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Waveshare 7.9inch DSI LCD User Manual

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Overview

7.9inch DSI LCD

400 x 1280, RPI, DSI

Feature

- 7.9inch IPS display with capacitive touch panel, hardware resolution is 400 x 1280.
- Capacitive touch, supports up to 5-point touch.
- Toughened glass capacitive touch panel, 6H hardness.
- DSI interface, refresh rate up to 60Hz.
- Working with Raspberry Pi, we provide the driver for Raspberry Pi OS.
- Brightness is adjustable by software.
- Support Pi 4B/3B+/3A+, CM3+/4 ,must be used with **adapter cable** .

Working with RPi

Hardware Connection

1. Use a 15PIN FPC cable to connect the DSI interface of the display screen to the DSI interface of the Raspberry Pi board. 2. Install the Raspberry Pi on the display board with the back facing down, and connect the 5V power supply and I2C communication through the 4PIN. The final connection is shown below:
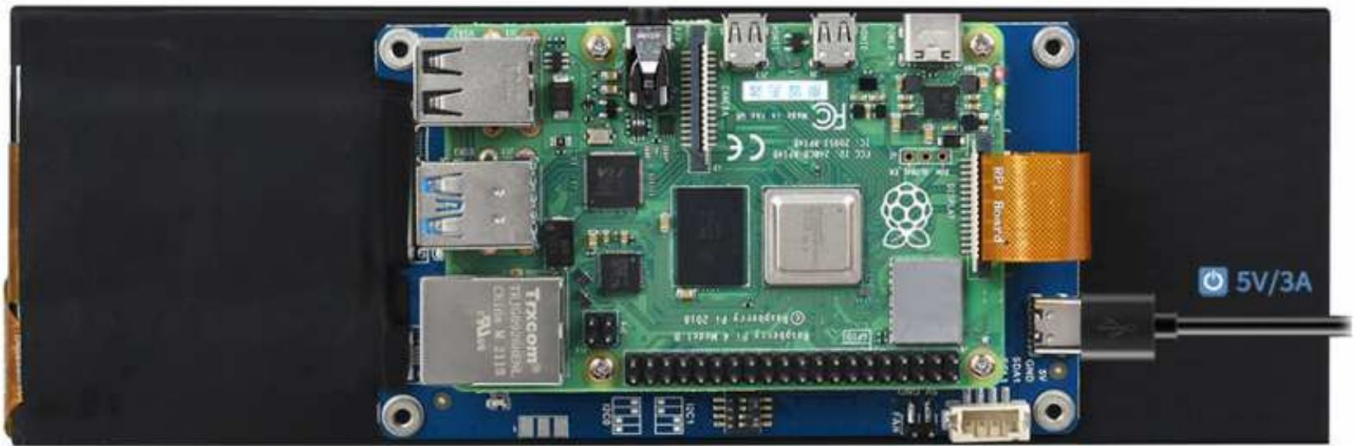
Software Setting

Method 1: Install Manually

1. Download the image of the newest version Raspberry Pi , download the compressed file to the PC and extract the .img file.
2. Connect TF card to PC, use SDFormatter to format TF card.
3. pen Win32DiskImager software, select the system image prepared in step 1 and click write to burn the system image.
4. After the programming is completed, 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 attention to the selection of the I2C DIP switch #7.9inch DSI LCD 400×1280 driver sudo bash ./WS_xinchDSI_MAIN.sh 79 I2C0

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

   Note: The above steps need to ensure that the Raspberry Pi can be connected to the Internet normally.
5. Wait for the system to restart, it will be able to display and touch normally.

Method 2: Program Pre-install Image

1. Click to download Waveshare DSI LCD – Pi4 pre-install image and unzip it to get ".img" file.
2. Connect the TF card to the PC and use SDFormatter 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,
4. After programming, open the "config.txt" file in the root directory of the TF card, add the following code at the end of config.txt, save and then safely remove the TF card.

