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› Waveshare 1.69inch LCD Display Module User Manual

waveshare 1.69inch LCD Module

Waveshare 1.69inch LCD Display Module User Manual

Model: 1.69inch LCD Module | Brand: Waveshare

1. INTRODUCTION

This manual provides essential information for setting up and operating your Waveshare 1.69inch LCD Display Module. This module features a 240×280 resolution, 262K colors, and an IPS display panel, offering clear and vibrant visuals. It utilizes an SPI interface, minimizing the required I/O pins, and is compatible with various controller boards such as Raspberry Pi, Arduino, and STM32.

2. PACKAGE CONTENT

Verify that all items listed below are included in your package:

- 1.69inch LCD Display Module
- Connection Cable

Package Content



Image: The 1.69inch LCD Display Module shown alongside its multi-colored connection cable.

3. FEATURES AND SPECIFICATIONS

Key Features:

- 240×280 resolution, 262K colors, clear and colorful displaying effect.
- SPI interface, minimizes required I/O pins.
- Supports controller boards like Raspberry Pi, Arduino, and STM32.
- Onboard voltage translator for 3.3V/5V power input and logic level compatibility.

Technical Specifications:

Specification	Value
Model Name	1.69inch LCD Module
Display Size	1.69 inches
Resolution	240 × 280 pixels
Display Color	262K Colors

Specification	Value
Display Panel Type	IPS
Interface	SPI (4-wire)
Driver IC	ST7789V2
Operating Voltage	3.3V / 5V
Compatible Devices	Raspberry Pi series, Arduino, STM32

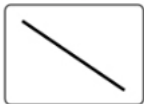
1.69inch LCD Display Module

Embedded ST7789V2 Driver Chip, Using SPI Interface

Comes with examples for Raspberry Pi, Arduino, STM32, etc.

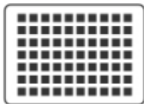


Size



1.69"

Resolution



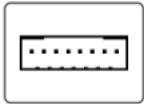
240×280

Display Color



262K

Interface



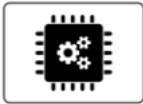
SPI

Display Panel



IPS

Driver



ST7789V2

Image: Overview of the 1.69inch LCD Display Module's key features and specifications.

4. HARDWARE OVERVIEW

Onboard Voltage Translator

The module includes an onboard voltage translator, ensuring compatibility with both 3.3V and 5V power inputs and logic levels. This simplifies integration with various microcontrollers without the need for external level shifters.

Onboard Voltage Translator

Compatible With 3.3V / 5V Power Input

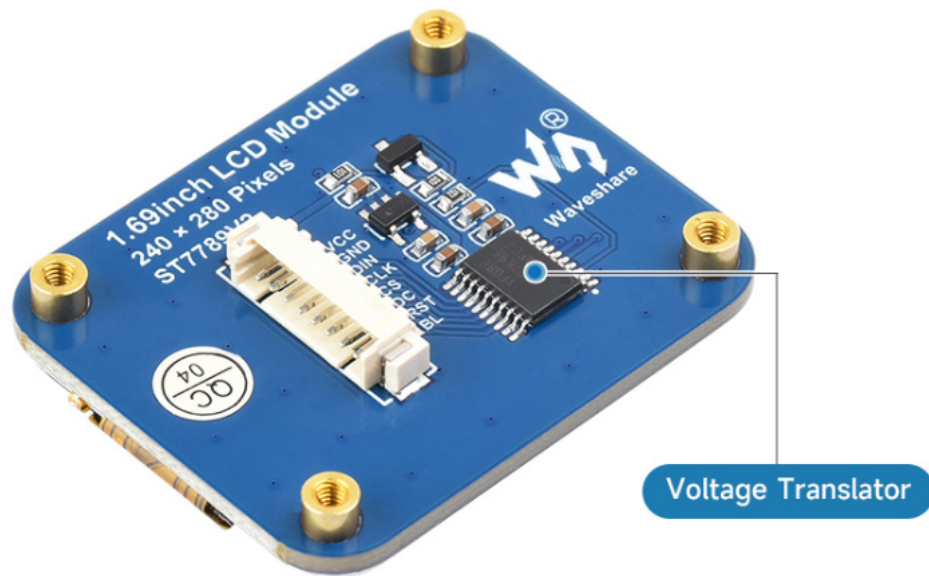


Image: The voltage translator circuit on the module's PCB.

Onboard SPI Control Interface

The module features a standard SPI control interface, which is widely supported by microcontrollers. The pin definitions are clearly marked on the PCB for easy connection.

Pin	Description
VCC	Power (3.3V / 5V input)
GND	Ground
DIN	SPI Data Input
CLK	SPI Clock Input
CS	Chip Select (low active)
DC	Data/Command Selection (high for data, low for command)
RST	Reset (low active)
BL	Backlight Control

Onboard SPI Control Interface

For Use With Controller Boards Like Raspberry Pi / Arduino / STM32



Image: The SPI control interface and pin definitions on the module.

