5" HDMI LCD with Resistive Touch User Manual

Features

- 800×480 high resolution
- Directly-pluggable into Raspberry Pi 2 Model B (Pi model B requires additional HDMI cable)
- Drivers is provided for Pi and Pi 2
- Can be used as HDMI display (without touch panel input as it require I/O interface).
- High quality immersion gold surface plating

Content

1. Working with Raspberry Pi

1.1   System image file programming

In order to use the LCD with Raspberry Pi, you should configure the original system first. Of course, you can program a ready-to-use system image file to your Raspberry Pi board as well. In this section, we present the steps of image programming by taking the ready-to-use system image file programming as an example. And Section 1.3 describes how to configure original system.

1) Copy the file with the expansion name .img under the direction of IMAGE to your PC. (Under the direction of IMAGE, there are three system image files for Raspbian system, PIDORA system, and Raspbmc system respectively. And all of these file are in the expansion name of .img)

2) Format your TF card with the SDFormatter.exe.
   Notices: The capability of TF card in used here should be more than 4GB. In this operation, a TF card reader is also required, which has to be purchased separately.

3) Start the Win32DiskImager.exe, and select the system image file copied into your PC, then, click the button Write to program the system image file.
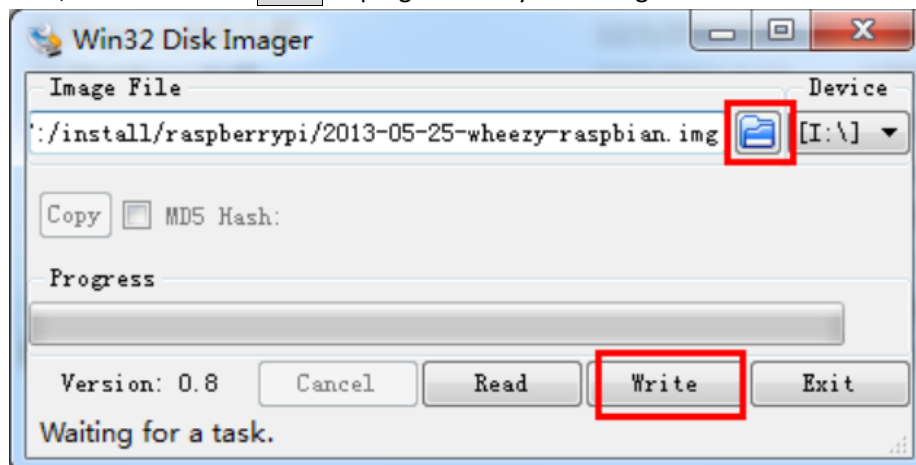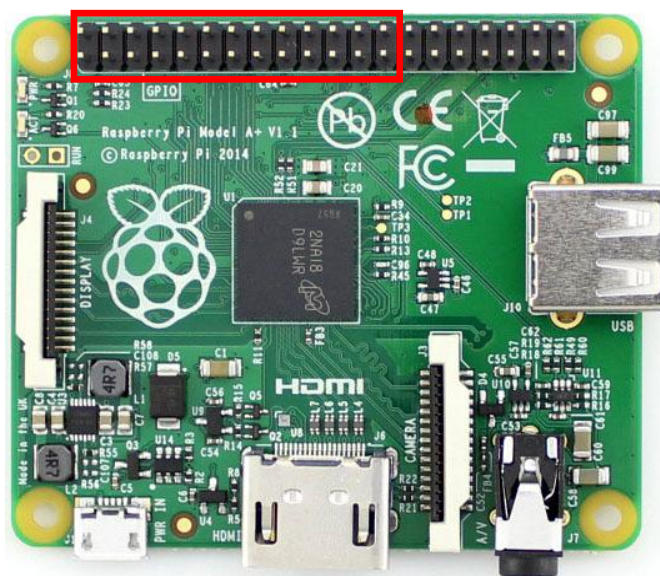
1.2 Hardware connection
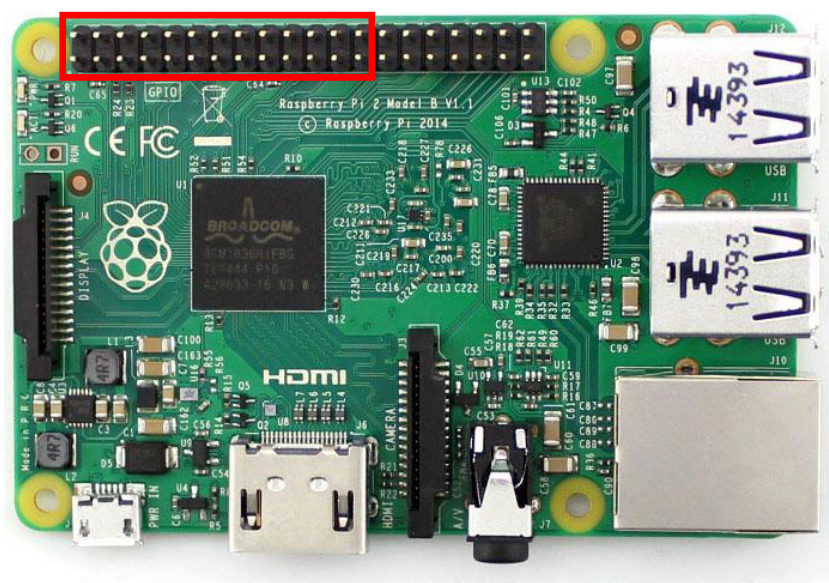
1) GPIO connection
   a) Raspberry Pi Model A+ connection
   Raspberry Pi Model A+ has 40 pins expanded GPIO header, while HDMI screen has 26 pins expanded header. The screen's pins must connect to the Pi's corresponding pins. The pins on Raspberry Pi Model A+ for screen connection are marked with red box as shown below.

