waveshare 5.5inch HDMI AMOLED

Waveshare 5.5-inch Capacitive Touch AMOLED Display User Manual

Model: 5.5inch HDMI AMOLED

1. Introduction

This manual provides detailed instructions for setting up, operating, and maintaining your Waveshare 5.5-inch Capacitive Touch AMOLED Display. This high-resolution display features a 1080x1920 resolution and 5-point capacitive touch control with a durable tempered glass panel (up to 6H hardness). It is compatible with various Raspberry Pi models (Raspberry Pi OS/Ubuntu/Kali/Retropie) and can also function as a computer monitor for Windows 11/10/8.1/8/7 systems. It includes a 3.5mm audio jack for HDMI audio output.

2. Package Contents

Please verify that all items listed below are included in your package:

- 1 x Waveshare 5.5-inch HDMI AMOLED Display
- 1 x 3D Printed Case (for Raspberry Pi integration)
- 1 x USB Cable
- 1 x HDMI Cable
- 1 x 5V Cooling Fan
- 1 x Standoffs Pack (various sizes)
- 4 x Adapters (HDMI and USB)
- 1 x Screw Pack

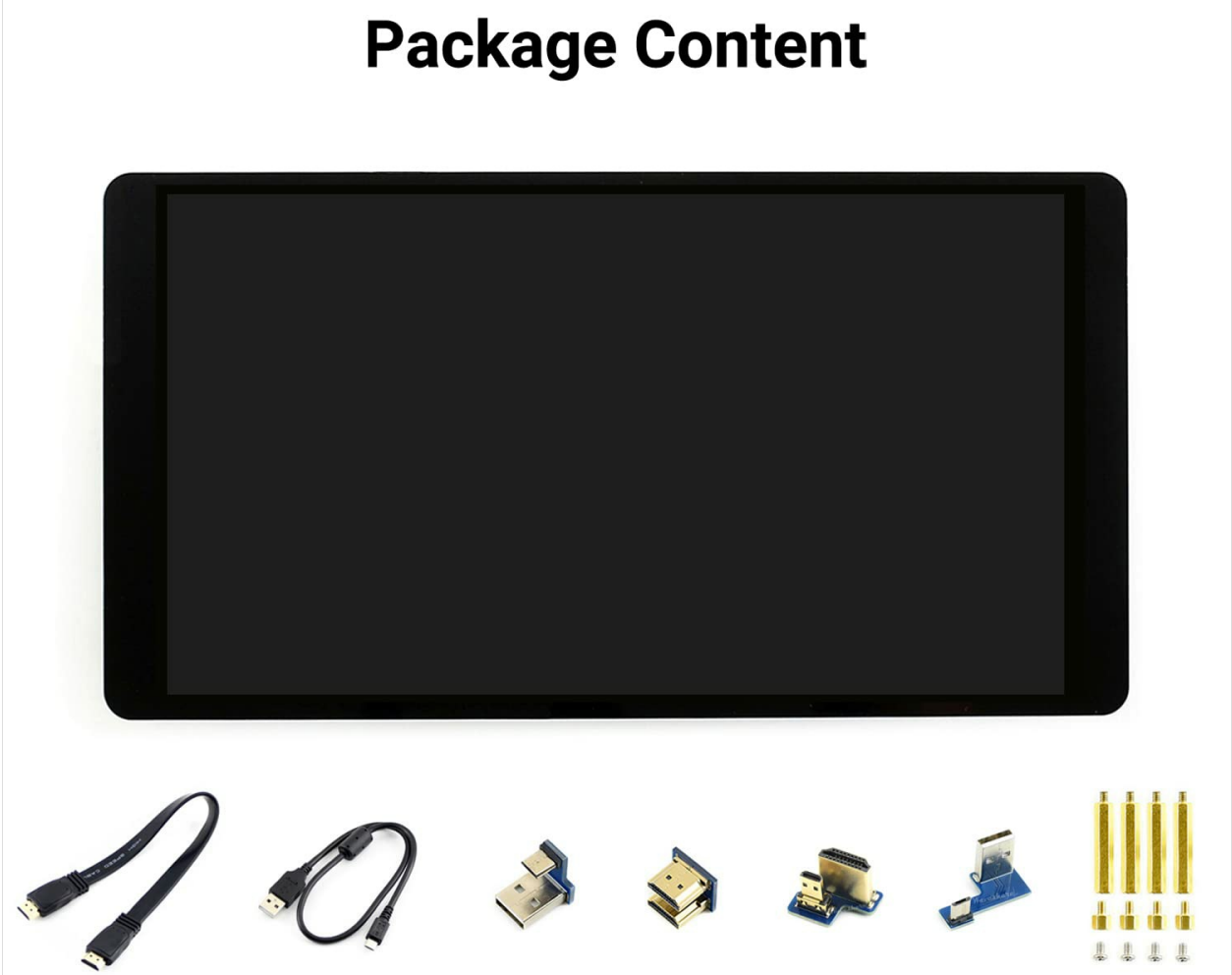


Figure 2.1: Contents of the Waveshare 5.5-inch HDMI AMOLED Display package.

3. Product Features

- **Display Type:** 5.5-inch AMOLED
- **Resolution:** 1080x1920 (H×V) - *Note: Display orientation is portrait by default. Software configuration is required for landscape display.*
- **Touch Control:** 5-point capacitive touch with tempered glass panel (hardware up to 6H hardness)
- **Interface:** HDMI for display, USB for touch
- **Audio:** 3.5mm audio jack, supports HDMI audio output
- **Compatibility:** Supports Raspberry Pi OS/Ubuntu/Kali/Retropie when used with Raspberry Pi. Supports Windows 11/10/8.1/8/7 when used as a computer monitor.

