

## Introduction

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1024×600, 7 inch Capacitive Touch Screen LCD, HDMI interface, supports various systems

[More](#)

## Working with PC

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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 5 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

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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](#). 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 1024 600 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.
- For Pi Zero / Zero W: if you've used an SD card on a Pi 3 and then attached the card to the Pi Zero, the touch screen often doesn't work. In such cases, you have to write a fresh system image to the SD card. The first boot up must be done on the Pi Zero but not Pi 3, due to initialization for a corresponding device.

## *About LCD revision*

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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 to the Rev 2.1 one, it will lead touch function not to work.

### **Rev2.1 New Features**

- Upgrade to IPS screen, wider viewing angle, more clear displaying.
- 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, from [Raspberry Pi web site](#). 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 1024 600 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

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

- [7inch HDMI LCD \(C\) \(Firmware Rev 2.1\) User Manual](#)
- [7inch HDMI LCD \(C\) \(Firmware Rev 1.1\) User Manual](#)(Not support Raspberry Pi 3 Model B)
- [How to install 7inch Bicolor case](#)

## Resources

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An LCD with Rev 2.1 firmware does not require any driver, that is, touch function works properly without installing any software. So we did not provide drivers for Rev 2.1 LCDs.

[\[Expand\]](#) 7in

[\[Expand\]](#) 7in

## Drivers for Raspbian (only support Rev1.1 LCD)

*Out of date, Not available for any Raspbian OS later than 27-May-2016.*

- [RPI\\_2B\\_USB\\_TOUCH\\_CAP\\_RASPBIAN-4.1.13-v7-7.0-1024x600-20151211.tar](#) (For Raspberry Pi 2 Model B)
- [RPI\\_B+\\_USB\\_TOUCH\\_CAP\\_RASPBIAN-4.1.13-7.0-1024x600-20151211.tar](#) (For Raspberry Pi B+/A+/B)
- [RPI\\_2B\\_USB\\_TOUCH\\_CAP\\_RASPBIAN-3.18.16-v7-7.0-1024x600-20150910.tar](#) (For Raspberry Pi 2 Model B)
- [RPI\\_B+\\_USB\\_TOUCH\\_CAP\\_RASPBIAN-3.18.16-7.0-1024x600-20150910.tar](#) (For Raspberry Pi B+/A+/B)

## 3D Drawings

- [7inch HDMI LCD B/C Drawings](#)

## LCD Panel Dimension

- [7inch HDMI LCD \(C\) panel dimension](#)

## Anti-Piracy

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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:



## Working with PC

This product supports Windows 10/8.1/8/7 operation systems. 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](#). 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
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```
hdmi_group=2
```

```
hdmi_mode=87
```

```
hdmi_cvt 1024 600 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.

## Working with BeagleBone

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### How to program Angstrom image file

If this LCD module is used for display only, you can program the latest Angstrom image file to the board directly without any change. The BeagleBone will read the display parameters of the 7 inch HDMI displayer and set the resolution to 800\*480 automatically. When using this LCD module as a touch screen, you should program the image file **7inch HDMI LCD (C) Angstrom Image**. Please follow the steps below to program the image file.

1. Download the zip file to your PC, unzip it and get an .img file.
  2. Connect a TF card to your PC, and 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.
4. 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.
5. After programming the image file, please insert the TF card to your board, press the key uBOOT and hold it till power up. Then, you will enter the system located at the TF card. Wait a moment and you will enter the graphical desktop directly.

### Hardware connection

1. Connect the LCD to the HDMI on the BeagleBone board with a HDMI to micro HDMI cable (sold separately);
2. Connect the USB Touch interface on the LCD to the USB interface on the BeagleBone board with a type-A-to-micro USB cable. (BeagleBone has two USB interfaces, one for host and the other for client. In here, you should connect the LCD module to the USB host interface).

## *How to use with Banana Pi*

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Before powering up the Banana Pi, you should connect it to a LCD displayer properly, since the Banana Pi may read the resolution parameters of the LCD displayer on startup. And the connection should be remained till the Banana Pi enters the desktop. In this case, even if you disconnect the LCD displayer and reconnect it again to the Banana Pi, the LCD can still work properly.

### **How to program Raspbian\_For\_BananaPi image file**

Program the image file **7inch HDMI LCD (C) Raspbian Image** to the board. This image file supports the modules BananaPi Pro and BananaPi.

1. Download the zip file to your PC, unzip it and get an .img file.
  2. Connect a TF card to your PC, and 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.
4. 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.

### **Hardware connection**

1. Connect the LCD to the HDMI on the Banana Pi board with a HDMI cable;
2. Connect the USB Touch interface on the LCD to the USB interface on the Banana Pi board with a type-A-to-micro USB cable.