   b) Raspberry Pi Model B+/Raspberry Pi 2 Model B connection
   Raspberry Pi Model B+/Raspberry Pi 2 Model B has 40 pins expanded GPIO header, while HDMI screen has 26 pins expanded header. The screen's pins must connect to the Pi's corresponding pins. The pins on Raspberry Pi Model B+/Raspberry Pi 2 Model B for screen connection are marked with red box as shown below.

2) HDMI connection

Plug the HDMI connector in the HDMI interfaces of screen and main board.

1.3 How to configure Raspbian image file

It is recommended to employ the ready-to-use system image file under the direction of /IMAGE/5inch_HDMI_Raspbian .img. The relative operations are presented in Section 1.1.

The Raspbian image file downloaded from official website need further configurations before use. If you want to apply the original system image file, please read the following sections.

1.3.1   Display parameter configuration

1) Enter the system terminal. Connect a keyboard and a HDMI displayer to the Raspberry Pi, and switch to HDMI display mode, then you can enter the Graphic User Interface directly to perform operations. Also, you can control the Raspberry Pi via network or serial communication, if no HDMI displayer and keyboard are in used.

2) Modify the file /boot/config.txt

Enter the command listed below:

pi@raspberrypi ~ $sudo nano /boot/config.txt

Make the modification as follows:

# 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
hdmi_cvt 800 480 60 6 0 0 0

start_file=start_x.elf
fixup_file=fixup_x.elf
#gpu_mem=128
```

1.3.2   Touch parameter configuration

1)   Copy the file \software\5inch_HDMI_LCD.tar.gz to any position you want in the Raspberry Pi system via network or U disk. And then, enter the command listed below:

```
pi@raspberrypi ~ $tar    xvf    5inch_HDMI_LCD.tar.gz
pi@raspberrypi ~ $cd 5inch_HDMI_LCD/
pi@raspberrypi ~ $sudo ./5inch_HDMI_LCD
```

2)   Restart the system, then the touch screen is ready to use.

1.3.3   Screen touch calibration

1)   Install the screen touch calibration Demo:

```
pi@raspberrypi ~ $cd 5inch_HDMI_LCD/
pi@raspberrypi ~ $sudo dpkg -i -B xinput-calibrator_0.7.5-1_armhf.deb
```

2)   Enter the command listed below:

```
pi@raspberrypi ~ $su pi
pi@raspberrypi ~ $DISPLAY=:0.0 xinput_calibrator
```

3)   When the calibration finished, the new calibration data will be displayed in the terminal.

Please get these data (marked with a red box) for future use.

4)   Enter the following command:

```
pi@raspberrypi ~ $sudo mkdir /etc/X11/xorg.conf.d
pi@raspberrypi ~ $sudo nano    /etc/X11/xorg.conf.d/99-calibration.conf
```

5)   Paste the data you get in step 3 into the terminal.

Press the keys **Ctrl+X**, then select the option **Y** and press the key **Enter** to save the modification and exit.

6) Enter the command for system rebooting: `pi@raspberrypi ~ $sudo reboot`

The touch configuration will be valid after rebooting the system.

2. Interface definition

PIN NO.	SYMBOL	DESCRIPTION
1	3.3V	Power positive (3.3V power input)
2	5V	Power positive (5V power input)
3	NC	NC
4	5V	Power positive (5V power input)
5	NC	NC
6	GND	Ground
7	NC	NC
8	NC	NC
9	GND	Ground
10	NC	NC
11	NC	NC
12	NC	NC
13	NC	NC
14	GND	Ground
15	NC	NC
16	NC	NC
17	3.3V	Power positive (3.3V power input)
18	NC	NC
19	LCD_SI	SPI data input of LCD/Touch Panel
20	GND	Ground
21	TP_SO	SPI data output of Touch Panel
22	TP_IRQ	Touch Panel interrupt, low level while the Touch Panel detects touching
23	TP_SCK	SPI clock of Touch Panel
24	NC	NC
25	GND	Ground
26	TP_CS	Touch Panel chip selection, low active