Figure 3.1: Key features and specifications of the 5.5-inch Touch AMOLED Display.

4. Setup & Installation

4.1. Raspberry Pi Setup

Follow these steps to set up your display with a Raspberry Pi:

1. **Prepare the TF Card:** Insert the TF card containing your Raspberry Pi OS (e.g., Raspbian) image into your computer.
2. **Configure `config.txt`:** Navigate to the Waveshare Wiki for the 5.5-inch HDMI AMOLED display to find the necessary configuration statements. Open the `config.txt` file located in the BOOT directory of your TF card and paste the copied statements into it. This is crucial for proper display and touch functionality.
3. **Assemble the Display and Raspberry Pi:**
    - Screw the short standoffs onto the display's PCB.
    - Carefully align and place your Raspberry Pi onto the standoffs.
    - Secure the Raspberry Pi using the small screws provided in the standoffs pack.
    - Connect the display interfaces using the provided HDMI adapter (HDMI Adapter ②) and touch interfaces using the USB adapter (USB Adapter ②).
    - Cover the assembly with the provided 3D printed case components (Case ① and Case ③) in order, securing them with screws.
    - Install the 5V cooling fan onto the remaining case housing (Case ②) and fix it with its own screws.
    - Connect the fan to the appropriate pins on your Raspberry Pi (refer to the fan's wiring for correct polarity).
    - Finally, screw the Case ② onto the assembled unit.

4. **Power On:** Connect the power supply to your Raspberry Pi. The display should power on and show the Raspberry Pi OS.

