

# 5inch HDMI LCD (B)

From Waveshare Wiki

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## Introduction

5 inch Resistive Touch Screen LCD, HDMI interface, supports various systems

More (<http://www.waveshare.com/5inch-HDMI-LCD-B.htm>)

## Working with PC

Turn on the "backlight" switch then connect the LCD to your PC (USB Port of LCD -> USB Port of PC; HDMI Port of LCD -> HDMI Port of PC. Please first connect the USB Ports then connect the HDMI Port). A new touch drive will be recognized by Windows and you can use the LCD as a human interface device. When multiple displays are detected by your PC, the LCD can only be used to control the cursor on main display. So it is proposed to set the LCD as the main display.

## Working with Raspberry Pi

For the Windows OS on PC, the resolution of the LCD is automatically identified. Hence, you do not need to make the relative settings. When working with Raspberry Pi, you should set the resolution of the LCD by yourself, or else the LCD screen will not work. For more detail information, please read the following section.

Turn on the "backlight" switch then connect the LCD to your Pi (HDMI Port of LCD -> HDMI Port of Pi; USB Port of LCD -> USB Port of Pi; 5V~2A power supply). Download the Raspbian image from Raspberry Pi web site (<https://www.raspberrypi.org/downloads/>). Write the image to a TF card and

### 5inch HDMI LCD (B) Supports various systems



5 inch Resistive Touch Screen LCD, HDMI interface, supports various systems

#### Primary Attribute

**Category:** OLEDs / LCDs, LCD, Raspberry Pi LCD

**Brand:** Waveshare

#### Website

**English:** Waveshare website  
(<http://www.waveshare.com/>)

**Chinese:** 官方中文站点  
(<http://www.waveshare.net/>)

#### Onboard Interfaces

USB

HDMI

append the following lines to the config.txt file which is located in the root of your TF card:

```
max_usb_current=1
hdmi_group=2
hdmi_mode=87
hdmi_cvt 800 480 60 6 0 0 0
hdmi_drive=1
```

You must make sure that there are no spaces on either side of the equal sign.

Save and connect the TF card to your Pi then power up.

(Touch input working well means that the LED firmware is Rev2.1. If the LCD firmware is 1.1, see #About LCD revision)

Note: Resolution of Ubuntu Mate OS or Windows 10 IoT Core OS can also be set properly by editing config.txt.

## Calibration in Raspbian

If a latest Raspbian OS is in used, you should connect your Pi to the internet and install xserver-xorg-input-evdev.

```
sudo apt-get install xserver-xorg-input-evdev
```

- Just be sure that evdev.conf has a higher number than 40-libinput.conf. For example, rename 10-evdev.conf to 45-evdev.conf. this forces evdev to load after libinput.

```
sudo cp -rf /usr/share/X11/xorg.conf.d/10-evdev.conf /usr/share/X11/xorg.conf.d/45-evdev.conf
sudo reboot
```

This LCD can be calibrated using a program called xinput\_calibrator and you should get and install the program manually with

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

Enter the following commands for touch screen calibration:

```
sudo DISPLAY=:0.0 xinput_calibrator
```

or select Menu -> Preferences -> Calibrate Touchscreen.

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
```

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
```

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
```

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

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

```
sudo reboot
```

## About LCD revision

An LCD with Rev 2.1 firmware does not require any drivers, that is, touch function works properly without installing any software. So we did not provide any drivers and images for Rev 2.1 LCDs. The following drivers are only available for the LCD with Rev 1.1 firmware. But if you install the driver for the Rev 2.1 one, it will lead touch function not to work.

### Rev2.1 New Features

- Standard HID protocol, easy to be integrated into your system.
- For the Raspberry Pi, supports Raspbian, Ubuntu Mate, single touch, and driver free.
- When work as a computer monitor, supports Windows 10/8.1/8/7, single points touch, and driver free.

### Rev1.1 and before

- For the Raspberry Pi, comes with Raspbian driver (works with your Raspbian directly), and Ubuntu image
- When work as a computer monitor, touch function is unavailable

### How to distinguish

Generally speaking, a LCD shipped after June 2016 is often a Rev 2.1 one.

**Note:** The only difference between Rev 1.1 and Rev 2.1 is the firmware, but hardware solutions, placement and routing are all the same. (PCB printings might be different due to different production batches.)

You can verify the firmware by these steps:

1. Using Raspberry Pi: Connect the LCD to your Pi (HDMI Port of LCD -> HDMI Port of Pi; USB Port of LCD -> USB Port of Pi; 5V~2A power supply). Download the image, e.g. Raspbian 2015-11-21 jessie or Raspbian 2015-05-05 wheezy, from Raspberry Pi web site (<https://www.raspberrypi.org/downloads/>). Write the image to a TF card and add the following code to the end of /boot/config.txt:

```
max_usb_current=1
hdmi_group=2
hdmi_mode=87
hdmi_cvt 800 480 60 6 0 0 0
hdmi_drive=1
```

You must make sure that there are no spaces on either side of the equal sign.

Save and connect the TF card to your Pi then power up. If touch works, that means the firmware revision is Rev 2.1.

2. Without Raspberry Pi: A PC (Windows 10/8.1/8/7) is required which cannot connect with other display device. Connect the LCD to your PC (USB Port of LCD -> USB Port of PC; HDMI Port of LCD -> HDMI Port of PC. Please first connect the USB Ports then connect the HDMI Port). If a new touch drive is recognized by Windows, that means the firmware revision is Rev 2.1. In this case, after the driver successfully installed, you can use the LCD as a human interface device.

## Detailed information

Depending on the firmware, please view the instructions of different revision:

- 5inch HDMI LCD (B) (Firmware Rev 2.1) User Manual
- 5inch HDMI LCD (B) (Firmware Rev 1.1) User Manual(Not support Raspberry Pi 3 Model B)

## Resources

An LCD with Rev 2.1 firmware does not require any drivers, that is, touch function works properly without installing any software. So we did not provide any drivers and images for Rev 2.1 LCDs. The following drivers are only available for the LCD with Rev 1.1 firmware. But if you install the driver for the Rev 2.1 one, it will lead touch function not to work.

### Raspbian Image (supports Rev 2.1 LCD)

- Raspbian boot up image (<https://drive.google.com/open?id=0BxTkdrZQTN6kR0tLQ01tcldsMkE>) (No difference from the official image except for config.txt)

### Raspbian Images (only support Rev 1.1 LCD)

- RPI3\_RPI2\_5.0\_800x480\_res\_usb\_touch\_HID\_2016-05-27-raspbian-jessie\_4.4.13v7\_20160620.7z (<https://drive.google.com/uc?id=0B8Xjwnqc7XAMZk4yOE1nd05FY0U&export=download>)
- RPI\_B+\_5.0\_800x480\_cap\_usb\_touch\_2015-11-21-raspbian-jessie\_4.1.13v7\_20151215.img.7z (<https://drive.google.com/file/d/0B0ay87Q7P7pfRzN1WmhYRlk0QjQ/view?usp=sharing>)

## LCD Panel Dimension

- 5inch HDMI LCD (B) panel dimension (<http://www.waveshare.com/w/upload/e/e6/5inch-hdmi-lcd-%26-5inch-hdmi-lcd-b-panel-dimension.pdf>)

# Anti-Piracy

Since the first-generation Raspberry Pi released, Waveshare has been working on designing, developing, and producing various fantastic touch LCDs for the Pi. Unfortunately, there are quite a few pirated/knock-off products in the market. They're usually some poor copies of our early hardware revisions, and comes with none support service.

To avoid becoming a victim of pirated products, please pay attention to the following features when purchasing:



(Click to enlarge (<http://www.waveshare.com/w/upload/6/6d/RPi-LCD-Anti-Piracy-l.jpg>))

## Beware of knock-offs

Please note that we've found some poor copies of this item in the market. They are usually made of inferior materials and shipped without any testing.

You might be wondering if the one you're watching or you've purchased in other non-official stores is original, feel free to contact us.

## Support



Contact your seller (fast response and most recommended)

or send emails to **service@waveshare.com** (not fast enough but please be patient) for help.

Our working time: 09:00-18:00 (**UTC+8** Monday to Saturday)

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