7inch HDMI LCD

From Waveshare Wiki

Contents

7inch HDMI LCD
1024×600

7inch Resistive Touch Screen LCD, HDMI interface, Designed for Raspberry Pi

Primary Attribute

Category: OLEDs / LCDs, LCD, Raspberry Pi LCD

Brand: Waveshare

Website

English: Website (http://www.waveshare.com/7inch-hdmi-lcd.htm)

Chinese: 官网 (http://www.waveshare.net/shop/7inch-HDMI-LCD.htm)

Onboard Interfaces

RPi I/Os	HDMI

Related Products

- 10.1inch HDMI LCD
- 10.1inch HDMI LCD (B) (with case)
- 10.1inch HDMI LCD (H) (with case)
- 7inch HDMI LCD (C)
- 7inch HDMI LCD (B)
- **7inch HDMI LCD**
- 7inch LCD for Pi
- 5inch HDMI LCD
- 5inch HDMI LCD (B)
- 4.3inch HDMI LCD
- 4inch HDMI LCD
- 4inch RPi LCD (A)
- 3.5inch HDMI LCD

Introduction

7inch Resistive Touch Screen LCD, HDMI interface, Designed for Raspberry Pi

More (http://www.waveshare.com/7inch-hdmi-lcd.htm)

Button description
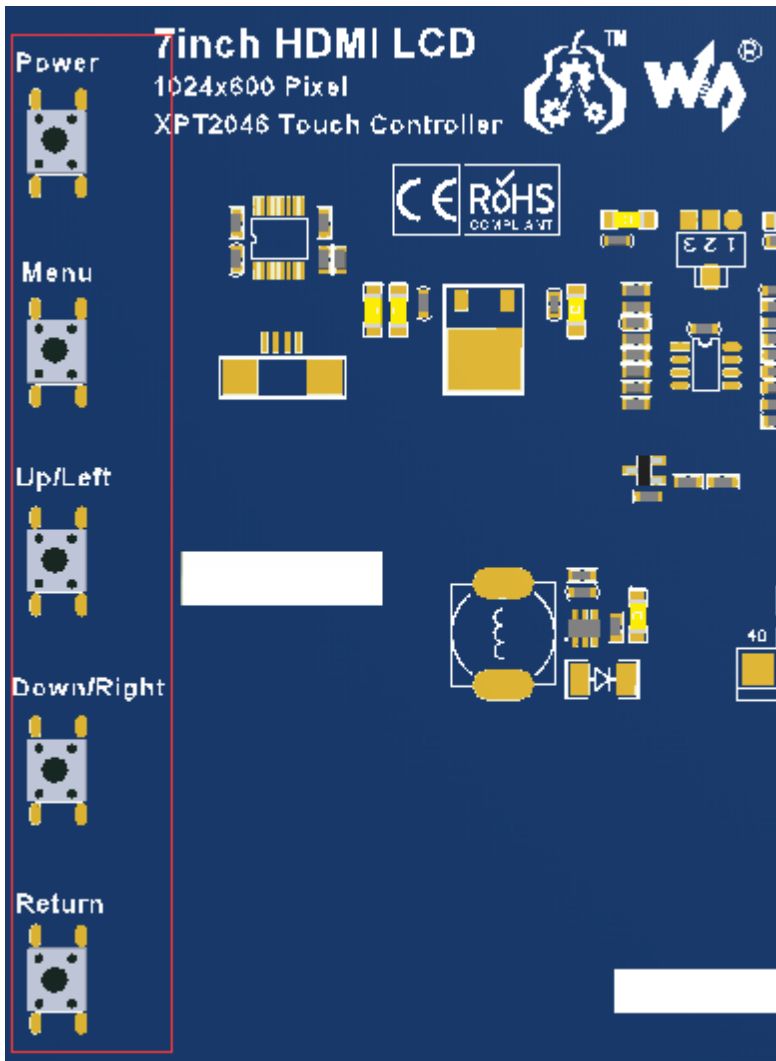
- 3.5inch RPi LCD (B)
- 3.5inch RPi LCD (A)
- 3.2inch RPi LCD (B)
- 2.8inch RPi LCD (A)

Power: Turn on or turn off the LCD screen.

Menu: Open the OSD menu (when using the menu, this button can be served as Confirm)

Up/Left: Direction button.

Down/Right: Direction button.

Return: Close the OSD menu.

- If the LCD is not in use for a long time, you can press the Power button to turn off the LCD and lower the power consumption.
- You can press the Menu button to open the OSD menu as the figure shown, then press the direction button to select. Some of the options are reserved and without any effect, e.g. in fact the Volume option won't affect the volume.

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.
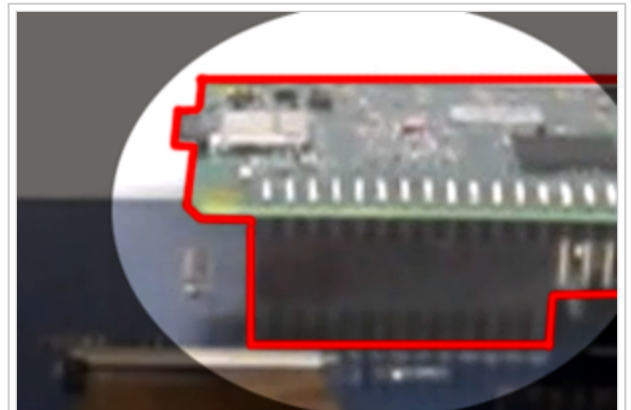3. Turn on the "backlight" switch on the back of the LCD.

