DIYmalls ST-7735S 128x160

DIYmalls 1.8 inch TFT LCD Display Screen SPI Module ST-7735S 128x160 Instruction Manual

Model: ST-7735S 128x160

1. Introduction

This manual provides detailed instructions for the setup, operation, and maintenance of the DIYmalls 1.8 inch TFT LCD Display Screen SPI Module ST-7735S 128x160. This display module is designed for use in various DIY electronics projects, including those involving Arduino and STM32 microcontrollers. It features a 1.8-inch color display with a resolution of 128x160 pixels and includes an SD card slot for expanded functionality.

2. Product Overview

2.1 Key Features

- 1.8 inch TFT LCD display module.
- Controller: ST-7735S.
- Resolution: 128x160 pixels.
- Interface: SPI (Serial Peripheral Interface).
- Integrated SD card slot for data storage and function expansion.
- Operating Voltage: 3.3V-5V.
- Directly compatible with Arduino Uno and Mega-2560 boards.
- Does not include touch functionality.

2.2 Package Contents

The package includes:

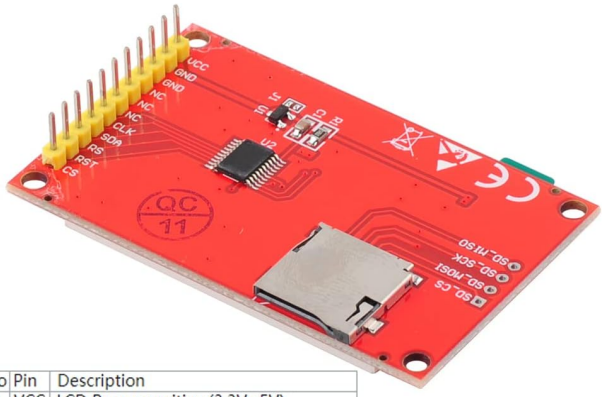
- 1 x DIYmalls 1.8 inch TFT LCD Display Screen SPI Module.
- Other accessories are excluded.

3. Setup and Wiring

This section details the physical connections required to integrate the TFT LCD display module with common microcontroller boards.

3.1 Pin Description

Refer to the table and image below for the pin assignments of the 1.8 inch TFT LCD display module.



No	Pin	Description
1	VCC	LCD Power positive (3.3V~5V)
2	GND	LCD Power ground
3	GND	LCD Power ground
4	NC	Not defined, reserved
5	NC	Not defined, reserved
6	NC	Not defined, reserved
7	CLK	LCD SPI bus clock signal
8	SDA	LCD SPI bus write data signal
9	RS	LCD register / data selection signal, high level: register, low level: data
10	RST	LCD reset signal, low level reset
11	CS	LCD chip select signal, low level enable

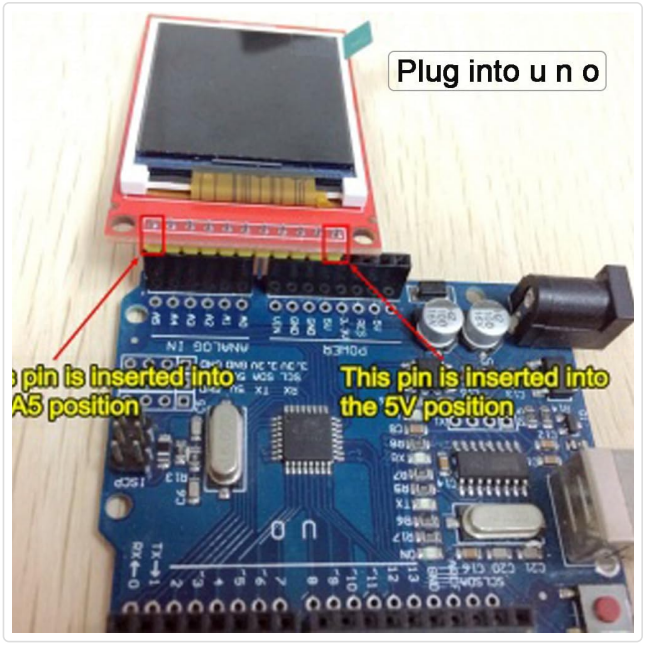
This image shows the DIYmalls 1.8 inch TFT LCD Display module along with a detailed pinout table. The table lists 11 pins with their corresponding descriptions, including VCC, GND, CLK, SDA, RS, RST, and CS. Pins labeled 'NC' are not defined and do not require connection.

