

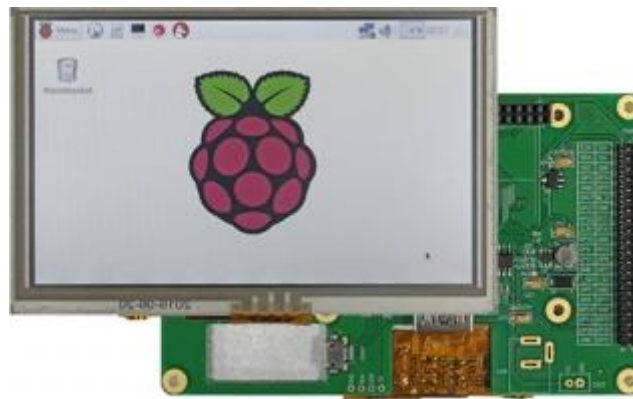
Raspberry PI Set Up Guide

800x480 pix, 5" / 1280x800 pix, 10.1" TFT HDMI Backpack

Overview:



WF101FSYFPLHTX#



WF50BTIFGDHTX# / WF50BTIFGDHGX#

It's a mini HDMI monitor! So small and simple, you can use this display with any computer that has HDMI output, and the shape makes it easy to attach to a case or rail. This backpack features the TFP401 for decoding video, and for the touch version, an AR1100 USB resistive touch screen driver.

The TFP401 is a beefy DVI/HDMI decoder from TI. It can take unencrypted video and pipe out the raw 24-bit color pixel data - HDCP not supported! The 5" and 10" displays are 800x480 /1280x800 resolution, which is just enough to run most software, but still small enough that it can be used in portable or embedded projects without the bulk.

For smaller display sizes (e.g. 5") you can even power the entire display from a USB port. With the default 5" 800x480 display and 50mA backlight current, the current draw is 500mA total. You can reduce that down 370mA by running the backlight at half-brightness (25mA).

However, with the bigger (e.g. 7" and 10") a dedicated PSU will be needed.

We have two versions; one is video only and one is video + touch (please refer to individual DS.). If you want a screen that you can poke at, get the +touch version. The USB port then acts as both power and data, with the touch screen appearing like a USB mouse. In particular, we suggest it for use with single board computers (or desktop/laptops!) with DVI/HDMI output like the Raspberry Pi or Beagle Bone Black. You can power the driver over USB and then feed it video via the HDMI port. It's a very small board so great for tucking into an enclosure.

Please note the TFP401 decoder chip does not contain a video scaler, it will not resize/shrink video!

Pinouts:

Since this is an all-in-one design, there's no soldering required, but there are a few extra hacker-ports for those interested in tweaking! Please refer to individual DS.

Raspberry Pi Config:

Both 5" and 10" displays have 800x480 pixels and 1280x800 pixels so when used on Windows, at least, will autodetect and set the resolution. On Raspberry Pi, you're better off forcing the HDMI resolution by using the following config.txt file (in /boot/config.txt) - you can edit it by popping the SD card into your computer, the config.txt file is in the root directory Remember, the TFP401 driver does not have a video scaler!

If you don't feed it exactly 800x480/1280x800 pixels the image will not stretch/shrink to fit!

\$ sudo nano /boot/config.txt

```
# uncomment if you get no picture on HDMI for a default "safe" mode
#hdmi_safe=1
# uncomment this if your display has a black border of unused pixels visible
# and your display can output without overscan
#disable_overscan=1
# uncomment the following to adjust overscan. Use positive numbers if console
# goes off screen, and negative if there is too much border
#overscan_left=16
#overscan_right=16
#overscan_top=16
#overscan_bottom=16
# uncomment to force a console size. By default it will be display's size minus
# overscan.
#framebuffer_width=1280
#framebuffer_height=720
# uncomment if hdmi display is not detected and composite is being output
hdmi_force_hotplug=1
# uncomment to force a specific HDMI mode (here we are forcing 800x480!)
hdmi_group=2
hdmi_mode=1
hdmi_mode=87
```

Chose the right resolution depending on your setup:

```
# hdmi_cvt=1280 800 60 6 0 0 0
hdmi_cvt=800 480 60 6 0 0 0
max_usb_current=1
# uncomment to force a HDMI mode rather than DVI. This can make audio work in
# DMT (computer monitor) modes
#hdmi_drive=2
# uncomment to increase signal to HDMI, if you have interference, blanking, or
# no display
#config_hdmi_boost=4
# uncomment for composite PAL
#sdtv_mode=2
#uncomment to overclock the arm. 700 MHz is the default.
#arm_freq=800
```

Also, on Raspberry Pi — use the raspi-config tool to force audio to the 3.5mm jack (not HDMI or auto). Not all screens support audio over HDMI, and in this case, it may actually interfere with the display.

It is possible to power the display from the onboard Pi USB port with the modification below, but a powered hub is ideal! To let the Pi A+/B+ drive a display power over USB, first make sure you have a 2A power supply, with a good quality USB cable, a thin wire power cable is no good. Make sure its 24AWG or smaller, shorter USB cables are better too. Then add:

```
max_usb_current=1
```

to **/boot/config.txt**

If you're getting weird reboots, its likely the power supply and/or power USB cable is not good enough. A powered hub will also solve this problem.

Touchscreen:

If you purchased the version of the backpack with touch support, you will receive a board with extra circuitry for a resistive touch screen decoder. The circuit is an AR1100 USB resistive touch driver, so it basically just uses the same USB port you use to power, but for the data The AR1100 shows up like a USB mouse, it works on all operating systems as the computer doesn't even know it's a touch screen, it just thinks it's a mouse! You can adjust the AR1100 to consider itself a Touch Digitizer, supported by many but possibly not all computers. You can also re-calibrate the touch screen. We do calibrate it with the 800x480 5" screens but we recommend re-calibrating it if you feel like it's not precise enough for your tastes.

The software is Windows only, but you only have to configure/calibrate the touch controller once, then it can be used on any computer!