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› Waveshare 4-inch HDMI LCD IPS Display User Manual

waveshare 4inch HDMI LCD IPS Screen

Waveshare 4-inch HDMI LCD IPS Display User Manual

Model: 4inch HDMI LCD IPS Screen

1. PRODUCT OVERVIEW

The Waveshare 4-inch HDMI LCD IPS Display is a compact, high-resolution screen designed for various embedded applications, particularly with Raspberry Pi boards. It features an 800x480 hardware resolution, resistive touch control, and IPS technology for wide viewing angles and excellent display quality.

This display connects via an HDMI interface for video output and requires additional I/Os for touch functionality. It is compatible with most Raspberry Pi revisions (excluding Pi 1 Model B or Pi Zero, which require an HDMI cable adapter). The display supports operating systems such as Raspbian, Ubuntu, Kali, and RetroPie with appropriate drivers. It can also function as a standard computer monitor, though touch functionality is not available in this mode.

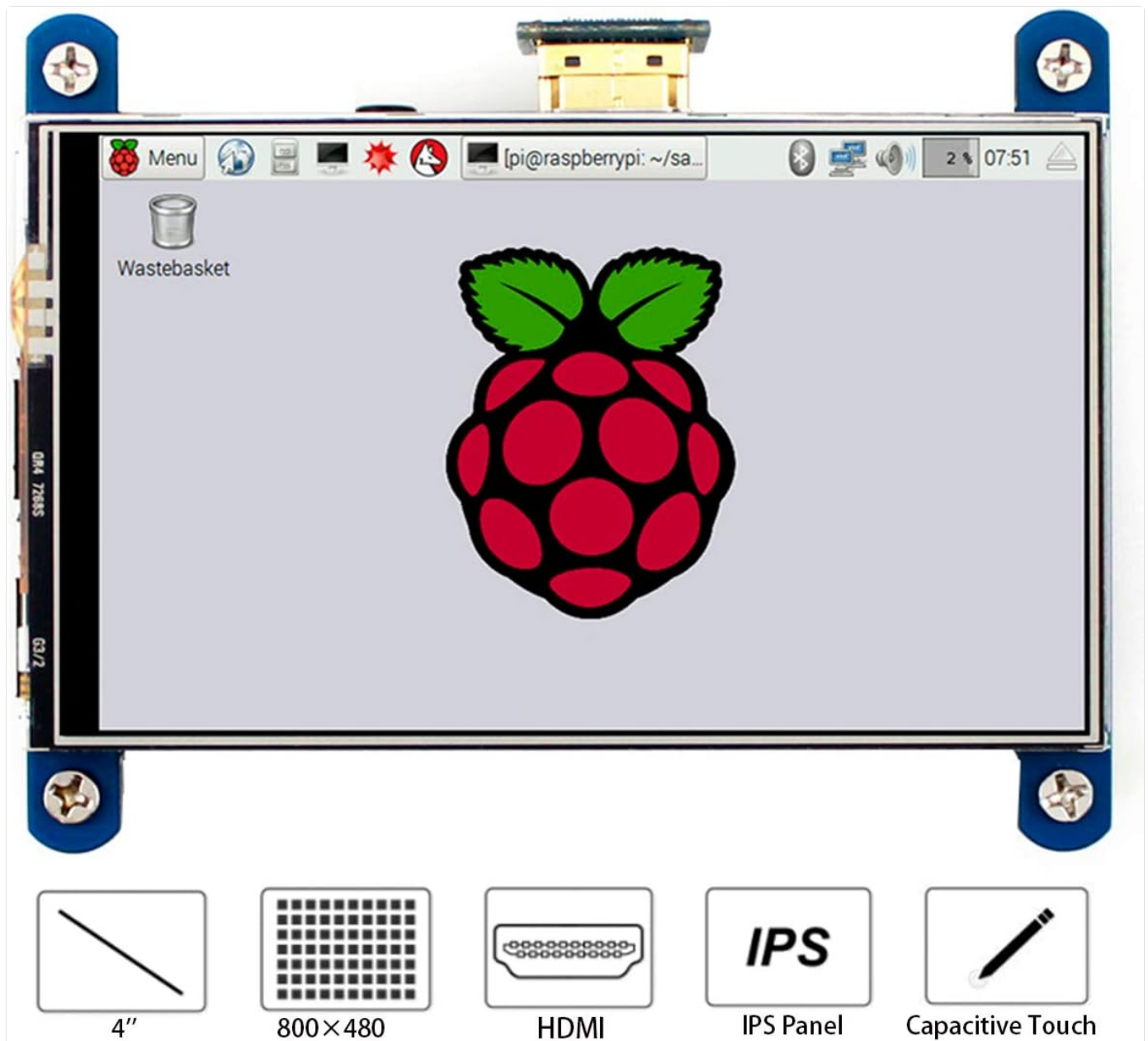


Figure 1: Waveshare 4-inch HDMI LCD IPS Display with highlighted features.

