7inch HDMI LCD (H) (with case)

From Waveshare Wiki
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Overview

Introduction

1024 × 600, 7-inch Capacitive Touch Screen LCD, HDMI interface, supports various systems. Toughened glass capacitive touch panel, 6H hardness (only the Case version has hardness glass). It supports Raspberry Pi and can also be used as a computer monitor.

More (https://www.waveshare.com/7inch-hdmi-lcd-h-with-case.htm)

7inch HDMI LCD (H)

(https://www.waveshare.com/7inch-hdmi-lcd-h.htm)

7inch HDMI LCD (H) (with case)

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Features

- 7inch IPS screen, 1024 x 600 hardware resolution, configurable by software (up to 1920 x 1080).
- Toughened glass capacitive touch panel, 6H hardness (case version only).
- When used with Raspberry Pi, supports Raspberry Pi OS / Ubuntu / Kali and Retropie.
- Use with Windows PC, support Windows 11 / 10 / 8.1 / 8 / 7, 5-point touch.
- Multi-language OSD menu, for power management, brightness/contrast adjustment, etc.
- It has a 3.5mm audio jack and supports HDMI audio output.
- Supports VGA input (specific cable (https://www.waveshare.com/Mini-HDMI-Male-to-VGA-Female-Cable.htm) is required and should be purchase separately).
- High-quality PC case, optional tilt angle: 30°/50°(case version only).

Video

Keys Introduction

Note: This introduction is based on the 7inch HDMI LCD (H) (with case).

(/wiki/File:7inch-HDMI-LCD-H-Manual-01.jpg)

- Power: Open or Close the LCD display.
- Menu: Open the OSD menu (It can also work as an "OK button" after entering the menu).

- Up/Left: Direction button.
- Down/Right: Direction button.
- Exit: it can also work as Return after entering the menu.

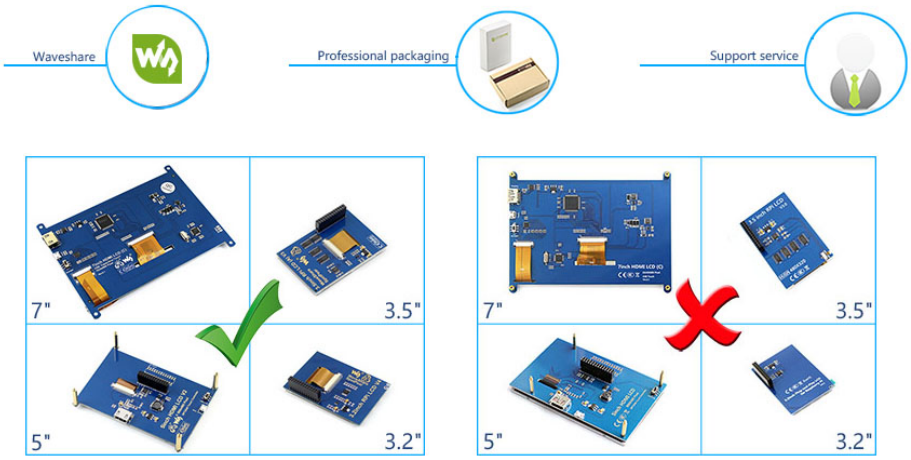
You can use the "Power" button to close the LCD display for reducing consumption if it will be idle for a long time.

Open the OSD menu by pressing the "Menu" button, then use the "OK button" and "Direction button" to change the configuration, and finally, use the "Return button" to exit.

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:



(https://www.waveshare.com/w/upload/6/6d/RPi-LCD-Anti-Piracy-l.jpg)

(Click to enlarge (https://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.

Working with Raspberry Pi

Supports Raspberry Pi OS / Ubuntu / Kali / Retropie system.
When working with Raspberry Pi, you should set the resolution of the LCD by yourself, otherwise, the LCD screen will not work. For more detailed information, please read the following section.

Please download the latest version of the image on the Raspberry Pi official website. (https://www.raspberrypi.com/software/operating-systems/)

1) Download the compressed file to the PC, and unzip it to get the .img file.

2) Connect the TF card to the PC, and use SDFormatter (https://files.waveshare.com/upload/d/d7/Panasonic_SDFormatter.zip) software to format the TF card.