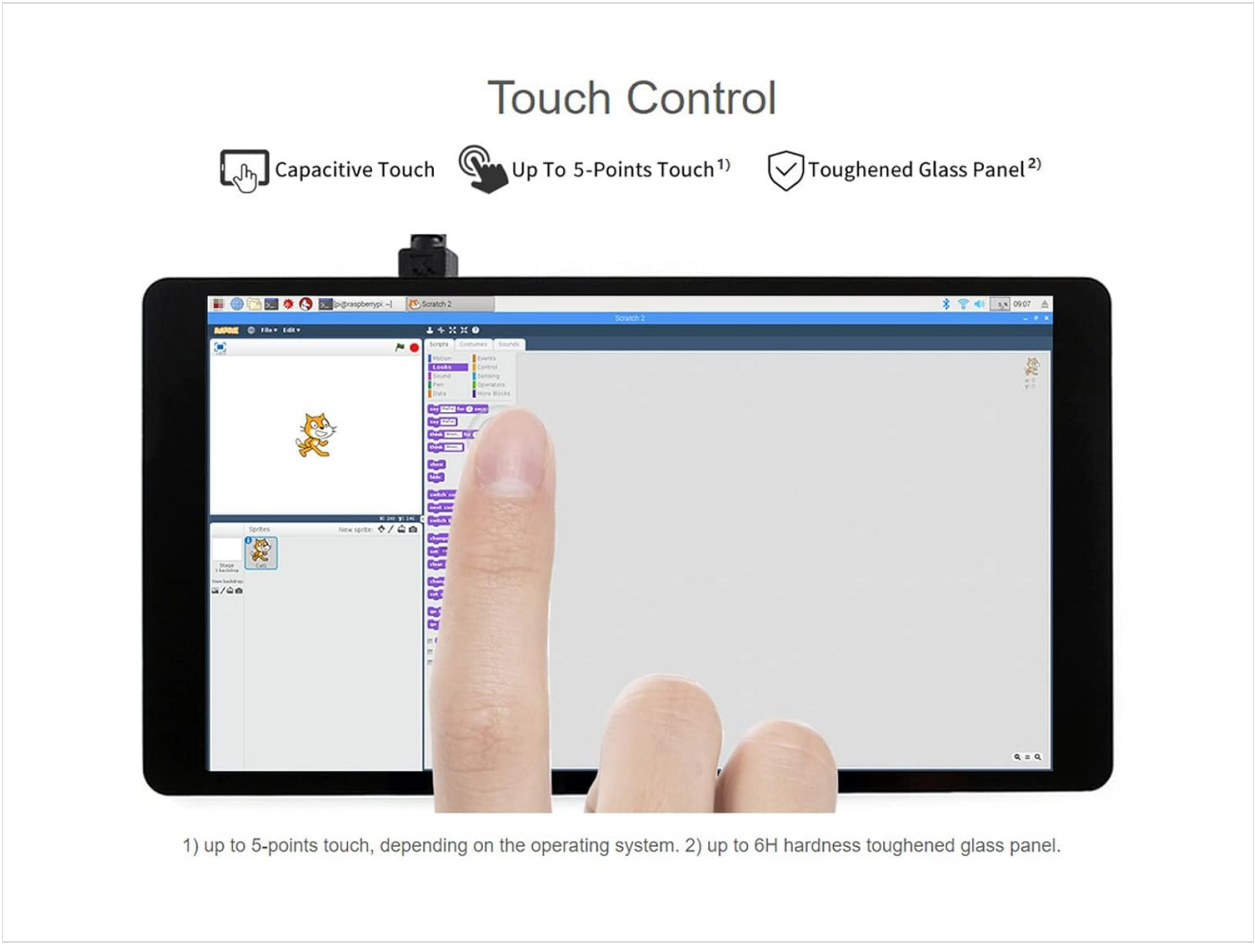


Figure 4.1: Appearance and dimensions of the display board.