   dtoverlay=WS_xinchDSI_Screen,SCREEN_type=5,I2C_bus=10

dtoverlay=WS_xinchDSI_Touch,invertedx,invertedy,I2C_bus=10

5. 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 "✔", select Yes, and restart.
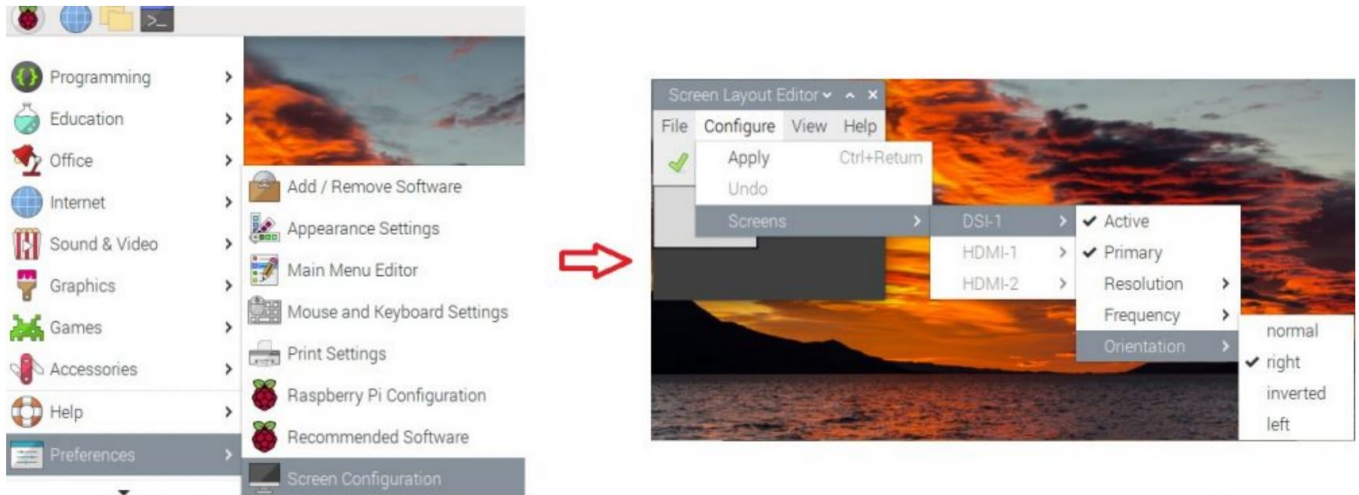
Method 2: Rotation Display In Lite Version

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
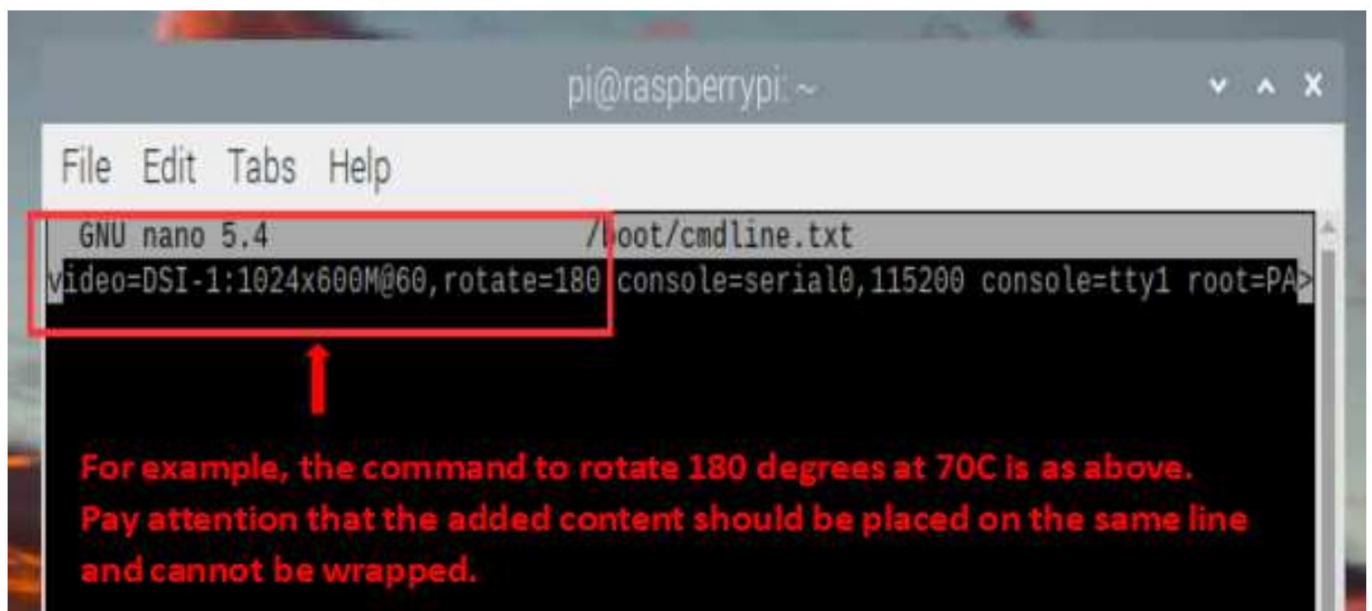#display rotated 90 degrees
video=DSI-1:400x1280M@60,rotate=90
#display rotated 180 degrees
video=DSI-1:400x1280M@60,rotate=180
#display rotated 270 degrees
video=DSI-1:400x1280M@60,rotate=270

For example, the command to rotate 180 degrees at 70C is as above. Pay attention that the added content should be placed on the same line and cannot be wrapped.

