5inch HDMI LCD

From Waveshare Wiki

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5inch HDMI LCD
Designed for Raspberry Pi
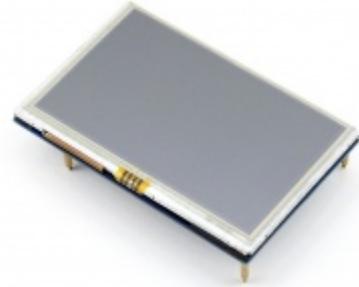
5 inch Resistive Touch Screen LCD, HDMI interface, Designed for Raspberry Pi

5inch HDMI LCD (with bicolor case)

5inch HDMI LCD + Bicolor case

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

RPi I/Os	HDMI

Introduction

5 inch Resistive Touch Screen LCD, HDMI interface, Designed for Raspberry Pi

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

Getting Started

Hardware Connection

1. Plug the LCD to your Raspberry Pi:
    - There are 40 pins on Raspberry Pi Model A+/B+/2 B/3 B but only 26 pins on the LCD, so you should pay attention to connecting the pins to your Pi accordingly.
2. Connect the HDMI Connector to both the HDMI interfaces on the LCD and the Pi.
    - You should connect the LCD to Raspberry Pi Model B or Raspberry Pi Zero with an HDMI cable rather than an HDMI Connector.
3. Turn on the "backlight" switch on the back of the LCD.

| Hardware connection | Plug the HDMI Connector |

Note: This product can only work on a Raspberry Pi but not work on a PC. That is, if the HDMI of the LCD is connected to the HDMI on a PC, the LCD doesn't display anything.

You can enable the touch in two ways: Method 1. install driver to your Raspbian/Ubuntu Mate OS. Method 2. use the Ready-to-use image file of which LCD driver was pre-installed.

Method 1. Driver installation

Description: If the touch screen doesn't work properly, please install the driver: LCD-show-170703.tar.gz, but not LCD-show-161112.tar.gz.

- LCD-show-170703.tar.gz (network connection is required while installing) (http://www.waveshare.com/w/upload/0/00/LCD-show-170703.tar.gz)
- LCD-show-161112.tar.gz (http://www.waveshare.com/w/upload/4/4b/LCD-show-161112.tar.gz)

1) Download the Raspbian / Ubuntu Mate image from Raspberry Pi website (https://www.raspberrypi.org/downloads/) and extract it on a PC.

2) Connect your micro SD card to the PC and write the image to the card using Win32DiskImager. How to write an image to a micro SD card for your Pi? See RPi Image Installation Guides for more details)

3) Copy the LCD driver to the micro SD card (or copy the driver to the system of Pi using a USB drive).

4) Append the following lines to the config.txt file which is located in the root of the card:

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

5) The LCD will display after booting up. Then open a terminal to install the touch driver which can be found in the /boot/ directory. **Note: The Raspberry Pi must be connected to the network, or else the touch driver won't be successfully installed. The result is that a small area at the border cannot be touched.** If you have installed the touch driver but without network connection, how to solve the problem? See: *#Touch screen calibration* part.

```
tar xzvf /boot/LCD-show-*.tar.gz
cd LCD-show/
chmod +x LCD5-show
./LCD5-show
```

Touch function will work after restart. For ease of use, you can set the screen orientation, see: #Screen orientation settings.

Method 2. Using Ready-to-use image

The image file with pre-installed driver is located in the IMAGE directory of the CD, or you can download it from #Image. Extract the .7z file and you will get an .img file. Write the image to your micro SD card (How to write an image to a micro SD card for your Pi? See RPi Image Installation Guides for more details). Then insert the card to your Pi, power up and enjoy it.

Screen orientation settings

After touch driver installed, the screen orientation can be set by these commands:

- 0 degree rotation

```
cd LCD-show/
./LCD5-show 0
```

- 90 degree rotation

```
cd LCD-show/
./LCD5-show 90
```

- 180 degree rotation

```
cd LCD-show/
./LCD5-show 180
```

- 270 degree rotation

```
cd LCD-show/
./LCD5-show 270
```

Touch screen calibration

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 which can be downloaded from Xinput-calibrator_0.7.5-1_armhf.
- Extract and copy the software Xinput-calibrator_0.7.5-1_armhf.deb to the Raspbian of your Pi.

