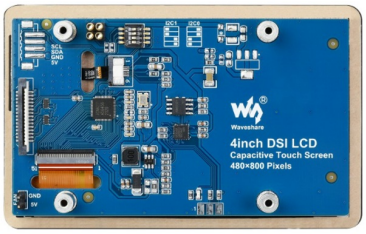

WAVESHARE 4inch DSI LCD 4inch Capacitive Touch Display User Guide

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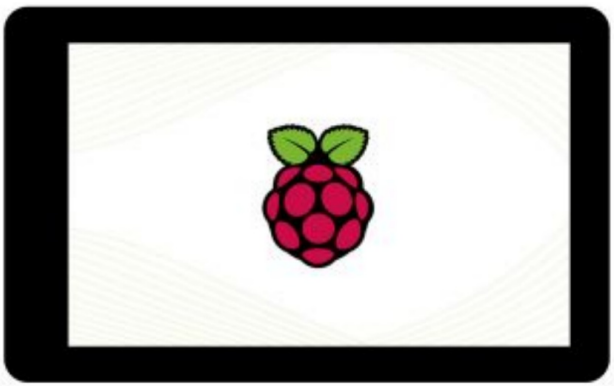
4inch DSI LCD



Contents

Introduction

Features

- 4inch IPS capacitive touch screen with a hardware resolution of 480 × 800.

- Adopts optical bonding tech, picture is clearer.
- Tempered glass capacitive touch panel, hardness up to 6H.
- Drive LCD directly through Raspberry Pi's DSI interface with a refresh rate of up to 60Hz.
- Working with Raspberry Pi, supports Raspberry Pi OS system.
- Supports Pi 4B/3B+/3A+, **Another adapter cable** is required for CM3+/4.
- Support backlight adjusted by software.

Working with Raspberry Pi

Hardware connection

1. Use a 15PIN FPC cable to connect the 4inch DSI LCD to the DSI interface of the Raspberry Pi.
2. The Raspberry Pi is installed on the display board with the back facing down, and the 5V power supply and I2C communication are connected through the 4PIN.

Software settings
Method 1: Install Manually

1. Download the image from the **Raspberry Pi website**.
2. Connect the TF card to the PC, and use **SDFormattere** software to format the TF card.
3. Open the **Win32DiskImager softwaree**, select the system image downloaded in step 2, and click "write" to write the system image.
4. After the image has finished writing, save, and quit the TF card safely.
5. Connect the TF card to the Raspberry Pi, start the Raspberry Pi, and log in to the terminal of the Raspberry Pi (you can connect the Raspberry Pi to an HDMI display or log in remotely with ssh).
   #Step 1: Download and enter the Waveshare-DSI-LCD driver folder git clone **https://github.com/waveshare/Waveshare-DSI-LCD** cd Waveshare-DSI-LCD
   #Step 2: Enter uname -a in the terminal to view the kernel version, and cd to the corresponding file directory #5.15.61 then run the following command cd 5.15.61
   #Step 3: Please check the bits of your system, enter the 32 directory for 32 -bit systems, and enter the 64 directory for 64-bit systems cd 32
   #cd 64
   #Step 4: Enter your corresponding model command to install the driver, pay a ttention to the selection of the

I2C DIP switch

#4inch DSI LCD 480×800 Driver: sudo bash ./WS_xinchDSI_MAIN.sh 40 I2C0

#Step 5: Wait for a few seconds, when the driver installation is complete an d no error is prompted, restart and load the DSI driver and it can be used n ormally sudo reboot

#Note: The above steps need to ensure that the Raspberry Pi can connect to t he Internet normally.

Note: The above steps need to ensure that the Raspberry Pi can be connected to the Internet normally.