Touch To Rotate

sudo nano /boot/config.txt
#Modify the instruction of the touch rotation angle at the end of the config.tx t file, and it will take effect after restarting (there is a 0° touch direction instruction by default)
#90°
dtoverlay=WS_xinchDSI_Touch,invertedy,swappedxy
#180°
dtoverlay=WS_xinchDSI_Touch
#270°
dtoverlay=WS_xinchDSI_Touch,invertedx,swappedxy
#0°
dtoverlay=WS_xinchDSI_Touch,invertedx,invertedy

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
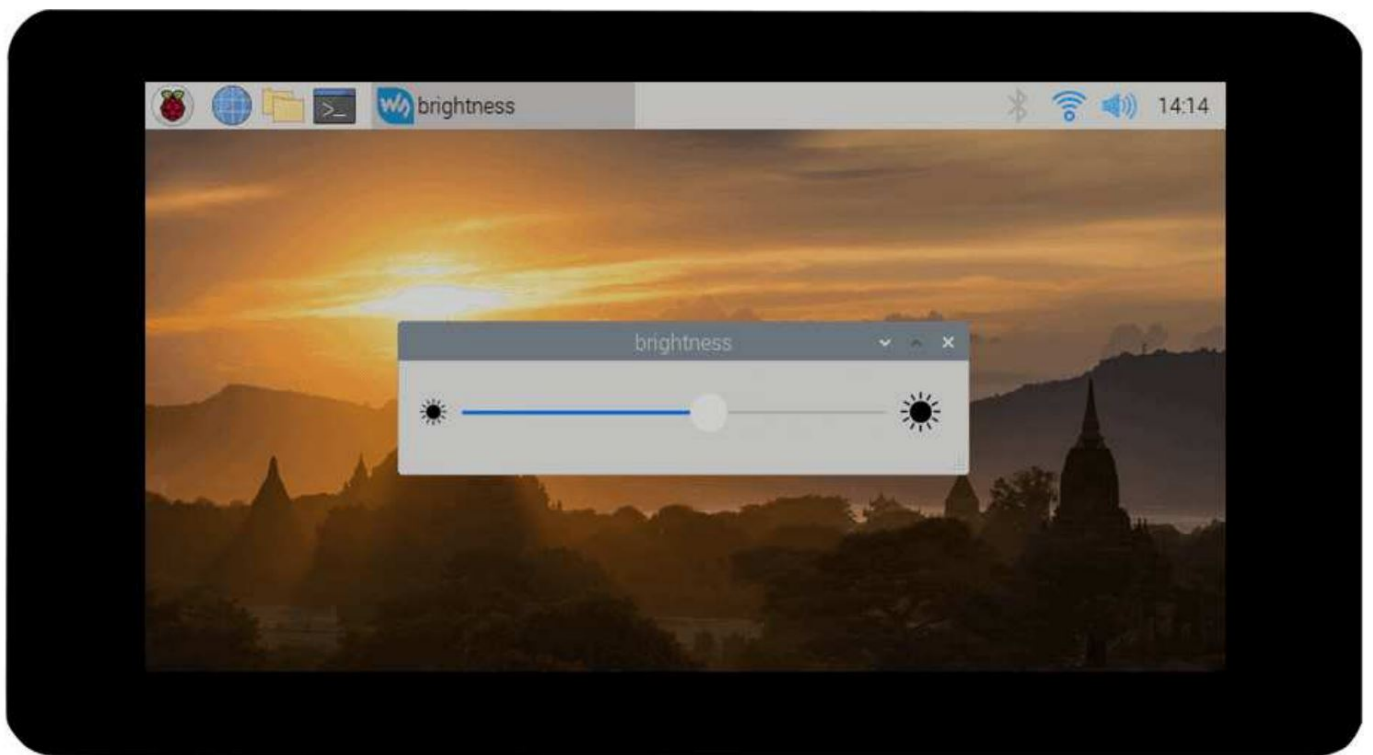cd 5.15.61
#Check the bits of the system, 32-bit system enters 32 directory, 64-bit system enters 64 directory cd 32
#cd 64
cd Backlight
sudo ./install.sh

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

Disable Touch

At the end of the config.txt file, add the following commands corresponding to disabling touch (the config file is located in the root directory of the TF card, and can also be accessed through the command: sudo nano /boot/config.txt):
disable_touchscreen=1
Note: After adding the command, it needs to be restarted to take effect.

Precaution

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 is 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.

