# 7inch HDMI LCD (B)

From Waveshare Wiki

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**Supports various systems**

7 inch Capacitive Touch Screen LCD, HDMI interface, supports various systems

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**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 |
|---|---|

## Introduction

7 inch Capacitive Touch Screen LCD, HDMI interface, supports various systems

More (http://www.waveshare.com/7inch-HDMI-LCD-B.htm)

## Working with PC

This product supports Windows 10/8.1/8/7 OS. For the Windows 10/8.1/8 OS, the touch screen supports multi-touch up to 10 points. For some Window 7 OS, the touch screen supports single touch only.

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 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.

# Rotation

## Display Rotating

To rotating the display, you can append this statement to the config file

```
display_rotate=1 #1: 90; 2: 180; 3: 270
```

Reboot the Raspberry Pi

```
sudo reboot
```

## Touch rotating

With the operation above. The screen could rotate in display. However, the touch works improperly. To rotate the touch as display, you could do as below:

1. install libinput

```
sudo apt-get install xserver-xorg-input-libinput
```
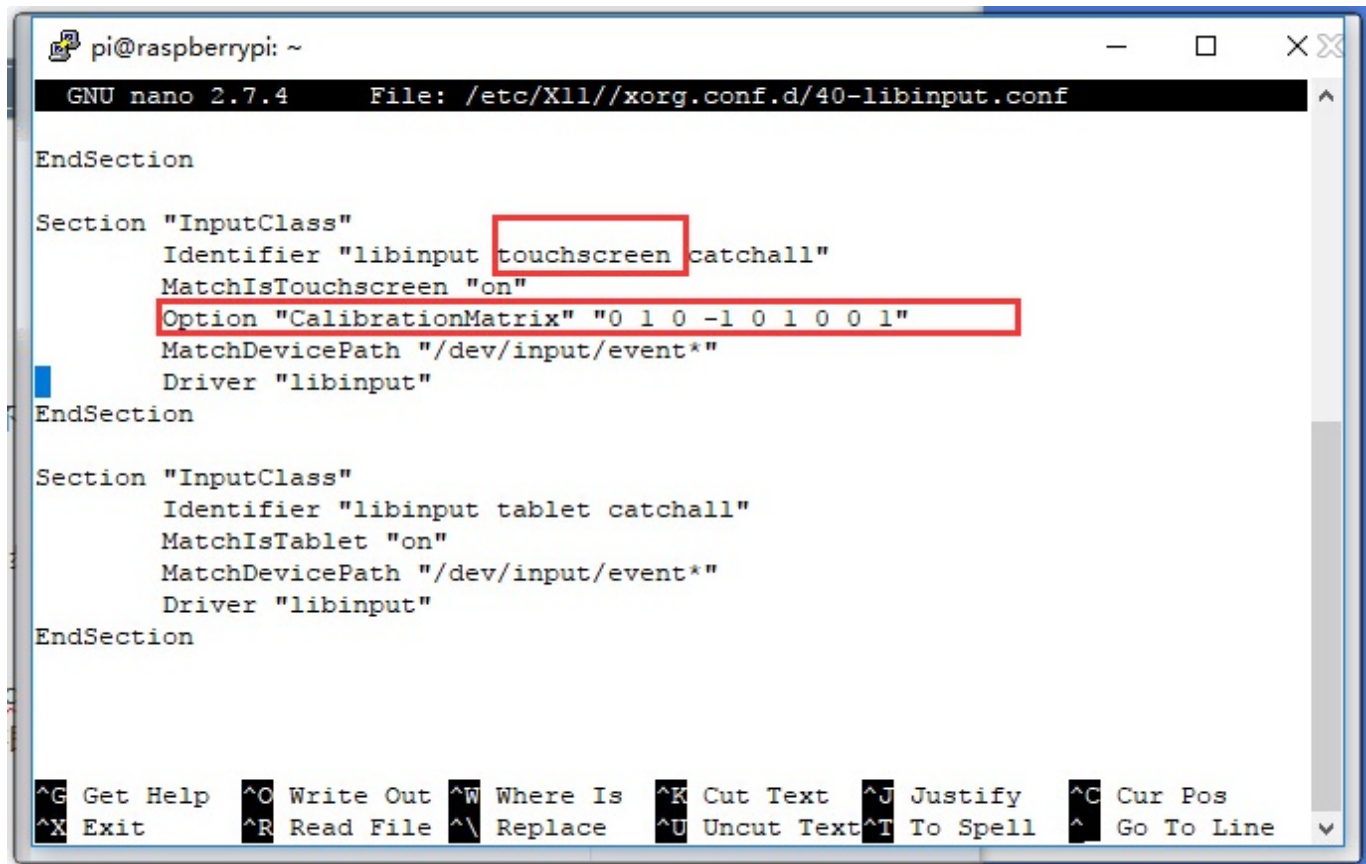
2. create an xorg.conf.d folder

```
sudo mkdir /etc/X11/xorg.conf.d
```