3) Open the Win32DiskImager (https://files.waveshare.com/upload/7/76/Win32DiskImager.zip) software, select the system image downloaded in step 1, and click 'Write' to write the system image.

4) After the image has finished writing, open the config.txt file in the root directory of the TF card. 5) Add the following lines to the end of config.txt, then save and eject the TF card safely.

```
hdmi_force_hotplug=1
config_hdmi_boost=10
hdmi_group=2
hdmi_mode=87
hdmi_cvt 1024 600 60 6 0 0 0
```

6) Save and connect the TF card to your Pi then power up.

7) Connect the Touch interface of the LCD to the USB port of Raspberry Pi.

8) Connect the HDMI interface of the LCD to the HDMI port of Raspberry Pi.

Note:

- When the Raspberry Pi is connected to multiple monitors at the same time, the touch effect of the 7-inch LCD will be applied to the main screen by default. If you need to specify the touch to the secondary screen, see#Calibrate double-touchscreen in Pi 4
- On December 2, 2021, the Raspberry Pi OS was divided into two branches, the Buster branch, and the Bullseye branch. The Buster branch is a continuation of the old system and is more stable. The Bullseye branch added some new features, using open-source libraries and new interfaces. Since the current Bullseye branch has just been released shortly, it is not stable yet. If you are an industrial user, it is strongly recommended to use the Buster branch.
- If you use the Buster branch system, you can use it according to the above configuration. But if you are using the Bullseye branch system, you need to modify the default KMS driver to the FKMS driver to display the system desktop normally

Modification method: Open the config.txt file in the root directory of the TF card, and find the following line:

```
dtoverlay=vc4-kms-v3d
```

change into

```
dtoverlay=vc4-fkms-v3d
```

- If you need to use the CSI camera under the Bullseye branch system. Since this branch uses the libcamera camera library by default, the library doesn't support FKMS drivers.

So in addition to the above modification, you also need to install the Raspicam camera library.

The installation method is as follows:

```
cd ~
sudo apt install cmake
git clone https://github.com/raspberrypi/userland
cd userland
./buildme
sudo cp build/bin/* /bin/
```

Then execute the following command to shut down the system:

```
poweroff
```

Connect the Raspberry Pi camera to the CSI interface of the Raspberry Pi, power on the Raspberry Pi again, and after the system boots, execute the following command:

Take a picture:

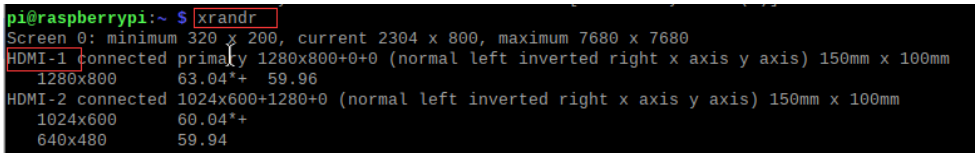
```
raspistill -o image.jpg
```

Take a video:

```
raspivid -o video.h264 -t 10000
```

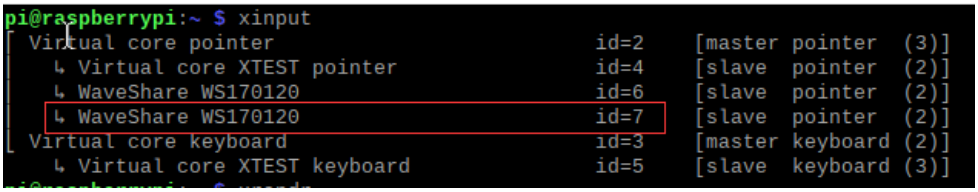
Calibrate double-touchscreen in Pi 4

- 1. Open the terminal and input command: **xrandr** to check HDMI-ID of the main monitor. (It is HDMI-1 most time);



(/wiki/File:Pi4-conf-touch-1.png)

- 2. Input command **xinput** in the terminal, and check the touch ID of the main monitor. (There should be two IDs, you can touch displays to check which is the main one);



(/wiki/File:Pi4-conf-touch-2.png)