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.

Hardware connection for Raspberry Pi Model A+/B+/2 B/3 B

Plug the HDMI Connector
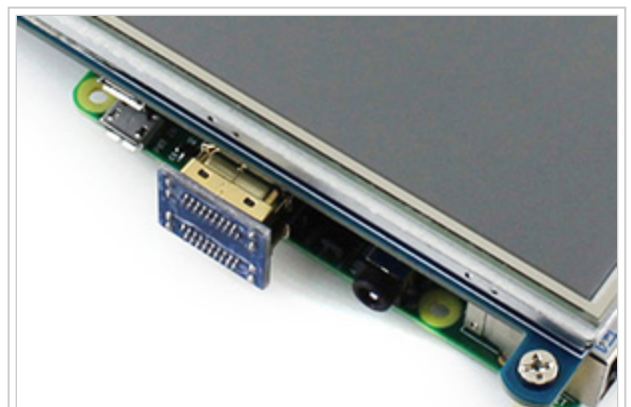
Method 1. Driver installation

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 1024 600 60 6 0 0 0
```

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.

```
tar xzvf /boot/LCD-show-*.tar.gz
cd LCD-show/
chmod +x LCD7-1024x600-show
./LCD7-1024x600-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/
./LCD7-1024x600-show 0
```

- 90 degree rotation

```
cd LCD-show/
./LCD7-1024x600-show 90
```

- 180 degree rotation

```
cd LCD-show/
./LCD7-1024x600-show 180
```

- 270 degree rotation

```
cd LCD-show/
./LCD7-1024x600-show 270
```

Touch screen calibration

- 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
```

Right click emulation

- Edit the 99-calibration.conf file.

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

- Append the following lines between "Section" and "EndSection":

```
Option "EmulateThirdButton" "1"
Option "EmulateThirdButtonTimeout" "750"
Option "EmulateThirdButtonMoveThreshold" "100"
```

```
Section "InputClass"
        Identifier        "calibration"
        MatchProduct      "ADS7846 Touchscreen"
        Option  "Calibration"    "102 4010 3895 170"
        Option  "SwapAxes"       "1"
        Option "EmulateThirdButton" "1"
        Option "EmulateThirdButtonTimeout" "750"
        Option "EmulateThirdButtonMoveThreshold" "100"
EndSection
```

- Exit with save and reboot the system.

```
reboot
```

Tips

Display images on Linux console

- Install the fbi software.

```
sudo apt-get install fbi
```

- Save image files to a specified direction (/dev/fb0 for example) and display them with:

```
fbi -T 2 -d /dev/fb0 -noverbose -a XXX.jpg
```

Play videos

- Install the mplayer software.

```
sudo apt-get install mplayer
```

- Save video files to the current directory and you can play them with:

```
mplayer XXX.mp4
```

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

Related 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)

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.

- 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)

Image

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

- RPi-7inch-HDMI-LCD-GPIO-Touch-1024x600-Raspbian-170107.7z (https://drive.google.com/open?id=0BxTkdrZQTN6kc0FFWTZDVzVDbGM)

LCD Panel Dimension

- 7inch HDMI LCD panel dimension (http://www.waveshare.com/w/upload/8/8f/7inch-hdmi-lcd-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?

When working with 5V input, the current is about 200mA with back light on and 30mA 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))
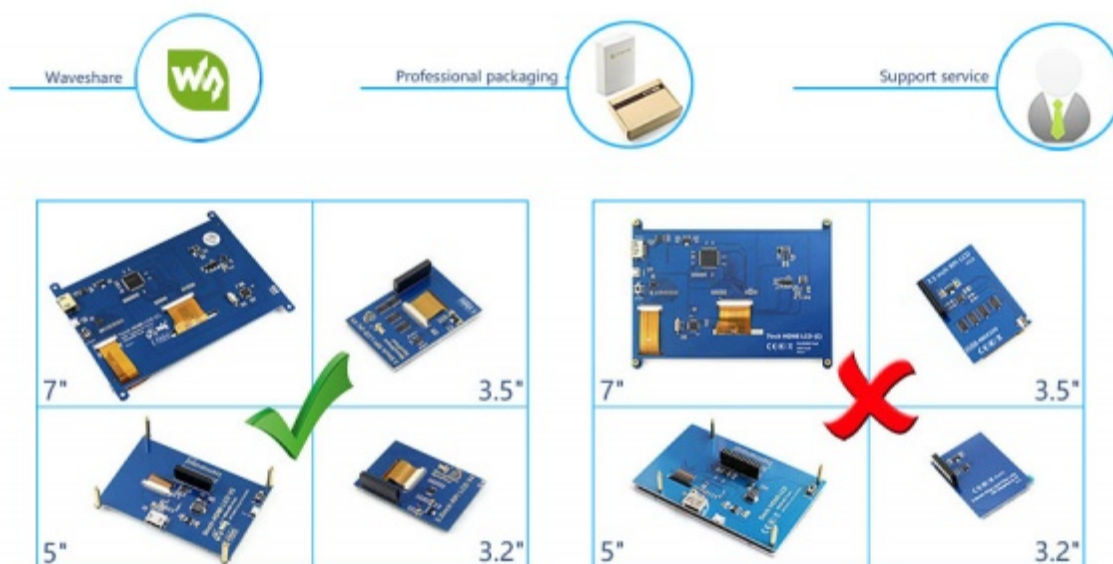
Beware of knock-offs

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)