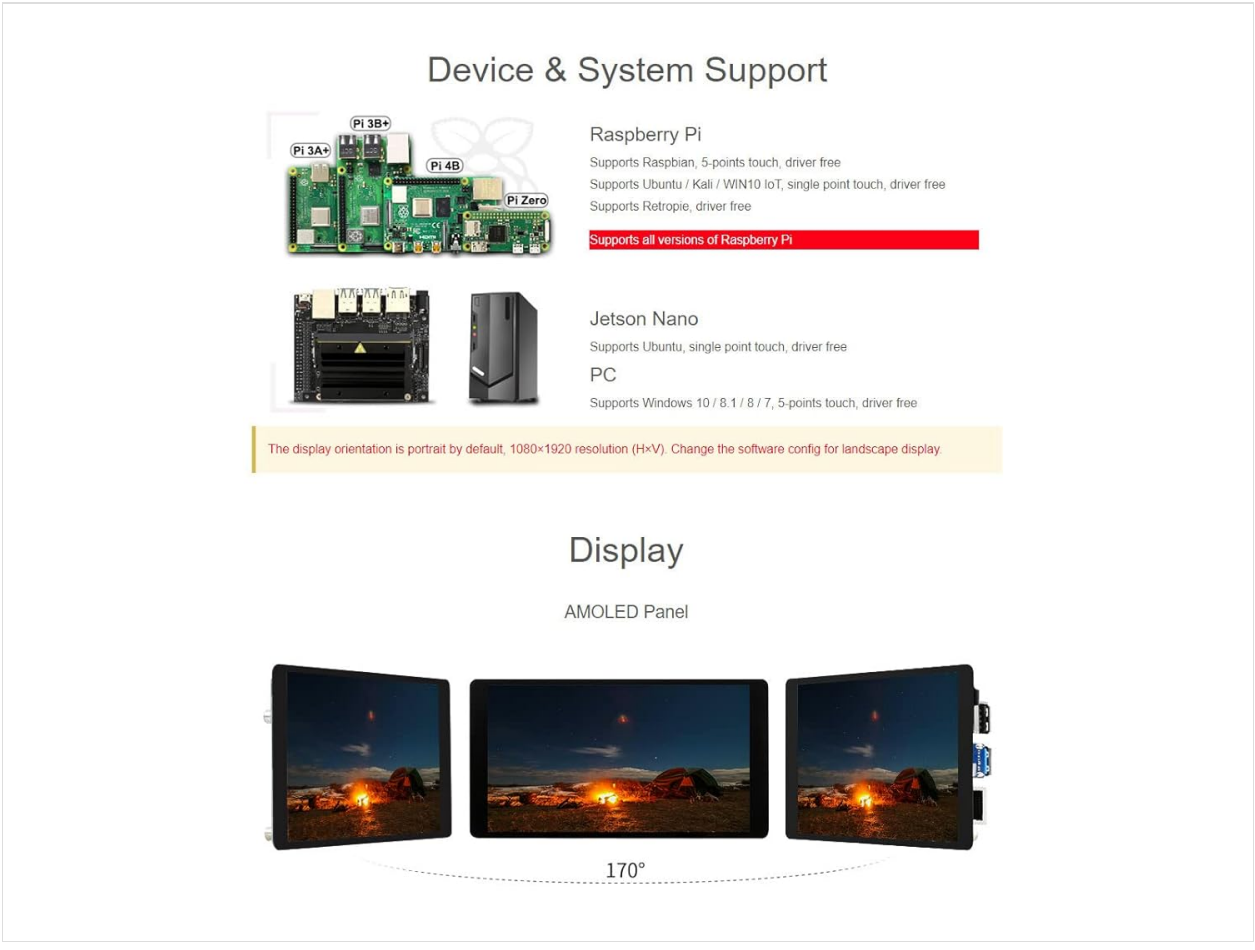


Figure 4.2: Device and system compatibility overview.