- 3.Tun the command：**xinput map-to-output <touch ID> <HDMI-ID>**

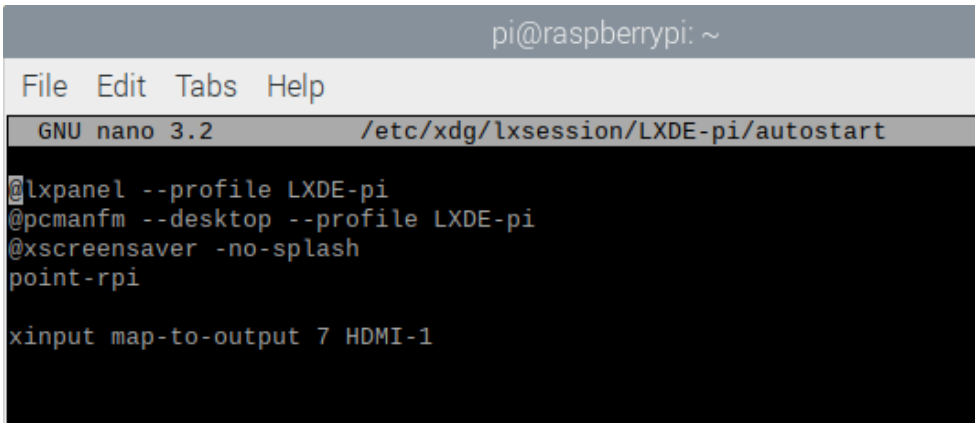
(Don't forget to change the ID to the correct one just like: **xinput map-to-output 7 HDMI-1**)

(/wiki/File:Pi4-conf-touch-3.png)

- 4. You can set the command to auto-run while booting and make it affect all the time:

```
sudo nano /etc/xdg/lxsession/LXDE-pi/autostart
```

Add the line to the file: **xinput map-to-output 7 HDMI-1** (Don't forget to change the ID to the correct one), then reboot.



(/wiki/File:Pi4-auto-start-4.png)

Working with PC

This product supports Windows 11/10/8.1/8/7 OS.:

1. Connect the TOUCH interface of LCD to the USB interface of the PC. Wait for a while, the windows will automatically recognize the touch function.

2. If you are using the HDMI signal, please connect the HDMI interface of LCD to the HDMI port of the PC. About 5s later, you can see the LCD display properly. If you need the audio, you can insert 3.5mm earphones into HP ports.

3. If you are using the VGA signal, please connect the VGA interface of LCD to PC's VGA ports by Mini HDMI to VGA Cable (https://www.waveshare.com/Mini-HDMI-Male-to-VGA-Female-Cable.htm).

Note:

1) When the computer is connected to multiple monitors at the same time, the touch effect of the 7inch LCD will be applied to the main screen by default. If you need to specify the touch to the secondary screen, see #Calibration touch on Win 10 PC

2) Some of PC cannot support the HDMI screen Hot Plug. In this case, restarting the PC can solve.

3) Sometimes LCD will flicker because of undersupplying from USB cable of PC. You need to connect an external power supply (5V/2A) to the DC port.