Table 1: Pin Descriptions

No.	Pin	Description
1	VCC	LCD Power positive (3.3V~5V)
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8	RS	LCD register / data selection signal, high level: register, low level: data
9	RST	LCD reset signal, low level reset
10	CS	LCD chip select signal, low level enable

3.2 Wiring with Arduino Uno

The 1.8" display can be directly plugged into an Arduino Uno board. Ensure correct pin alignment as shown in the image below.

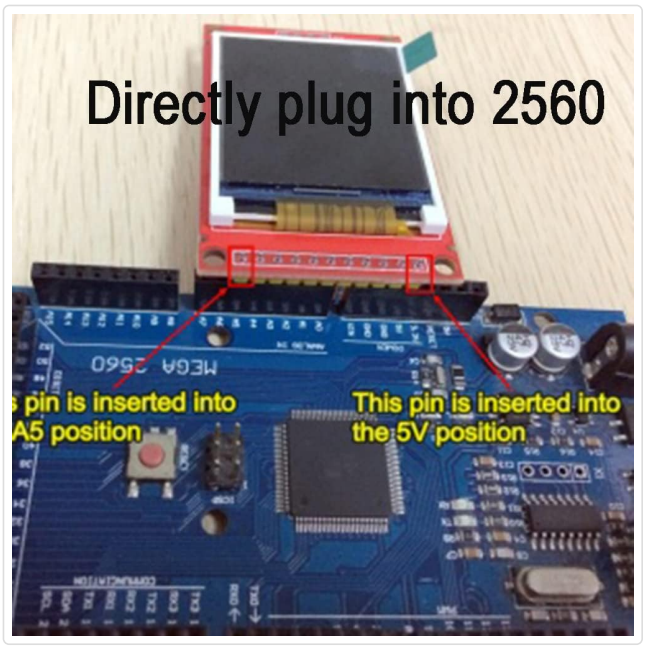


This image illustrates the direct connection of the 1.8 inch TFT LCD display module to an Arduino Uno board. The display's pins are inserted into the corresponding headers on the Uno. Specifically, one pin is inserted into the A5 position, and another into the 5V position, indicating power and signal connections.

- Connect the display directly to the Arduino Uno.
- Ensure the pin marked for A5 on the display aligns with the A5 pin on the Uno.
- Ensure the pin marked for 5V on the display aligns with the 5V pin on the Uno.

3.3 Wiring with Arduino Mega-2560

The 1.8" display can also be directly plugged into an Arduino Mega-2560 board. Pay attention to the pin alignment.



This image demonstrates the direct connection of the 1.8 inch TFT LCD display module to an Arduino Mega-2560 board. Similar to the Uno, the display's pins are inserted into the Mega-2560 headers. One pin connects to the A5 position, and another to the 5V position, providing power and signal.

- Connect the display directly to the Arduino Mega-2560.
- Ensure the pin marked for A5 on the display aligns with the A5 pin on the Mega-2560.
- Ensure the pin marked for 5V on the display aligns with the 5V pin on the Mega-2560.

3.4 Wiring with C51 Series STC89/STC12

- VCC: Connect to 5V/3.3V
- GND: Connect to GND
- NC: No connection required
- CLK: Connect to P17
- SDA: Connect to P15
- RS: Connect to P12
- RST: Connect to P33
- CS: Connect to P13

3.5 Wiring with Mini STM32

- VCC: Connect to 5V/3.3V
- GND: Connect to GND
- NC: No connection required
- CLK: Connect to PB13
- SDA: Connect to PB15
- RS: Connect to PB10
- RST: Connect to PB12
- CS: Connect to PB11

4. Operating Instructions

The DIYmalls 1.8 inch TFT LCD Display uses an SPI interface for communication. To operate the display, you will need to use appropriate libraries for your chosen microcontroller platform.

4.1 Software Libraries

For Arduino platforms, commonly used libraries include:

- **Ucglib:** A universal graphics library for various displays.
- **Adafruit ST7735 and ST7789 Library:** Specifically designed for displays using the ST7735 or ST7789 controller.

These libraries provide functions for initializing the display, drawing text, shapes, and images. Refer to the library documentation and examples for specific programming details.

4.2 SD Card Functionality

The module includes an SD card slot for convenient function expansion, such as storing images, fonts, or data logs. To utilize the SD card slot, you may need to solder a small 4-pin strip-line connector (standard 2.54 mm pitch) into the designated area. Consult your chosen microcontroller's SD card library documentation for implementation details.