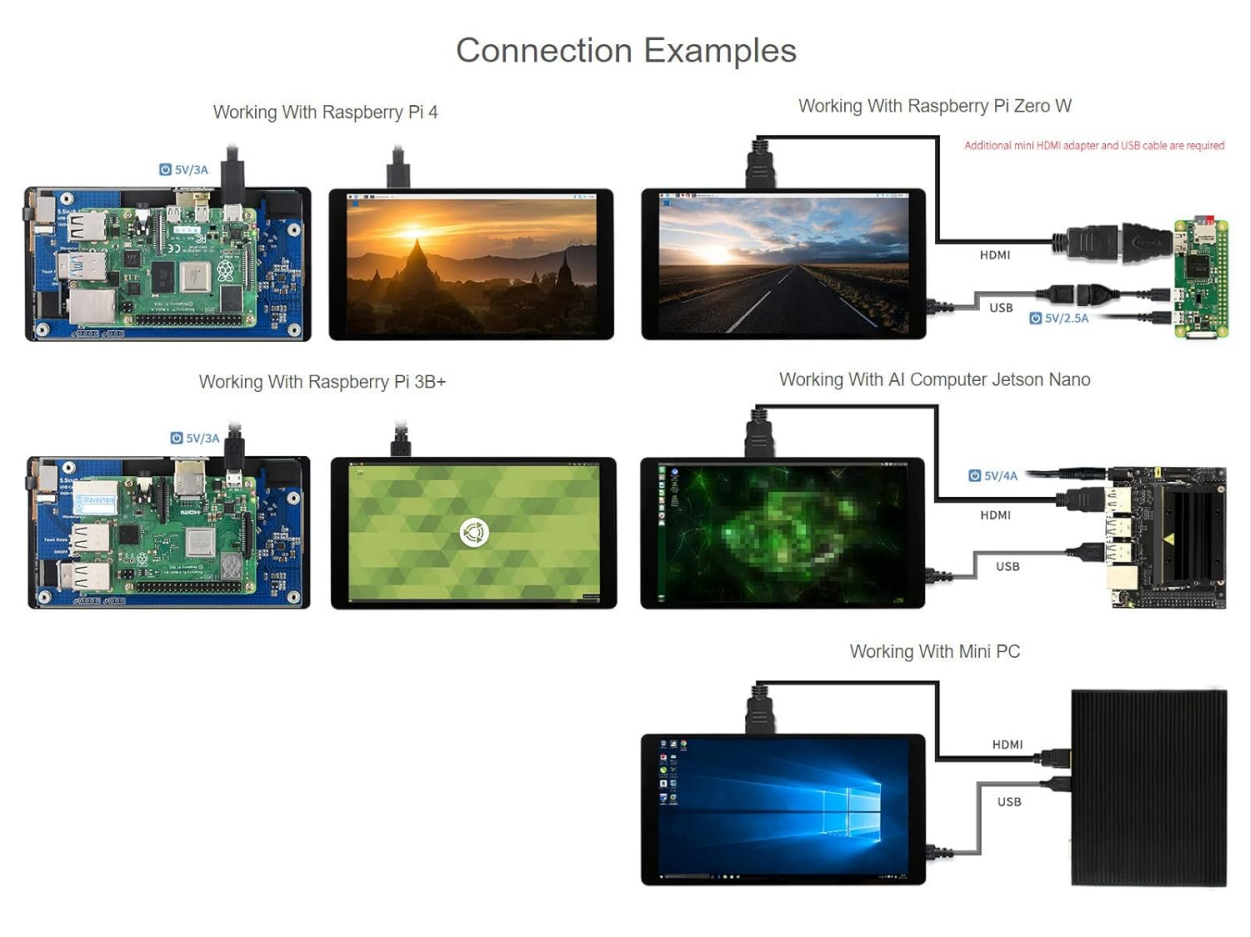


Figure 4.3: Connection examples with different host devices.

4.2. PC Setup (Windows)

To use the display with a Windows computer:

1. Connect the display to your computer via the HDMI and USB cables.
2. The display orientation is portrait by default (1080x1920). To change to landscape mode, open your computer's display settings.
3. In the multi-monitor setup option, choose 'extended mode' to use the display as a secondary monitor.
4. Adjust the display mode to landscape for horizontal viewing if desired.

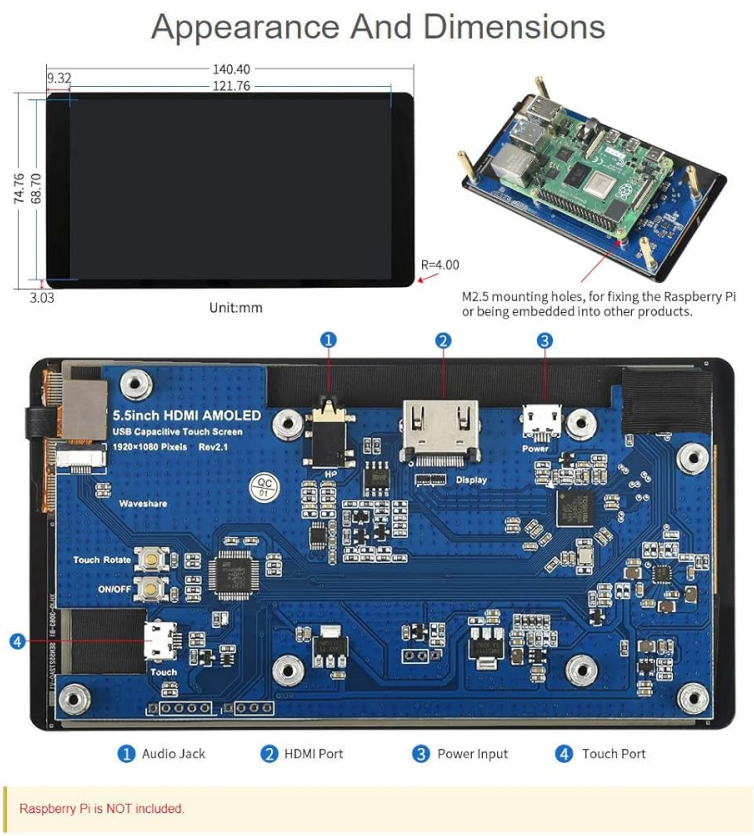


Figure 4.4: Capacitive touch control in action.