Key Features:

- 4-inch IPS screen with 800x480 hardware resolution.
- Resistive touch control for interactive applications.
- HDMI interface for display, compatible with Raspberry Pi and other devices.
- IPS technology ensures wide viewing angles.
- Backlight can be turned off to reduce power consumption.
- Supports various Raspberry Pi operating systems (Raspbian, Ubuntu, Kali, Retropie).

2. SETUP INSTRUCTIONS

2.1 Package Contents

- 4-inch HDMI LCD IPS screen x1

- HDMI connector x1
- HDMI to micro HDMI connector x1 (for Raspberry Pi Zero models)
- Touch pen x1
- RPi screws pack (4pcs) x1
- Quick start sheet x1

2.2 Connecting to Raspberry Pi

The display is designed for direct connection to most Raspberry Pi models. For Raspberry Pi 1 Model B or Raspberry Pi Zero, an HDMI cable or the provided HDMI to micro HDMI connector is required.

1. **Physical Connection:** Carefully align the display with the GPIO pins and HDMI port of your Raspberry Pi. For models like Raspberry Pi 4B/3B+/3B/2B/B+/A+, the display can be directly mounted using the provided HDMI connector and screws. For Raspberry Pi Zero, use the HDMI to micro HDMI connector and an external HDMI cable if direct mounting is not feasible.
2. **Power Connection:** The display requires power. Ensure your Raspberry Pi is powered by a stable 5V/3A (or 5V/2.5A for Pi Zero) power supply. The display itself may draw power from the Raspberry Pi's GPIO, but external power via Micro USB might be necessary for stable operation, especially if the Pi's power supply is insufficient or if using the display as a standalone monitor.
3. **Secure Mounting:** Use the provided RPi screws to secure the display to your Raspberry Pi board.



Figure 2: Display mounted on a Raspberry Pi.