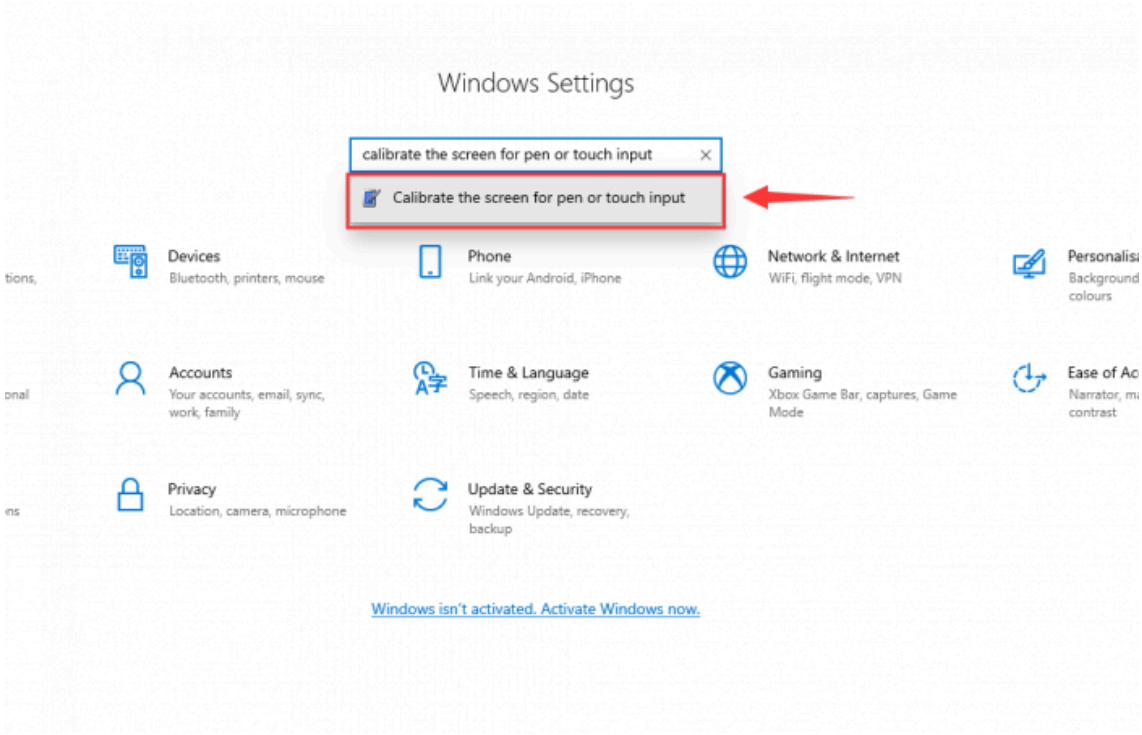
4) HP audio output only works while using HDMI communication

5) Mini HDMI to VGA Cable (https://www.waveshare.com/Mini-HDMI-Male-to-VGA-Female-Cable.htm) is necessary and need to be purchased separately if you use VGA communication.

Calibration touch on Win 10 PC

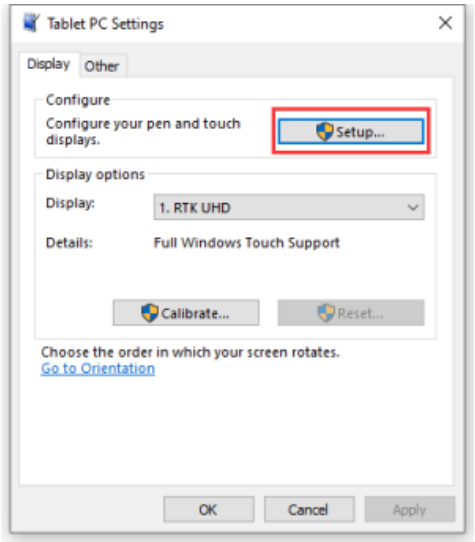
Take the windows10 system as an example:

- 1. Enter the Windows settings of the system, type in the search bar and click "Calibrate the screen for pen or touch input" (as shown in the picture below).



(/wiki/File:Win10_touch011.png)

- 2. Click "Setup" in the pop-up "Tablet PC Settings" interface:



(/wiki/File:Win10_touch02.png)

- 3. The following text prompt will appear on the screen. Please tap the touch screen with your finger, and the computer will recognize it as a touch screen.

【Note】If the touch screen is blank, press the "Enter" key, and the text prompt will switch to the touch screen. (The screen which displays the text prompt will be used as a touch screen!)

(/wiki/File:Win10_touch03.png)

EDID Timing Parameters

If the system of the main control board can automatically recognize the EDID for display, there is no need to set the relevant timing parameters additionally.

Otherwise, you can refer to the following EDID settings:

Pixel Clock	H Addressable	H Blanking	V Addressable	V Blanking	H Front Porch	H Sync Width	V Front Porch	V Sync Width	H Image Size	V Image Size	H Border	V Border
137.52	1080	120	1920	16	32	32	8	4	1920	1080	0	0

Working with Jetson Nano

To work with Jetson Nano Developer Kit, you don't need to make software configurations.

1) Connect the TOUCH interface of the LCD to the USB interface of Jetson Nano.

2) Connect the HDMI interface of the LCD to the HDMI interface of the Jetson Nano and then power on the Jetson Nano. After about 5 seconds, you can see the LCD display normally. If you need to output sound, you can insert a 3.5mm earphone into the HP audio output interface.