3. copy file 40-libinput-conf to the folder which we created

```
sudo cp /usr/share/X11/xorg.conf.d/40-libinput.conf /etc/X11/xorg.conf.d/
```

4. Append a statement to touchscreen part of the file as below:

```
sudo nano /etc/X11/xorg.conf.d/40-libinput.conf
```



5. save and reboot your Pi

```
sudo reboot
```

After completing these steps. The LCD could rotate 90 degree both display and touch.

**Note:**

90 degree: Option "CalibrationMatrix" "0 1 0 -1 0 1 0 0 1"

180 degree: Option "CalibrationMatrix" "-1 0 1 0 -1 1 0 0 1"

270 degree: Option "CalibrationMatrix" "0 -1 1 1 0 0 0 0 1"

# 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, five-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

- See the backside of your LCD. The Revision number "Rev2.1" printed means that the LCD firmware is Rev 2.1.
- However, "Rev1.1" printed on the backside doesn't mean that the LCD firmware must be Rev 1.1. Generally speaking, a LCD shipped after January 1, 2016 may be a Rev 2.1 one, although it was printed "Rev1.1".

**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.

- If the touch function doesn't work properly after these steps, the firmware revision is often Rev 1.1, which can also work by other methods, see Rev 1.1 Manual.

# Detailed information

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

- 7inch HDMI LCD (B) (Firmware Rev 2.1) User Manual
- 7inch HDMI LCD (B) (Firmware Rev 1.1) User Manual(Not support Raspberry Pi 3 Model B) (http://www.waveshare.com/wiki/7inch_HDMI_LCD_(B)_(Firmware_Rev_1.1)_User_Manual)
- How to install 7inch Bicolor case

# 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 for Rev 2.1 LCDs.

| 7inch HDMI LCD (B) image - used for the LCD with firmware Rev2.1 | [Expand] |
|---|---|
| 7inch HDMI LCD (B) image - used for the LCD with firmware Rev1.1 | [Expand] |

## Drivers (only support Rev1.1 LCD)

*Out of date, Not available for any Raspbian OS later than 27-May-2016.*

- RPI2B_B_B+_USB_TOUCH_CAP_7.0_RASPBIAN.tar.gz (https://drive.google.com/file/d/0B5ceUb50sIDnOFhsZ3IteGVGXzA/view?usp=sharing) (For Raspberry Pi 2 Model B)

- RPIB_B+_USB_TOUCH_CAP_7.0_RASPBIAN_20150605.tar.gz (https://drive.google.com/file/d/0B5ceUb50sIDnbndweF9PMGQ3UHc/view?usp=sharing) (For Raspberry Pi B+/A+/B)

## 3D Drawings

- 7inch HDMI LCD B/C Drawings

## LCD Panel Dimension

- 7inch HDMI LCD (B) panel dimension (http://www.waveshare.com/w/upload/3/34/7inch-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))
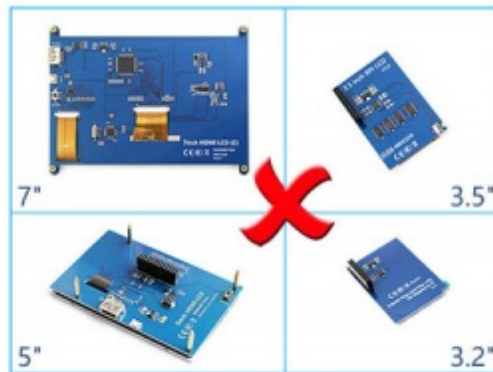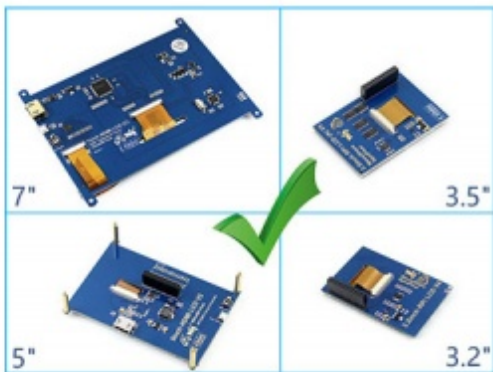
# Beware of knock-offs

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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