Equipment connection diagram

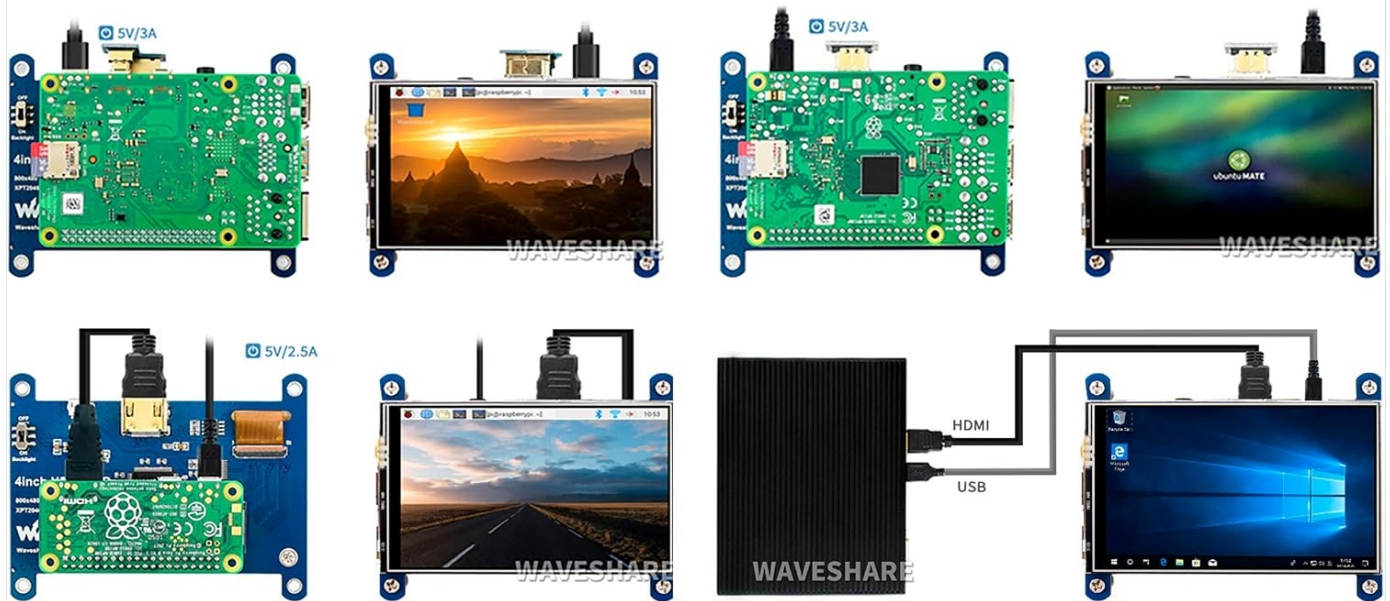


Figure 3: Equipment connection diagram for various setups.

2.3 Driver Installation (for Raspberry Pi OS)

For the display and touch functionality to work correctly with your Raspberry Pi operating system (e.g., Raspbian, Ubuntu, Kali, RetroPie), specific drivers may need to be installed. It is recommended to refer to the official Waveshare user manual for detailed, up-to-date driver installation instructions. A common approach involves modifying the `/boot/config.txt` file.

For initial testing, Waveshare may provide pre-configured system images that include the necessary drivers. If using your own Raspbian image, driver installation is typically required.

3. OPERATING INSTRUCTIONS

3.1 Using with Raspberry Pi OS

Once drivers are installed, the display should automatically detect the correct resolution (800x480) and function as the primary display for your Raspberry Pi. The resistive touch screen allows for direct interaction with the graphical user interface.



Figure 4: Using the resistive touch screen with a touch pen.

3.2 Using as a Computer Monitor

The display can also function as a general computer monitor. In this configuration, an HDMI cable is required to connect the display to your computer. Please note that when used as a standard computer monitor, the touch panel functionality is generally unavailable.

3.3 Backlight Control

The display features a backlight control switch, typically located on the back of the unit. This allows you to turn off the backlight to conserve power when the display is not actively needed or in low-light conditions.

4. MAINTENANCE

4.1 Cleaning the Display

To clean the display surface, use a soft, lint-free cloth. For stubborn smudges, lightly dampen the cloth with water or a screen-safe cleaning solution. Avoid using harsh chemicals, abrasive materials, or excessive moisture, as these can damage the screen or internal components.

4.2 General Handling

Handle the display by its edges to avoid touching the screen surface directly. Store the display in a clean, dry environment away from direct sunlight and extreme temperatures. Avoid applying excessive pressure to the screen or connectors.

5. TROUBLESHOOTING

5.1 Display Issues

- **No Display / Black Screen:**
 - Ensure all HDMI connections are secure.
 - Verify the Raspberry Pi is powered on and functioning correctly.
 - Check if the display's backlight is turned on.
 - Confirm that the correct drivers are installed for your Raspberry Pi OS.
 - Ensure adequate power supply to the Raspberry Pi and potentially the display itself via Micro USB.

- **Rainbow Screen at Startup:**

This is a common Raspberry Pi boot screen. To disable it, add the following line to your `/boot/config.txt` file:

```
disable_splash=1
```

- **Changing the Splash Screen:**

To customize the splash screen, replace the `thesplash.png` file located at `/usr/share/plymouth/themes/pix/splash.png` with your desired image.

5.2 Touch Functionality Issues

- **Touch Not Responding:**
 - Ensure the touch panel's I/O connections are correctly made to the Raspberry Pi.
 - Verify that the touch drivers are properly installed and configured for your operating system.
 - Remember that touch functionality is typically unavailable when the display is used as a generic computer monitor.

5.3 HDMI Connector Issues

Some users have reported issues with the included HDMI connectors. If you experience intermittent display or connection problems, try using a high-quality, known-good HDMI cable instead of the included connectors for testing.