Your browser does not support the video tag.

Video 4.1: This video demonstrates the assembly and configuration process for the Waveshare 5.5-inch HDMI AMOLED display, including setup with Raspberry Pi and connection to a computer.

5. Operating Instructions

Once connected and configured, the Waveshare 5.5-inch AMOLED display operates as a standard display with touch input. For Raspberry Pi, the touch functionality is driver-free for most supported operating systems. For Windows, the 5-point touch control is also plug-and-play.

- **Touch Interaction:** Use your fingers to interact with the screen, similar to a smartphone or tablet. The display supports up to 5-point multi-touch, depending on the operating system.
- **Display Orientation:** As noted, the native resolution is 1080x1920 (portrait). If you require landscape orientation, ensure you have applied the necessary software configuration as detailed in the Raspberry Pi setup section or through your computer's display settings.
- **Audio Output:** Connect headphones or external speakers to the 3.5mm audio jack for sound output from the HDMI source.

6. Maintenance

To ensure the longevity and optimal performance of your Waveshare 5.5-inch AMOLED Display, please observe the following maintenance guidelines:

- **Handle with Care:** The glass panel of the AMOLED display is fragile, especially without an enclosure. Always handle the display carefully, holding the PCBA (Printed Circuit Board Assembly) when plugging in HDMI or USB cables to avoid applying hard pressure to the glass panel.

- **Cleaning:** Use a soft, lint-free cloth, slightly dampened with water or a screen-safe cleaning solution, to clean the display surface. Avoid abrasive materials or harsh chemicals.
- **Storage:** When not in use, store the display in a cool, dry place, away from direct sunlight and extreme temperatures. If possible, keep it in its original packaging or a protective case.
- **Power Supply:** Ensure you use a stable 5V power supply with sufficient current (e.g., 2A or 2.5A for Raspberry Pi) to prevent power-related issues like flickering or failure to power on.

7. Troubleshooting

If you encounter issues with your Waveshare 5.5-inch AMOLED Display, consider the following common problems and solutions:

- **Display Not Powering On / Green LED Flashing:** This often indicates insufficient power. Ensure you are using a 5V power supply with adequate current (e.g., 2A or 2.5A). Check all power connections.
- **No Display / Incorrect Resolution:** Verify that the `config.txt` file on your Raspberry Pi's TF card has the correct configuration statements for the 1080x1920 resolution. For Windows, check display settings to ensure the correct resolution and display mode (extended/duplicate) are selected.
- **Incorrect Display Orientation (Portrait/Landscape):** The display is portrait by default. For landscape mode, you must change the software configuration in your Raspberry Pi's `config.txt` file or adjust display settings in Windows.
- **Touch Not Working:** Ensure the USB cable for touch input is securely connected to both the display and the host device (Raspberry Pi or PC). For Raspberry Pi, confirm that the necessary drivers or configurations are in place as per the Waveshare Wiki.
- **Screen Flickering or Instability:** This can be a sign of an unstable power supply or a loose connection. Check power source and all cables.
- **Physical Damage (Cracks):** The AMOLED glass panel is fragile. If the screen is cracked, it likely requires replacement. Handle with extreme care during assembly and use.

8. Specifications

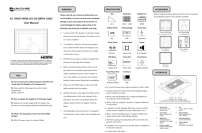
Feature	Value
Screen Size	5.5 Inches
Resolution	FHD 1080p (1080x1920)
Aspect Ratio	16:9
Screen Surface Description	Glossy
Item Model Number	5.5inch HDMI AMOLED
Manufacturer	Waveshare
Date First Available	February 28, 2019

9. Support

For additional information, detailed technical documentation, and troubleshooting guides, please refer to the official Waveshare Wiki for this product. You can also download the comprehensive user guide in PDF format:

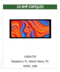
Download User Guide (PDF)

Related Documents - 5.5inch HDMI AMOLED

	Waveshare 10.1-inch HDMI LCD (G) User Manual: Setup, Specs, and Connections Explore the Waveshare 10.1-inch HDMI LCD (G) with Case. This user manual covers essential specifications, safety warnings, connection guides for Raspberry Pi, Jetson Nano, and PCs, and answers common questions.
	Waveshare 10.4HP-CAPQLED: 10.4-inch QLED Touchscreen Display (1600x720) Discover the Waveshare 10.4HP-CAPQLED, a versatile 10.4-inch QLED capacitive touchscreen with 1600x720 resolution. This display is compatible with Raspberry Pi, Jetson Nano, and PCs, offering excellent visual performance and multi-touch capabilities via HDMI and USB.

