4inch HDMI LCD (H)

Introduction

4inch Resistive Touch Screen LCD, HDMI interface, IPS Screen (Type H), Designed for Raspberry Pi

Features

- 800×480 high resolution
- Resistive touch control
- IPS technology, high quality and perfect displaying from very wide viewing angle
- Compatible and Direct-connect with any revision of Raspberry Pi (except the Pi 1 model B or Pi Zero, which requires an HDMI cable)
- Drivers provided (works with your own Raspbian/Ubuntu/kali)
- Also works as a computer monitor, in this case, touch panel is unavailable and HDMI cable is required
- HDMI interface for displaying, no I/Os required (however, the touch panel still needs I/Os)
- Back light control to lower power consumption

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.

Method 1. Driver installation

1) Download the Raspbian / Ubuntu Mate image from Raspberry Pi website 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:

```
hdmi_group=2
hdmi_mode=87
hdmi_cvt 480 800 60 6 0 0 0
dtoverlay=ads7846,cs=1,penirq=25,penirq_pull=2,speed=50000,keep_vref_on=0,swapxy=0,pmax=255,xohms
=150,xmin=200,xmax=3900,ymin=200,ymax=3900
display_rotate=3
```

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.

```
git clone https://github.com/waveshare/LCD-show.git
cd LCD-show/
chmod +x LCD4-800x480-show
./LCD4-800x480-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. 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/
./LCD4-800x480-show 0
```

- 90 degree rotation

```
cd LCD-show/
```

```
./LCD4-800x480-show 90
```

- 180 degree rotation

```
cd LCD-show/
./LCD4-800x480-show 180
```

- 270 degree rotation

```
cd LCD-show/
./LCD4-800x480-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
```

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

Resource

User Manual

- 4inch HDMI LCD (H) User Manual

Driver

The driver can be downloaded from github

```
git clone https://github.com/waveshare/LCD-show.git
```

Software

- Panasonic SDFormatter
- Win32DiskImager
- PuTTY

Image

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

- 4inch_HDMI_Raspbian-180326.7z

LCD Panel Dimension

- 4inch HDMI LCD panel dimension