5. SETUP AND HARDWARE CONNECTION

This section outlines the general connection procedure for common development boards. Always refer to the specific pinout diagrams for your chosen microcontroller and the module.

Connecting with Raspberry Pi:

Connect the module to your Raspberry Pi's GPIO pins according to the provided pinout. Ensure correct connections for VCC, GND, DIN, CLK, CS, DC, RST, and BL.

Connecting with Arduino Board:

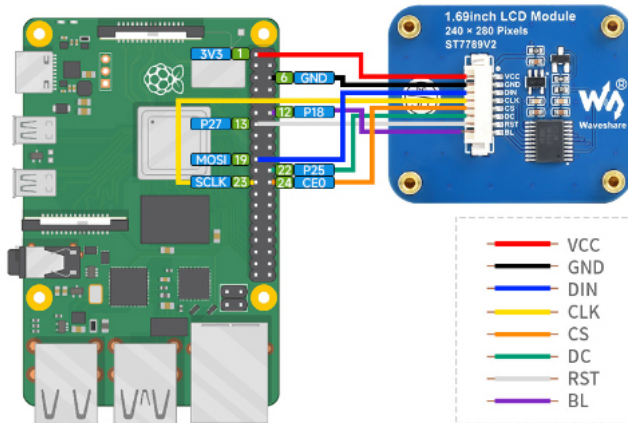
For Arduino boards, connect the module's SPI pins to the corresponding SPI pins on your Arduino (e.g., MOSI, SCK, SS). Pay attention to the VCC and GND connections, ensuring they match the Arduino's voltage output.

Connecting with STM32:

When connecting to an STM32 microcontroller, follow the specific SPI pin assignments for your STM32 development board. The onboard voltage translator on the LCD module ensures compatibility with STM32's typical 3.3V logic.

Hardware Connection

Connecting with Raspberry Pi



Connecting with Arduino board

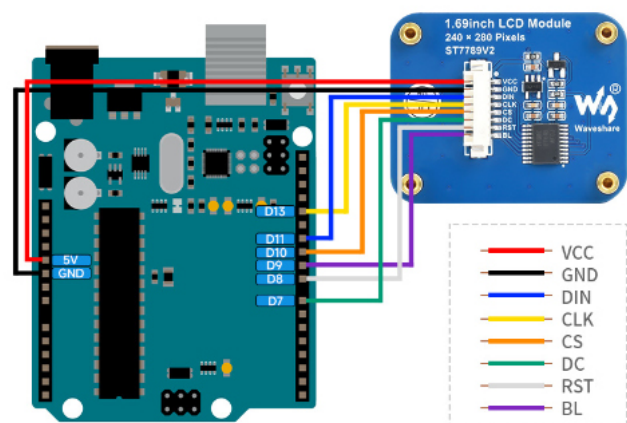
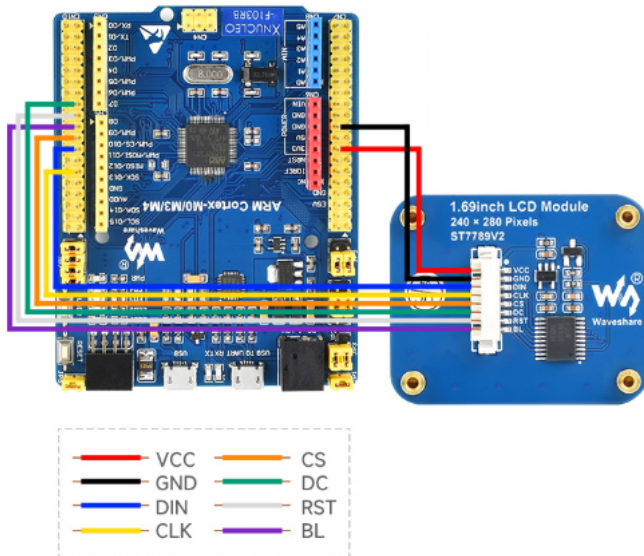


Image: Detailed connection diagrams for Raspberry Pi and Arduino.

Connecting with Arduino board



Usage Example



Image: Connection diagram for STM32.

6. OPERATING INSTRUCTIONS

Once the hardware connections are established, you will need to program your microcontroller to interact with the LCD module. Waveshare provides comprehensive online resources, including example code and tutorials for various platforms (Raspberry Pi, Arduino, STM32).

For detailed programming guides and sample code, please visit the official [Waveshare Wiki](#) or product page. These resources will guide you through initializing the display, drawing graphics, and displaying text.

Your browser does not support the video tag.

Video: An overview of the 1.69inch LCD Module, demonstrating its features and compatibility with various development boards. This video highlights the display's resolution, color capabilities, and SPI interface.