Note:

1) If the LCD flickers, it may be due to the insufficient power supply of the Jetson Nano's USB interface. It can be solved normally after connecting to an external 5V/2A power supply through the DC interface of the LCD.

2) When the HP audio interface is in use, it may be necessary to set the sound output settings in the system.

Resources

Document

- User Manual PDF (https://files.waveshare.com/upload/5/58/7inch_HDMI_LCD_%28H%29_User_Manual.pdf)

- 3D drawing of 7inch HDMI LCD (H) (https://files.waveshare.com/upload/9/9b/7inch_HDMI_LCD_%28H%29_drawing.zip)

Software

- Panasonic SDFormatter (https://files.waveshare.com/upload/d/d7/Panasonic_SDFormatter.zip)
- Win32DiskImager (https://files.waveshare.com/upload/7/76/Win32DiskImager.zip)
- PuTTY (https://files.waveshare.com/upload/5/56/Putty.zip)

External guides

- Woring with Volumio (https://files.waveshare.com/upload/1/1f/Working_with_Volumio.pdf)

FAQ

Question: How to remove the colored squares during GPU self-test on Raspberry Pi boot-up?

Answer:

Add the following command to /boot/config.txt:

```
disable_splash=1
```

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

Answer:

Replace the custom image with the image in this directory /usr/share/plymouth/themes/pix/splash.png.

Question: How to set long press touch on Raspberry Pi capacitive touch screen?

Answer:

Raspberry Pi Long-press Right-click Software Installation

Test environment: 2022-04-04-raspios-bullseye-armhf 32-bit system.

Models supported: Supports Waveshare DSI LCD, DPI LCD, and HDMI LCD capacitive touch screen series 32-bit systems, while 64-bit systems are not supported by default

```
wget https://files.waveshare.com/upload/1/18/Evdev-right-click-emulation.zip
unzip Evdev-right-click-emulation.zip
cd evdev-right-click-emulation
sudo apt install build-essential libevdev2 libevdev-dev -y
sudo cp 'out/evdev-rce' '/usr/local/bin/'
sudo chmod +x '/usr/local/bin/evdev-rce'
```

Enter the command:

```
 sudo evdev-rce
```

After running, you can touch and long press to realize the right-click function.

Set up Pi User to Run

```
sudo usermod -G 'input' -a pi
echo 'uinput' | sudo tee -a /etc/modules
sudo nano  /etc/udev/rules.d/99-uinput.rules
```

Add following in 99-uinput.rules file.

```
KERNEL=="uinput", MODE="0660", GROUP="input"
```

Save it and run it in the terminal.

```
sudo udevadm control --reload-rules
sudo udevadm trigger
```

Then reboot:

```
sudo reboot
```

Run after reboot (no sudo needed at this point).

```
evdev-rce
```

After running, you can touch and long press to realize the right-click function.

Set Startup

Enter in the terminal.

```
sudo mkdir ~/.config/autostart
sudo nano ~/.config/autostart/right_click.desktop
```

Add the following in right_click.desktop.

```
[Desktop Entry]
Version=1.0
Type=Application
Name=evdev-rce
GenericName=Enable long-press-to-right-click gesture
Exec=env LONG_CLICK_INTERVAL=1000 LONG_CLICK_FUZZ=200  /usr/local/bin/evdev-rce
Terminal=true
StartupNotify=false
```

If you want to modify the sensitivity, you can modify the two parameters: LONG_CLICK_INTERVAL=1000, LONG_CLICK_FUZZ=200.

Question: Does the screen not automatically go off, or do I have to execute a command to go into screen off mode?

Answer:

It depends on the system, if the system has hibernation, the screen will also be black. If it is the official system of Raspberry Pi, the default is about ten minutes without action to have hibernation.

Question: What should I do if I connect to the PC with LCD and it cannot display normally?

Answer:

- Make sure that the HDMI interface of the PC can output normally.
- The PC only connects to this LCD as a monitor without others.
- You should connect the touch cable first and then the HDMI cable.
- Some PC need to be restarted to make the 7inch HDMI LCD display normally.

Note: The PC must use a windows system.

Question:How could I disable the rainbow screen?

Answer:

Please add the following command to /boot/config.txt

```
disable_splash=1
```

Question:How to change the splash screen of Pi?

Answer:

You can replace the splash.png from the path /usr/share/plymouth/themes/pix/splash.png to yours.