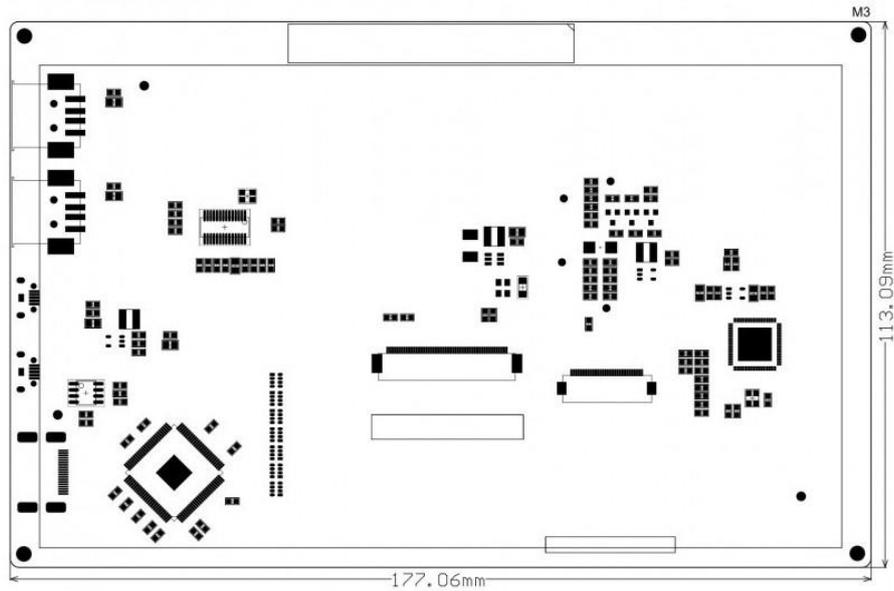
### **How to load WiFi driver of BananaPi Pro**

Comparing with the Banana Pi, the BananaPi Pro has added an on-board WiFi module. When using the BananaPi Pro, you can use SSH to connect to the Pi and execute the following command to load the WiFi driver:

```
sudo modprobe ap6210
```

## How to use with the Ubuntu system

Program the image file **7inch HDMI LCD (C) Ubuntu Image** to the board. This image file supports the modules BananaPi Pro and BananaPi. User name: bananapi Password: bananapi



|                                      |  |
|--------------------------------------|--|
| Power: 5V Power via USB Micro        | Current: Max 500mA                       |
| Display Type: 7 inch TFT LCD         | Resolution: 1024x600                     |
| Touchscreen: USB capacitive          | Touch points: 10 points maximum          |
| Interface: HDMI & USB 2.0 Full Speed | Dimensions: 177.06mm x 113.09mm x 15.2mm |
| Weight without package: 230g         | Weight with package: 350g                |

# How to setup Resolution Automatically

There is a easy way to setup resolution of your screen by a shell script.

You can download the scripts by git tool and use it to change resolution for your screens as following steps:

Note: Please login with your "pi" user and just typing those command absolutely according to this wiki.

```
git clone https://github.com/yoyojacky/52Pi.git
cd ~/52Pi
chmod +x restool.sh
./restool.sh
```

And then follow the step to chose the screen type that you have, and it will automatically setup the resolution for you.

## Raspberry Pi Configure

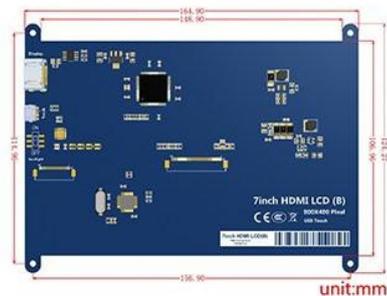
How to setup resolution for the screen:

You can modify `/boot/config.txt` file with vim.tiny or nano editor, and change the parameters as following chart:

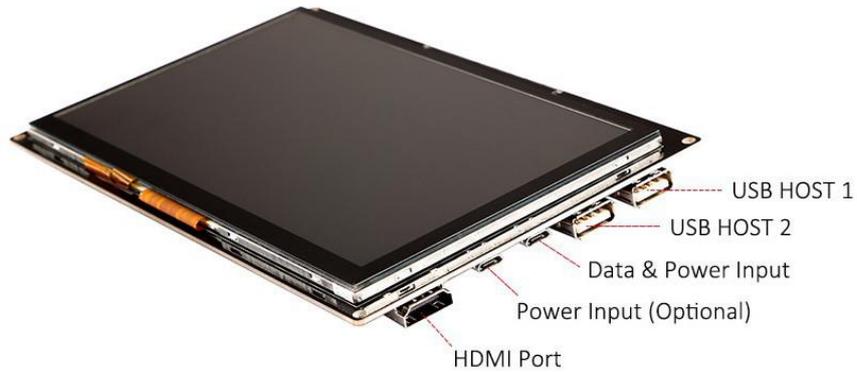
| Resolution | config file  |
|------------|--|
| 1024x600   | hdmi_group=2<br>hdmi_mode=87<br>hdmi_cvt 1024 600 60 3 0 0 0<br>hdmi_force_hotplug=1 |