10.4HP-CAPQLED

Overview

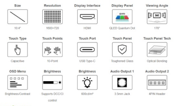


Introduction

The 10.4HP-CAPQLED is a small, high-resolution universal capacitive touch screen compatible with most standard HDMI devices.
Featuring a small, thin body, toughened glass panel, excellent display performance, and smooth multi-touch effect.
The baseboard comes with its own fixing nuts for integrated projects.

Features

- 10.4-inch QLED screen with 1600x720 hardware resolution.
- 10-point capacitive touch with up to 6H hardness toughened glass panel
- Optical bonding technique for better display.
- Supports Raspberry Pi OS / Ubuntu / Kali and Retropie when used with Raspberry Pi.
- Supports Windows 11 / 10 / 8.1 / 8 / 7 when used as a computer monitor.
- Multi-language OSD menu support (can be used for power control, adjusting brightness/contrast, etc.)
- Supports HDMI audio output, onboard 3.5mm headphone jack, and 4PIN header.



Specification

Item	Description	Unit
Model	10.4HP-CAPQLED	/
Dimensions	10.4	Inch
Viewing angle	178	Deg
Resolution	1600×720	Pixels
Touch screen dimensions	260.00(H)×120.00(V)×1.45(D)	mm
Display screen dimensions	237.6(H)×106.92(V)×4.53(D)	mm
Display area	106.92(W)×237.6(H)	mm
Pixel pitch	0.0528(H)×0.1536(V)	mm
Color gamut	94%	NTSC
Brightness (Max)	600	cd/m²
Contrast	1000	/
Backlight	OSD menu dimming	/
Refresh rate	60	Hz
Display interface	Standard HDMI port	/
Power port	5V Type-C interface	/
Power consumption	4.2	Watt
Weight	337	g

Electrical Parameters

Parameter	Min. Value	Standard Value	Max. Value	Unit	Note
Input Voltage	4.75	5.00	5.25	V	Note 1
Input Current	800	850	TBD	mA	Note 2
Operating Temperature	0	25	60	°C	Note 3
Storage Temperature	-10	25	70	°C	Note 3

•**Note 1:** Input voltage exceeding the maximum value or improper operation may cause permanent damage to the device.
•**Note 2:** The input current should be ≥800mA, otherwise it will lead to start-up failure or abnormal display, and a long time in an abnormal state may cause permanent damage to the device.
•**Note 3:** Please do not put the display in a high temperature and high humidity storage environment for a long time, the display needs to work within the limit value, otherwise it will be possible to damage the display.

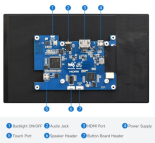
EDID Sequence Parameters

If the system of the main control board can automatically identify 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
89.00	1600	320	720	65	180	32	10	10	172	103	0	0

Onboard Interface



User Manual

Working with Raspberry Pi

Hardware Connection

1. Connect the Touch port to the USB interface of the Raspberry Pi.
2. Connect the HDMI interface to the HDMI interface of the Raspberry Pi.

Software Setting

```
Raspberry Pi OS / Ubuntu / Kali and Retropie systems are supported for Raspberry Pi.
When the LCD works on these systems of Raspberry Pi, the resolution must be set manually, ot
herwise, it will result in incorrect display resolution and affect the experience.
```

1. Please download the newest image from the Official Raspberry Pi website.
2. Download the compressed file on the PC and unzip it to get the .img file.
3. Connect the TF card to the PC and use SDFormatter to format the TF card.
4. Open Win32DiskImager, choose the image prepared in the first step, and click "Write" to program the system image.
5. After programming, open the config.txt file in the root directory of the TF card and enter the following codes at the end of config.txt. Then, save and safely eject the TF card.

```
hdmi_group=2
hdmi_mode=87
hdmi_timings=1600 0 80 32 112 720 0 30 3 33 0 0 0 60 0 87000000 0
```

6. Insert the TF card into the Raspberry Pi, power up the Raspberry Pi, wait for a few seconds normally and then it will display normally.