6. PRODUCT SPECIFICATIONS

Feature	Specification
Screen Size	4 Inches
Resolution	800 x 480 pixels
Display Technology	IPS

Feature	Specification
Touch Type	Resistive
Interface	HDMI (Display), I/Os (Touch)
Aspect Ratio	16:10
Operating Temperature	0°C to 70°C
Item Weight	4.8 ounces (approx. 136g)
Package Dimensions	5.4 x 3.9 x 1.7 inches

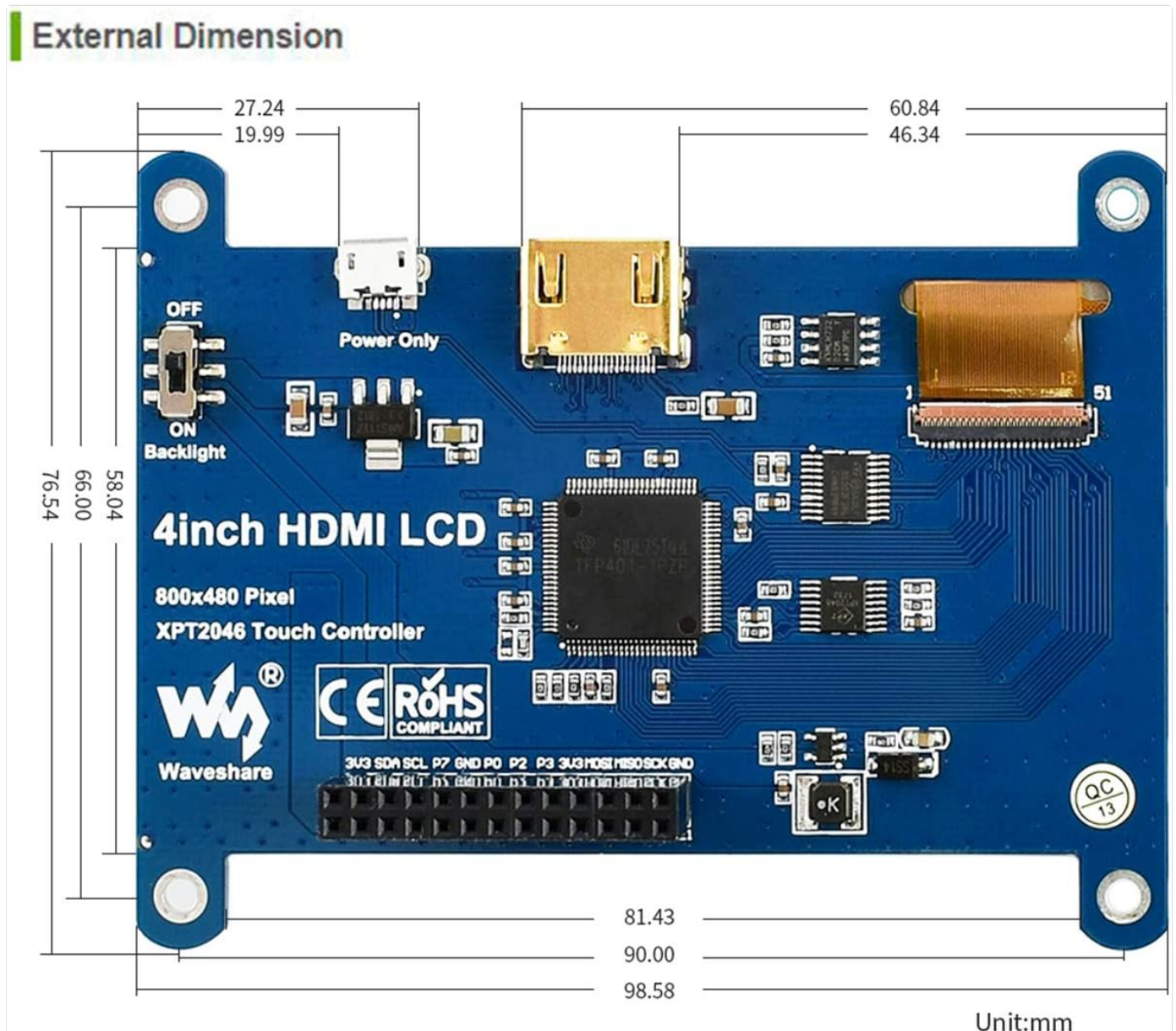


Figure 5: External dimensions and component layout.

7. WARRANTY INFORMATION

This product is covered by the standard manufacturer's warranty. Please retain your proof of purchase for any warranty claims. For specific warranty terms and conditions, refer to the documentation provided with your purchase or contact

Waveshare customer support.

8. TECHNICAL SUPPORT AND RESOURCES

For detailed technical support, additional documentation, and the latest drivers, please visit the official Waveshare website or refer to the product's dedicated resource page.

Online User Manual/Development Resources: [//bit.ly/3eNVZix](https://bit.ly/3eNVZix)

For further assistance, contact Waveshare customer service through their official channels.

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