Please reboot Raspberry Pi after modifying the `/boot/config.txt`

| Model                  | Driver   | Image              |
|------------------------|----------|--------------------|
| Raspberry Pi B         | Raspbian | Raspbian           |
| Raspberry Pi A+        | Raspbian | Raspbian           |
| Raspberry Pi A+        | Raspbian | Raspbian           |
| Raspberry Pi 2 Model B | Raspbian | Raspbian , Ubuntu  |
| Banana Pi              | --       | Raspbian , LUbuntu |
| Banana Pro             | --       | Raspbian , LUbuntu |
| BB Black               | --       | Angstrom           |



## Interface



### Selection Guide

| Part Number           | Resolution | LCD Interface | Touch Panel Interface | For use with | Dimension (mm) | Touch Panel Type | How you feel | Feature                              |
|-----------------------|------------|---------------|-----------------------|--------------|----------------|------------------|--------------|--------------------------------------|
| 2.8inch RPI LCD (A)   | 320x240    | I/O           | I/O                   | Pi           | As the Pi 3B   | Resistive        | ★★           | Low cost                             |
| 3.2inch RPI LCD (B)   | 320x240    | I/O           | I/O                   | Pi           | As the Pi 3B   | Resistive        | ★★           | -                                    |
| 3.5inch RPI LCD (A)   | 480x320    | I/O           | I/O                   | Pi           | As the Pi 3B   | Resistive        | ★★★          | Cost effective                       |
| 3.5inch RPI LCD (B)   | 480x320    | I/O           | I/O                   | Pi           | As the Pi 3B   | Resistive        | ★★★          | IPS screen                           |
| 3.5inch HDMI LCD      | 480x320    | HDMI          | I/O                   | Pi           | As the Pi 3B   | Resistive        | ★★★★☆        | IPS screen                           |
| 4inch RPI LCD (A)     | 480x320    | I/O           | I/O                   | Pi           | 94 × 61        | Resistive        | ★★★★☆        | IPS screen                           |
| 4inch HDMI LCD        | 800x480    | HDMI          | I/O                   | Pi           | 99 × 58        | Resistive        | ★★★★☆        | IPS screen                           |
| 4.3inch HDMI LCD      | 480x272    | HDMI          | I/O                   | Pi           | 106 × 68       | Resistive        | ★★★★         | Cost effective                       |
| 5inch HDMI LCD        | 800x480    | HDMI          | I/O                   | Pi           | 121 x 78       | Resistive        | ★★★★         | Low cost                             |
| 5inch HDMI LCD (B)    | 800x480    | HDMI          | USB                   | Not only Pi  | 121 x 76       | Resistive        | ★★★★         | Supports various systems             |
| 7inch HDMI LCD        | 1024x600   | HDMI          | I/O                   | Pi           | 165 × 107      | Resistive        | ★★★★☆        | Cost effective                       |
| 7inch HDMI LCD (B)    | 800x480    | HDMI          | USB                   | Not only Pi  | 165 x 107      | Capacitive       | ★★★★☆        | Supports various systems             |
| 7inch HDMI LCD (C)    | 1024x600   | HDMI          | USB                   | Not only Pi  | 165 x 107      | Capacitive       | ★★★★★        | IPS screen, Supports various systems |
| 10.1inch HDMI LCD     | 1024x600   | HDMI          | I/O                   | Pi           | 235 × 144      | Resistive        | ★★★★☆        | Cost effective                       |
| 10.1inch HDMI LCD (H) | 1024x600   | HDMI          | USB                   | Not only Pi  | 257 x 162      | Capacitive       | ★★★★☆        | Supports various systems             |
| 10.1inch HDMI LCD (B) | 1280x800   | HDMI          | USB                   | Not only Pi  | 274 × 187      | Capacitive       | ★★★★★        | IPS screen, Supports various systems |

Note :

Pi 3B = Raspberry Pi 3 Model B

If the LCD is intended to play videos, please choose the one with HDMI display interface for better experience.

## Supported mini PC

| mini PC                | Driver   | Image             |
|------------------------|----------|-------------------|
| Raspberry Pi B         | Raspbian | Raspbian          |
| Raspberry Pi A+        | Raspbian | Raspbian          |
| Raspberry Pi B+        | Raspbian | Raspbian          |
| Raspberry Pi 2 Model B | Raspbian | Raspbian, Ubuntu  |
| Raspberry Pi 3 Model B | Raspbian | Raspbian, Ubuntu  |
| Banana Pi              | -        | Raspbian, Lubuntu |
| Banana Pro             | -        | Raspbian, Lubuntu |
| BB Black               | -        | Angstrom          |

**Note :**

Drivers can be added to your current system to support LCD display and touch control.

Images CAN NOT be used with your current system. They're stand-alone systems which support LCD display and touch control already.