7. OUTLINE DIMENSIONS

Below are the physical dimensions of the 1.69inch LCD Display Module, provided in millimeters. These measurements are crucial for integration into custom enclosures or projects.

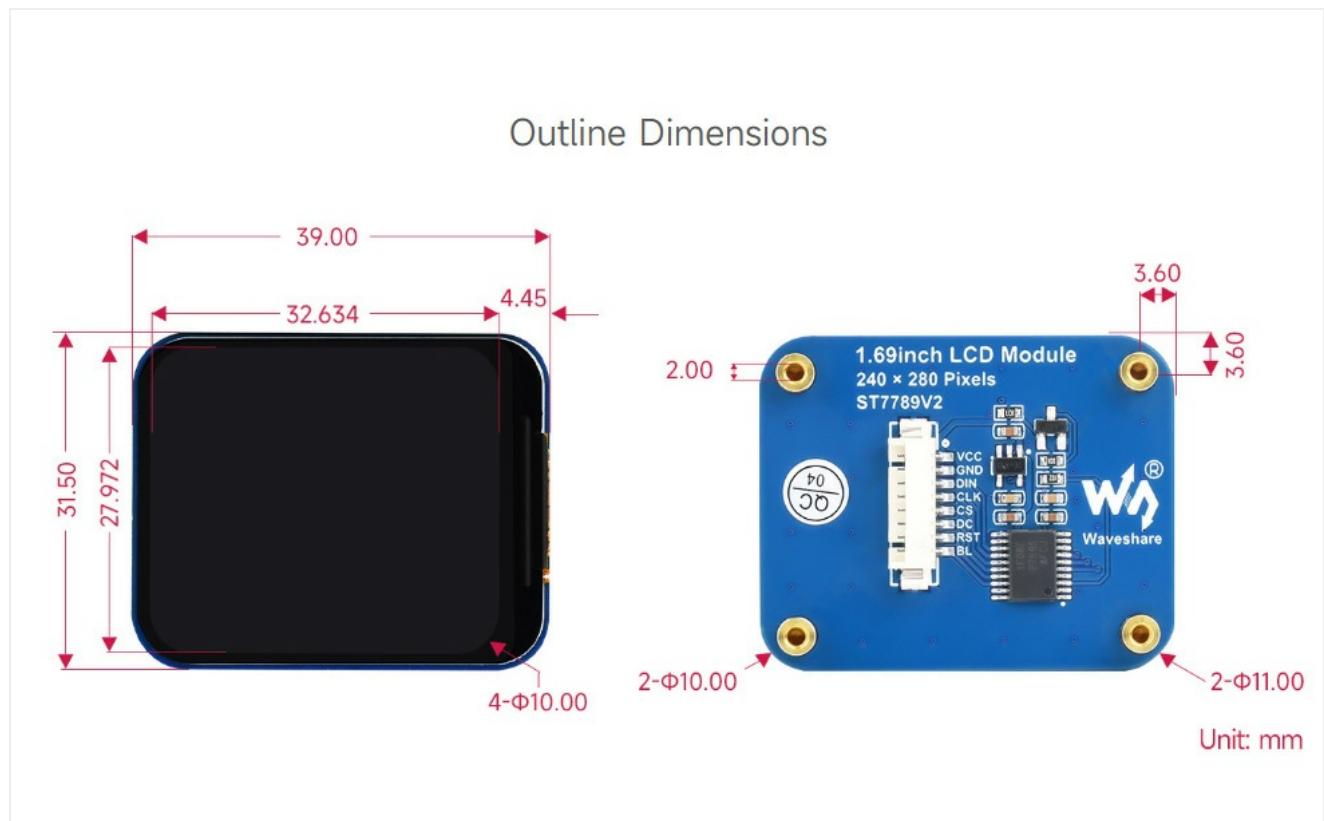


Image: Detailed outline dimensions of the LCD module (Unit: mm).

8. TROUBLESHOOTING

If you encounter issues during setup or operation, consider the following common troubleshooting steps:

- **Check Connections:** Ensure all wires are securely connected to the correct pins on both the LCD module and your microcontroller. Verify VCC and GND are correctly supplied.
- **Power Supply:** Confirm that your microcontroller and the LCD module are receiving adequate power.
- **Software Configuration:** Double-check your code for correct SPI initialization, pin assignments, and display driver commands. Ensure you are using the correct library for the ST7789V2 driver.
- **Online Resources:** Refer to the [Waveshare Wiki](#) for specific troubleshooting guides, FAQs, and community forums where similar issues may have been resolved.

9. SUPPORT AND WARRANTY

For technical support, additional documentation, and warranty information, please visit the official [Waveshare](#)

website. The website provides access to the latest drivers, software examples, and contact details for customer service.

Waveshare is committed to providing high-quality products and support. Please retain your proof of purchase for any warranty claims.