Resource

Software

- **Panasonic_SDFormatter**
- **Win32DiskImager**

- **putty**

Pre-installed images

- **7.9inch DSI LCD_220906_32_bullseye**
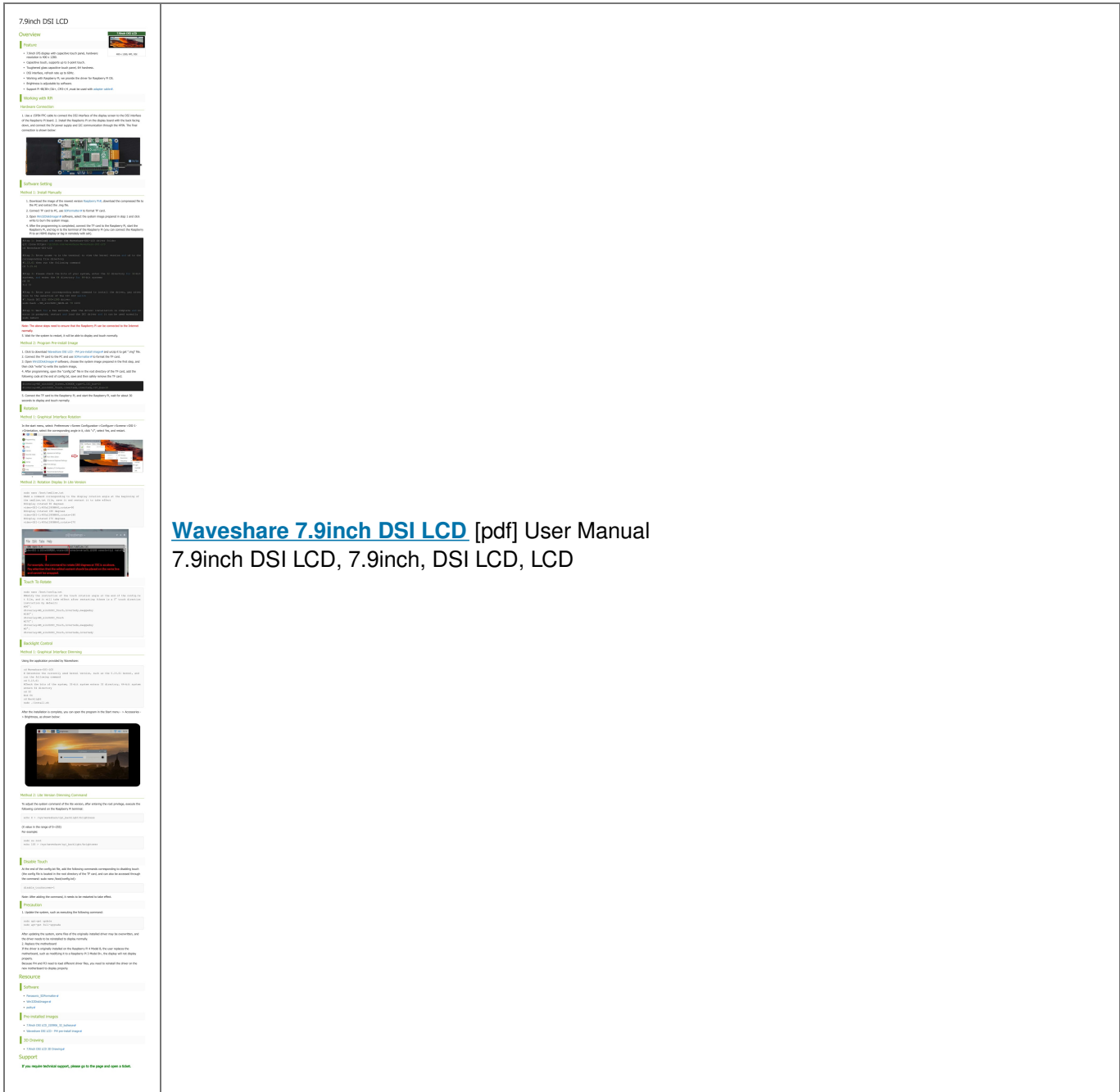- **Waveshare DSI LCD – Pi4 pre-install image**

3D Drawing

- **7.9inch DSI LCD 3D Drawing**

Support

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

Documents / Resources

Waveshare 7.9inch DSI LCD [pdf] User Manual
7.9inch DSI LCD, 7.9inch, DSI LCD, LCD

References

- **GitHub - waveshare/Waveshare-DSI-LCD**
- **Operating system images – Raspberry Pi**
- **Log in - Waveshare Wiki**
- **File:2.8inch DSI LCD05582.png - Waveshare Wiki**
- **File:4inch-DSI-LCD-Manual-02.jpg - Waveshare Wiki**
- **File:7.9inch DSI LCD2.png - Waveshare Wiki**
- **File:7.9inchLCD.jpg - Waveshare Wiki**
- **File:Top-2.png - Waveshare Wiki**
- **Waveshare Wiki**
- **User Manual**