6. Wait for the system to restart, it will be able to display and touch normally.

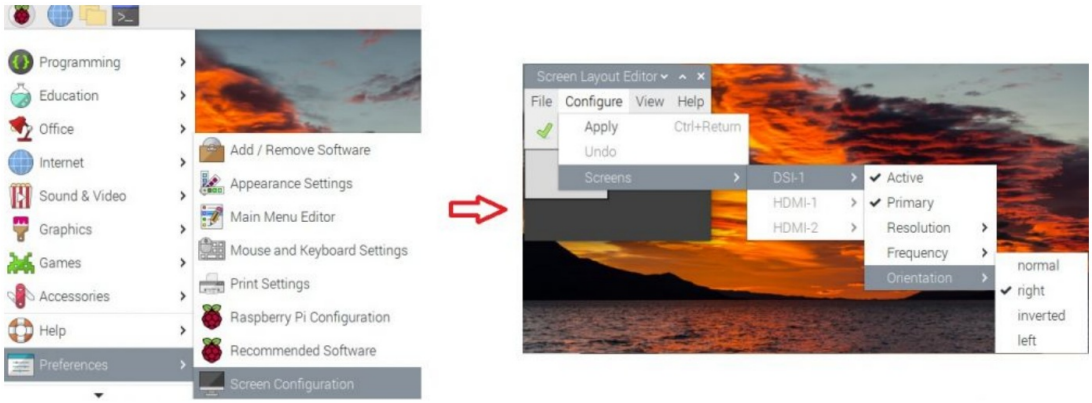
Method 2: Program Pre-install Image

1. Select your corresponding Raspberry Pi version image, download and decompress it as ".img" file.
   Raspberry Pi 4B/CM4 version download: **Waveshare DSI LCD – Pi4 pre-install image**
   Raspberry Pi 3B/3B+/CM3 version download: **Waveshare DSI LCD – Pi3 pre-install image**
   2. Connect the TF card to the PC and use SDFormatteré to format the TF card.
   3. Open **Win32DiskImager** software, choose the system image prepared in the first step, and then click "write" to write the system image.
2. After the programming is finished, open the config.txt file in the root directory of the TF card, add the following code under [all], save and eject the TF card safely.
   dtoverlay=WS xinchDSI Screen, SCREEN type=1,I2C bus=10
   dtoverlay=WS xinchDSI Touch, invertedx, swappedxy,I2C bus=10
3. Connect the TF card to the Raspberry Pi, and start the Raspberry Pi, wait for about 30 seconds to display and touch normally.

Rotation

Method 1: Graphical Interface Rotation

In the start menu, select: Preferences->Screen Configuration->Configure->Screens->DSI- 1->Orientation, select the corresponding angle in it, click "v", select Yes, and restart.



Method 2: Rotation Display In Lite Version

sudo nano /boot/cmdline.txt

#Add a command corresponding to the display rotation angle at the beginning of the cmdline.txt file, save it and restart it to take effect

#display rotated 90 degrees video=DSI-1:480x800M@60,rotate=90

#display rotated 180 degrees video=DSI-1:480x800M@60, rotate=180

#display rotated 270 degrees video=DSI-1:480x800ME@60, rotate=270

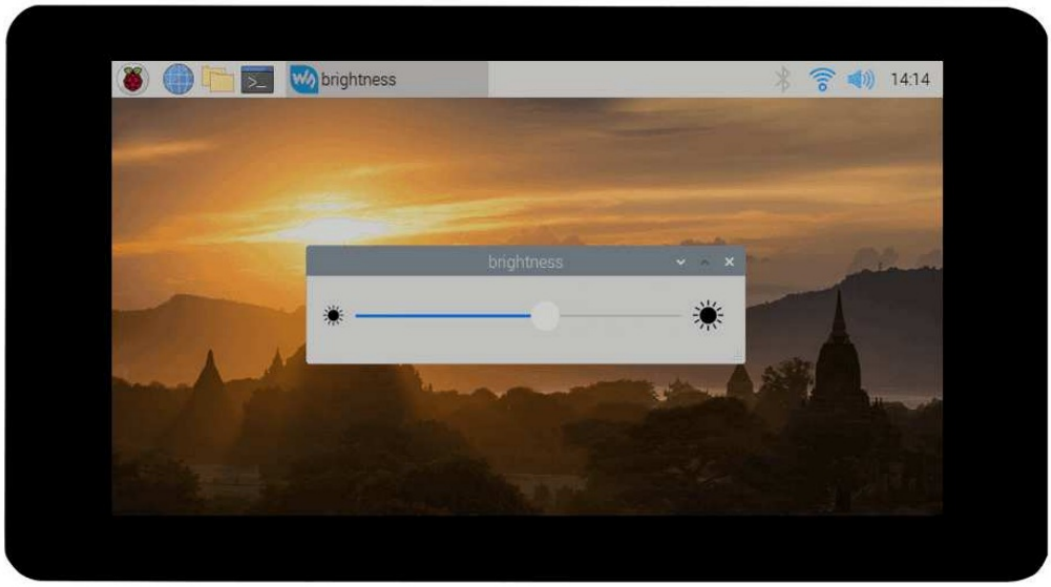
Touch To Rotate

sudo nano /boot/config.txt

#Modify the instruction of the touch rotation angle at the end of the conf ig.txt file, and it will take effect after restarting (there is a 0° touch direction instruction by default)

#90° : dtoverlay=WS xinchDSI Touch, invertedx, invertedy
#180°: dtoverlay=WS xinchDSI Touch, invertedy, swappedxy
#270°: dtoverlay=WS xinchDSI Touch
#0°: dtoverlay=WS xinchDSI Touch, invertedx, swappedxy

Backlight Control
Method 1: Graphical Interface Dimming
Using the application provided by Waveshare:
cd Waveshare-DSI-LCD
Determine the currently used kernel version, such as the 5.15.61 kernel, and run the following command cd 5.15.61
#Check the bits of the system, 32-bit system enters 32 directory, 64-bit s ystem enters 64 directory cd 32
#cd o4 cd
Backlight sudo ./install.sh
After the installation is complete, you can open the program in the Start menu – > Accessories – > Brightness, as shown below:



Method 2: Lite Version Dimming Command
To adjust the system command of the lite version, after entering the root privilege, execute the following command on the Raspberry Pi terminal:
echo X > /sys/waveshare/rpi backlight/brightness
(X value in the range of 0~255)
For example:
sudo su root echo 100 > /sys/waveshare/rpi backlight/brightness

Note

1. Update the system, such as executing the following command
   sudo apt-get update
   sudo apt-get full-upgrade
   After updating the system, some files of the originally installed driver may be overwritten, and the driver needs to be reinstalled to display normally.
2. Replace the motherboard
   If the driver originally installed on the Raspberry Pi 4 Model B, the user replaces the motherboard, such as modifying it to a Raspberry Pi 3 Model B+, the display will not display properly.
   Because Pi4 and Pi3 need to load different driver files, you need to reinstall the driver on the new motherboard to display properly.

Resources

Software

- Panasonic SDFormatter
- Win32DiskImager
- PUTTY

Pre-installed images

- 4inch DSI LCD_220906_32_bullseye
- Waveshare DSI LCD – Pi4 pre-install image
- Waveshare DSI LCD – Pi3 pre-install image

FAQ

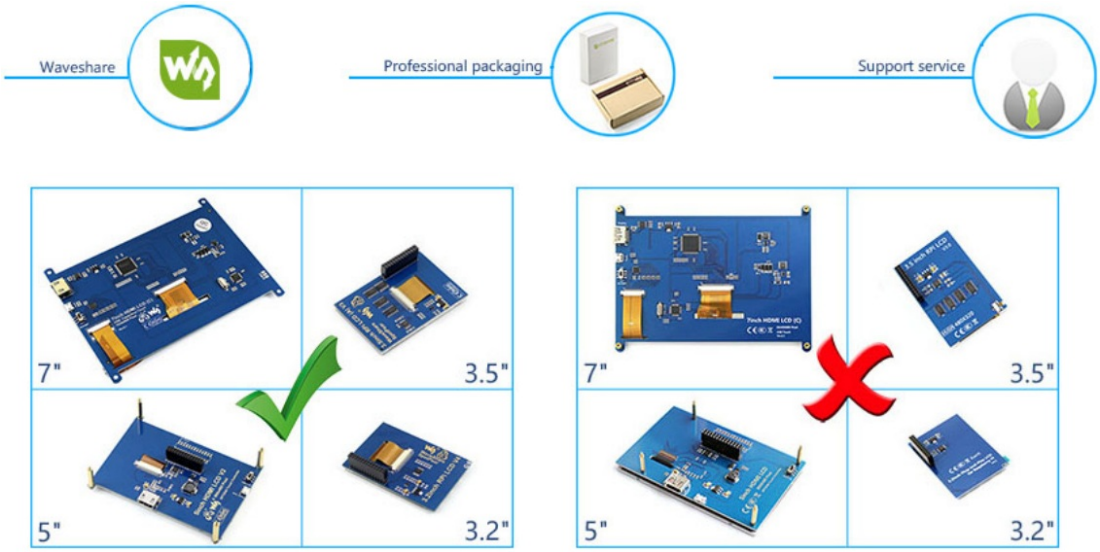
Question:Cameras cannot work when using the 2021-10-30-raspios-bullseye- armhf image.

Answer: Please configure as below and try to use the camera again. sudo raspi-config Choose Advanced Options -> Glamor -> Yes(Enabled) -> OK -> Finish -> Yes(Reboot)

Question:How to replace the Raspberry Pi startup logo image?

Answer: Replace the custom image with the image in /usr/share/plymouth/themes/pix/splash.png.

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)
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

If you require technical support, please go to the page and open a ticket.

Documents / Resources

[WAVESHARE 4inch DSI LCD 4inch Capacitive Touch Display] [pdf] User Guide
4inch DSI LCD 4inch Capacitive Touch Display, 4inch DSI LCD, 4inch Capacitive Touch Display, Capacitive Touch Display, Touch Display, Display

References

- waveshare.com/w/upload/6/6d/RPi-LCD-Anti-Piracy-I.jpg
- GitHub - waveshare/Waveshare-DSI-LCD
- Operating system images – Raspberry Pi
- DSI FFC Flexible Flat Cable 15cm
- File:4inch-DSI-LCD-Manual-02.jpg - Waveshare Wiki
- File:4inch-DSI-LCD-PI4.jpg - Waveshare Wiki
- File:4inch-DSI-LCD.jpg - Waveshare Wiki

- File:Top-2.png - Waveshare Wiki
- Waveshare Wiki
- User Manual