- Install it with the commands:

```
sudo dpkg -i -B xinput-calibrator_0.7.5-1_armhf.deb
```

- Click the "Menu" button on the task bar, choose "Preference" -> "Calibrate Touchscreen".
- Finish the touch calibration following the prompts. Maybe rebooting is required to make calibration active.
- You can create a 99-calibration.conf file to save the touch parameters (not necessary if file exists).

```
/ect/X11/xorg.conf.d/99-calibration.conf
```

- Save the touch parameters (may differ depending on LCD) to 99-calibration.conf, as shown in the picture:


```
Section "InputClass"
        Identifier       "calibration"
        MatchProduct     "ADS7846 Touchscreen"
        Option  "Calibration"   "208 3905 288 3910"
        Option  "SwapAxes"       "0"
EndSection
```

Interface

PIN NO.	SYMBOL	DESCRIPTION
1, 17	3.3V	Power positive (3.3V power input)
2, 4	5V	Power positive (5V power input)
3, 5, 7, 8, 10, 11, 12, 13, 15, 16, 18, 24	NC	NC
6, 9, 14, 20, 25	GND	Ground
19	TP_SI	SPI data input of Touch Panel
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
26	TP_CS	Touch Panel chip selection, low active

Resources

- User manual (http://www.waveshare.com/w/upload/3/3e/RPi-LCD-User-Manual.pdf)
- How to install 5inch Bicolor case (http://www.waveshare.com/w/upload/e/ef/5inch-HDMI-LCD-Bicolor-Holder-LCD-assemble.jpg)

Software

- Panasonic SDFormatter (http://www.waveshare.com/w/upload/d/d7/Panasonic_SDFormatter.zip)
- Win32DiskImager (http://www.waveshare.com/w/upload/7/76/Win32DiskImager.zip)

- PuTTY (http://www.waveshare.com/w/upload/5/56/Putty.zip)

Driver

If the touch screen doesn't work properly, please install the driver: LCD-show-170703.tar.gz, but not LCD-show-161112.tar.gz.

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- LCD-show-161112.tar.gz (http://www.waveshare.com/w/upload/4/4b/LCD-show-161112.tar.gz)

Image

Description: if you felt hard to install driver, try the image with driver pre-installed.

- RPi-5inch-HDMI-LCD-GPIO-Touch-800x480-Raspbian-160715.7z (https://docs.google.com/uc?id=0B-Z1UZhyKaZ0ZmhMbHVyUVNvVEk&export=download)

LCD Panel Dimension

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

FAQ

Question:

Why does the touchscreen not work well?

Answer: [Collapse]

Now, we only provide touch screen drivers for Raspbian and Ubuntu Mate. How to install the driver? See:#Method_1._Driver_installation

Question:

Why does the image in the CD not work on my Pi?

Answer: [Collapse]

- The image in the CD may differ depending on batches, however, some Images are just available for Pi 2 (or before, but not for Pi 3). In such cases you can download the latest version from Raspberry Pi website (https://www.raspberrypi.org/downloads/raspbian/) and install the driver. See:#Method_1._Driver_installation
- Make sure the hardware connection is correct and connects fine.
- Make sure you've written the image to your SD card using the software File:Win32DiskImager.zip rather then just copy and paste.
- It is strongly recommended to use a stand-alone 5V/2A power adapter, because the USB port of PC might not have enough power to support the Pi and LCD.

Question:

What are the power requirements?

**Answer:**

When working with 5V input, the current is about 235mA with back light on and 45mA with back light off.

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))
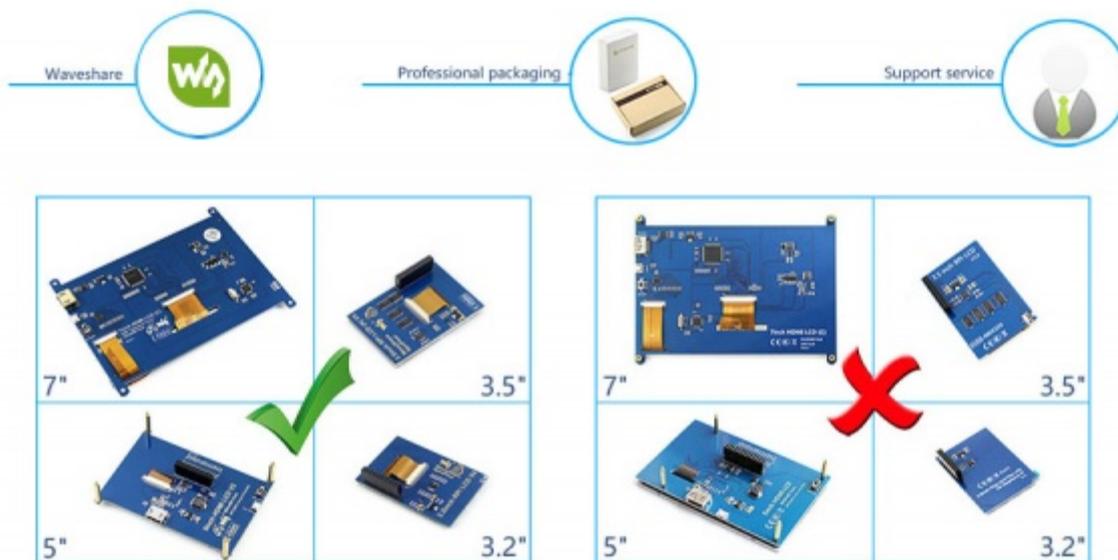
Beware of knock-offs

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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