn't touching any metal part (especially the display chassis) in the VirtualBoy. Once the wiring is done and checked, insert a game and power up the VirtualBoy.

The video output should be immediately active, first showing "snow", then the game's picture. If the VirtualBoy doesn't start up (mirrors not oscillating, no sound), turn it off immediately and check your wiring for shorts.