Question:What is the operating current of 7inch HDMI LCD (H)

Answer:

With 5V power input, it is about 750~850mA

Question: What is the thickness of the 7inch HDMI LCD (H) screen and PCB board?

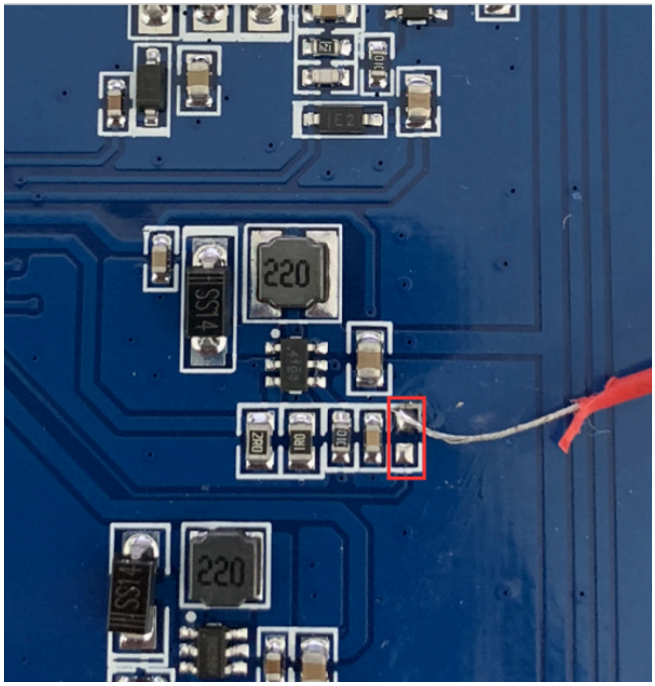
Answer:

- The thickness of the screen (LCD + TP) is about 4.5mm;
- The thickness of the PCB board thickness is about 2mm;
- The overall thickness of the screen and PCB board is about 6.88mm;
- The overall thickness of the screen and PCB board (including the HDMI interface) is about 13.8mm.

Question:Can 7-inch HDMI LCD (H) use an external PWM signal to control the backlight?

Answer:

As in the picture below, you need to remove the 22Ohm resistor and wire the Pad to the P1 GPIO of the Pi



(/wiki/File:7inch-HDMI-LCD-H-FAQ01.png)

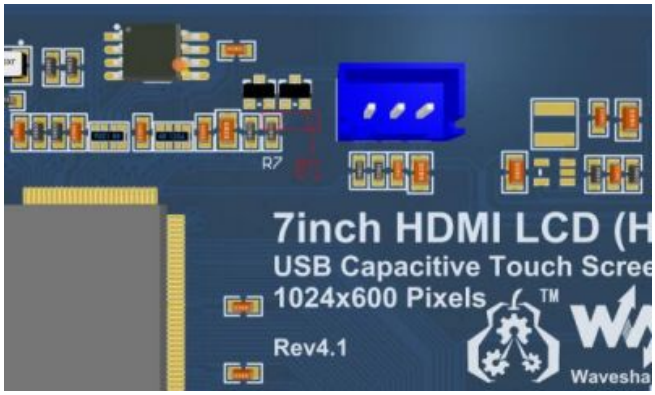
Then run the following commands to control the backlight.

```
gpio -g pwm 18 1024
gpio -g mode 18 pwm #Set the PiN to PWM
gpio pwmc 1000
```

Brightness control: gpio -g pwm 18 X (X: 0~1024)

For Rev.4, the PWM light-backlight adjustment method is shown below:

Rotate R7 as shown in the diagram by 180 degrees and connect the PWM signal from the RPI to the open end of R7:



(/wiki/File:7inch-HDMI-LCD-H-FAQ02.jpg)

Question:Are mounting hole specifications available for the screen enclosure?

Answer:

(/wiki/File:7H_Case_Drawing.png)

Support

Technical Support

If you need technical support or have any feedback/review, please click the **Submit Now** button to submit a ticket, Our support team will check and reply to you within 1 to 2 working days. Please be patient as we make every effort to help you to resolve the issue.
Working Time: 9 AM - 6 PM GMT+8 (Monday to Friday)

Submit Now (https://service.waveshare.com/)