Linux Software Brightness Adjustment

Using the DDC/CI program, here is an example of the ddcutil tool.

```
#Install ddcutil tool:
sudo apt-get install ddcutil -y
#Detect DDC/CI monitor support:
sudo ddcutil detect
#Adjust monitor brightness, <value> should be modified to 0-100
sudo ddcutil setvcp 10 <value>
```

For more information about ddcutil function commands, please click here.

Working with PC

Support Windows 11/10/8.1/8/7

How to use:

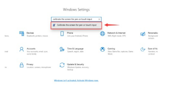
1. Connect the Touch port of the LCD to the USB interface of the PC, and Windows will automatically recognize the touch function.
2. Connect the HDMI interface of the LCD to the HDMI interface of the PC, and Windows will automatically recognize the display function.

- Note:
- Some PCs do not support HDMI devices plug-and-play, usually after rebooting the system can be used normally.
- If the power supply of the USB interface is insufficient, the LCD will flicker, after connecting the external 5V 1A power adapter to the LCD's Power interface, it can be restored to normal use.

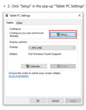
Windows Touch Calibration

Take Windows 10 as an example:

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



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

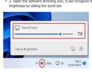


- 3. The following text prompt will appear on the screen. Please tap the touch screen with your finger, and the computer will recognize it as a touch screen.

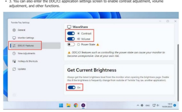
【Note】If the touch screen is blank, press the "Enter" key, and the text prompt will switch to the touch screen. (The screen which displays the text prompt will be used as a touch screen!)

Windows Software Brightness Adjustment

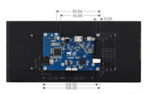
- 1. Download and install DDC/CI applications, such as the open-source Twinkle Tray.
- 2. Open the software dimming icon, it will recognize the Waveshare monitor and adjust the monitor backlight brightness by sliding the scroll bar.



- 3. You can also enter the DDC/CI application settings screen to enable contrast adjustment, volume adjustment, and other functions.



Dimensions



Unit: mm

Support

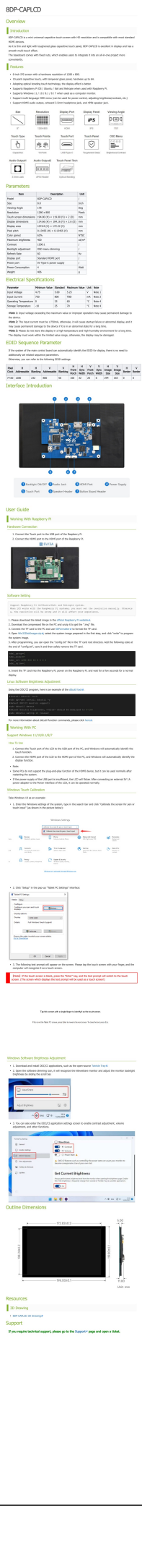
If you require technical support, please go to the page and open a ticket.

[Waveshare 9.3-inch 1600x600 Capacitive Touch LCD Display - Specifications and User Guide]

Comprehensive guide for the Waveshare 9.3-inch 1600x600 high-resolution capacitive touch LCD display. Features, specifications, electrical parameters, EDID settings, and detailed setup instructions for Raspberry Pi and PC compatibility.

[Waveshare 5-inch 1080x1080 Round IPS LCD Display - User Guide]

Explore the Waveshare 5-inch 1080x1080 round IPS LCD display. This guide details its features, specifications, and setup for Raspberry Pi and Windows PCs, including touch calibration and connectivity.


8DP-CAPLCD

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[Waveshare 8DP-CAPLCD 8-inch HD Capacitive Touch Screen IPS Display]

Detailed specifications and user guide for the Waveshare 8DP-CAPLCD, an 8-inch HD capacitive touch screen IPS display with 1280x800 resolution, compatible with Raspberry Pi and Windows devices. Features include optical bonding, multiple input/output ports, and software calibration instructions.

Waveshare 4.3inch DSI LCD: Capacitive Touch Display for Raspberry Pi

Explore the Waveshare 4.3inch DSI LCD, an 800x480 IPS capacitive touch display designed for Raspberry Pi. Features MIPI DSI interface, driver-free setup, and software-controlled backlight.