Raspberry Pi LCD User Manual

Features

- Designed for Raspberry Pi Model B/B+/2B/3B, an ideal alternative solution for HDMI monitor
- Convenient Men-Machine interface for Raspberry Pi, combined with the portable power, DIY anywhere anytime
- Supports Raspbian system
- Provides driver (can be used in your customized Raspbian system directly)

Contents

1. Getting Started

RPi LCD needs to use a SPI interface, but in the original image file of Raspberry Pi, the monitor is driven via a HDMI port. So the original image is not applicable for RPi LCD.

The LCD can be driven in two ways: Method 1, install driver to your Raspbian OS. Method 2, use the Ready-to-use image file of which LCD driver was pre-installed. **What's the difference?** Method 1 enables your LCD on the latest Raspbian OS while Method 2 eliminates cumbersome steps of LCD driver installation. It is advised that Raspberry Pi old users follow Method 1 and new users follow Method 2.

1.1. Method 1. Driver installation

Tips: Before installing LCD driver, some of virtual keyboard software is recommended, e.g. matchbox-keyboard, how to install. It is not must but which implements LCD touch input.

1) Configure your Pi:

```
sudo raspi-config
```

Set as:

- `Select Expand Filesystem.`
- `Boot Option -> Desktop Autologin (may differ depending on Raspbian revision)`

2) Copy the driver LCD-show-YYMMDD.tar.gz into your OS then Run the following commands:

```
tar xvf LCD-show.tar.gz
cd LCD-show/
```

- For 3.2inch RPi LCD (B), run the command:

```
sudo ./LCD32-show
```

- For 3.5inch RPi LCD (A), run the command:

```
sudo ./LCD35-show
```

- For 4inch RPi LCD (A), run the command:

```
sudo ./LCD4-show
```

- For 5inch HDMI LCD, run the command:

```
sudo ./LCD5-show
```

3) Then wait a few minutes, the system will restart automatically. When finished, the RPi LCD is ready to use.

4) Once this LCD is enabled, meanwhile the HDMI interface is disabled. If you want to use a HDMI monitor, please run the command to switch to HDMI display:

```
sudo ./LCD-hdmi
```

1.2. Method 2. To use the Ready-to-use image

The image file with driver pre-installed is located at the directory of IMAGE/ in the CD come with the product. When finished the programming, please power on the module, and wait a while. Then you will see the boot screen of Raspbian shown in the LCD and enter the desktop of the system.

2. Toggle between LCD and HDMI display

2.1. LCD display switch to HDMI display

1) The default boot mode of the system image in CD selects LCD display. And there will be no output to the external HDMI displayer if you apply one under this mode. In case that you want to use HDMI display, please execute the following commands:

```
sudo ./LCD-hdmi
```

2) The system will load the driver (wait several minutes). And the Raspberry Pi will reboot automatically, when the driver loaded. After the module rebooted, waiting more than 30 seconds, there will be information display on the HDMI screen. And then, you will enter into Startx interface.

2.2. HDMI display switch to LCD display

If you need to use LCD display again, please operate the following commands to switch to this mode:

When using 3.2inch RPi LCD, please input:

```
sudo ./LCD32-show
```

When using 3.5inch RPi LCD, please input:

```
sudo ./LCD35-show
```

When using 4nch RPi LCD, please input:

```
sudo ./LCD4-show
```

When using 5inch HDMI LCD, please input:

```
sudo ./LCD5-show
```

When finished the commands above, the system will load the driver (wait several minutes). And the Raspberry Pi will reboot automatically, when the driver download finished. After the module rebooted, waiting more than 30 seconds, there will be information display on the HDMI screen. And then, you will enter into system interface.

Descriptions: Under the HDMI display mode, you should use an external keyboard or SSH method for command inputting, since the virtual keyboard is not available. Or you can set a serial port as a debugging interface for command inputting.

3. Touch screen calibration

1) This LCD can be calibrated using a program called xinput_calibrator which is pre-installed on the CD image. However, it was not pre-installed on original Raspbian OS. So in this case, you should get and install the program manually with

   `sudo apt-get install -y xinput-calibrator`

2) Enter the following commands for touch screen calibration:

   `sudo DISPLAY=:0.0 xinput_calibrator`

3) After running these commands, there will be a prompt for four-point calibration shown in the LCD screen. Click the points one by one to finish the touch calibration. Then, the new calibration data will be displayed in the terminal, as shows below. Please get these data for future use.

```
Doing dynamic recalibration:
       Setting new calibration data: 3919, 208, 236, 3913
```

4) Enter the following command to edit 99-calibration.conf:

   `sudo nano /etc/X11/xorg.conf.d/99-calibration.conf`

   Then, the old calibration data will be displayed in the terminal:

```
Section "InputClass"
       Identifier          "calibration"
       MatchProduct        "ADS7846 Touchscreen"
       Option    "Calibration"    "160 3723 3896 181"
       Option    "SwapAxes"       "1"
EndSection
```

5) Modify the calibration data to the new calibration data displayed in the step 2):

```
Section "InputClass"
       Identifier          "calibration"
       MatchProduct        "ADS7846 Touchscreen"
       Option    "Calibration"    "3919 208 236 3913"
       Option    "SwapAxes"       "1"
EndSection
```

6) Press the keys Ctrl+X, and select the option Y to save the modification.

7) The modification will be valid after rebooting the system. Enter the following command for system rebooting:

   `sudo reboot`

   Notices: In case of inaccurate touch, please perform screen calibration again and reboot the system.

4. How to work with a camera

RPi LCD can also work with an external camera to take photos. In this operation, a Raspberry Pi camera is required, which should be purchased separately. To work with a camera, you should enter the terminal, and input:

```
cd /home/pi/camera/
Camera
```

Then, waiting several seconds, the camera application will be started automatically. Now, you can capture pictures by double clicking the screen.

5. FAQ

5.1. Why the image cannot be used after updated?

For avoiding unusable, image should be updated with the following methods:

```
sudo apt-mark hold raspberrypi-bootloader
sudo apt-get update
sudo apt-get upgrade
```

5.2. How to enter the console after power up by default

With the command:

```
sudo sudo raspi-config
```

Set as:

```
Boot Option -> Console Autologin (may differ depending on Raspbian revision)
```