This image displays the DIYmalls 1.8 inch TFT LCD Display module, highlighting the integrated SD card slot located on the board. This slot allows for external memory expansion for various project needs.

5. Maintenance

To ensure the longevity and proper functioning of your display module, follow these general maintenance guidelines:

- **Handling:** Handle the module by its edges to avoid touching the display surface or electronic components.
- **Cleaning:** If necessary, gently clean the display surface with a soft, lint-free cloth. Avoid abrasive materials or harsh chemicals.
- **Storage:** Store the module in an anti-static bag in a dry, cool environment when not in use.
- **Power Supply:** Ensure the power supply voltage is within the specified 3.3V-5V range to prevent damage.

6. Troubleshooting

This section addresses common issues encountered during the use of the display module.

6.1 Display Shows a White Screen

If the display remains white after power-up, consider the following:

- **Wiring Check:** Double-check all wiring connections, especially power (VCC, GND), clock (CLK), data (SDA), reset (RST), and chip select (CS) pins. Incorrect connections are a common cause.
- **Power Supply:** Verify that the module is receiving the correct operating voltage (3.3V-5V).
- **Initialization Code:** Ensure your microcontroller code correctly initializes the ST-7735S controller. Incorrect initialization parameters (e.g., display type, orientation) can lead to a blank or white screen.
- **Library Compatibility:** Confirm that the library you are using is compatible with the ST-7735S controller and your specific microcontroller.

6.2 SD Card Reader Not Functioning

If you experience issues with the integrated SD card reader:

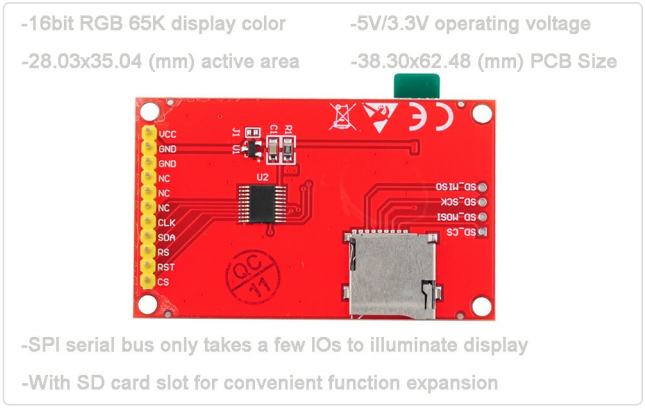
- **Physical Connection:** Ensure the SD card is properly inserted into the slot.
- **Soldering:** Verify that the optional 4-pin strip-line connector for the SD card is correctly soldered and making good contact.
- **Wiring:** Confirm that the SD card pins (typically separate from the display's SPI pins, but often sharing the SPI bus) are correctly wired to your microcontroller.
- **Software Library:** Use a dedicated SD card library for your microcontroller (e.g., Arduino SD library) and ensure it is correctly initialized and configured for the specific pins used.

- **SD Card Format:** Ensure the SD card is formatted correctly (e.g., FAT16 or FAT32).

7. Specifications

Table 2: Product Specifications

Feature	Detail
Display Size	1.8 inches
Controller IC	ST-7735S
Resolution	128x160 pixels
Interface	SPI (Serial Peripheral Interface)
Operating Voltage	3.3V - 5V
Color Depth	16-bit RGB (65K colors)
Active Area	28.03 x 35.04 mm
PCB Size	38.30 x 62.48 mm
SD Card Slot	Yes
Touch Functionality	No
Item Weight	3.2 ounces
Manufacturer	DIYmalls



This image provides a visual representation of the 1.8 inch TFT LCD display module, accompanied by a summary of its key specifications, including operating voltage, active area, PCB size, and the presence of an SD card slot.

8. Official Product Video

Watch the official product video for a demonstration of the DIYmalls 1.8 inch TFT LCD Display in action.

Your browser does not support the video tag.

This video demonstrates the DIYmalls 1.8 inch TFT LCD Display in a test environment, showcasing its color capabilities and various display functions, including text and graphics rendering.

9. Warranty and Support

This product is covered by a standard manufacturer's warranty. For specific warranty details, technical support, or further assistance, please refer to the official DIYmalls website or contact their customer service directly. Keep your purchase receipt for warranty claims.

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