

DWEII 4.0 Inch 480x320 TFT Touch Screen LCD Module

DWEII 4.0 Inch 480x320 TFT Touch Screen LCD Module User Manual

Model: 4.0 Inch 480x320 TFT Touch Screen LCD Module

1. INTRODUCTION

This manual provides essential information for the setup, operation, and maintenance of your DWEII 4.0 Inch 480x320 TFT Touch Screen LCD Module. This display features a 4.0-inch color screen with 480x320 resolution, supporting 65K colors, and includes a resistive touch screen with an XPT2046 IC. It utilizes a 4-wire SPI interface for communication and is compatible with Arduino R3, Nano, and Mega controller boards.

2. PRODUCT FEATURES

- **Display Color:** RGB 65K color for rich visual output.
- **Screen Size:** 4.0 inches with a resolution of 480x320 pixels.
- **Driver IC:** ST7796S for efficient display control.
- **Interface:** 4-wire SPI interface, requiring minimal I/O pins.
- **Touch Screen:** Resistive touch screen with XPT2046 IC, includes a touch pen.
- **Compatibility:** Designed for use with Arduino R3, Nano, and Mega controller boards.
- **SD Card Slot:** Integrated for easy expansion and data storage.

3. PACKAGE CONTENTS

Verify that all items are present in your package:

- 1 x DWEII 4.0" SPI TFT LCD Display Touch Screen
- 1 x Touch Pen

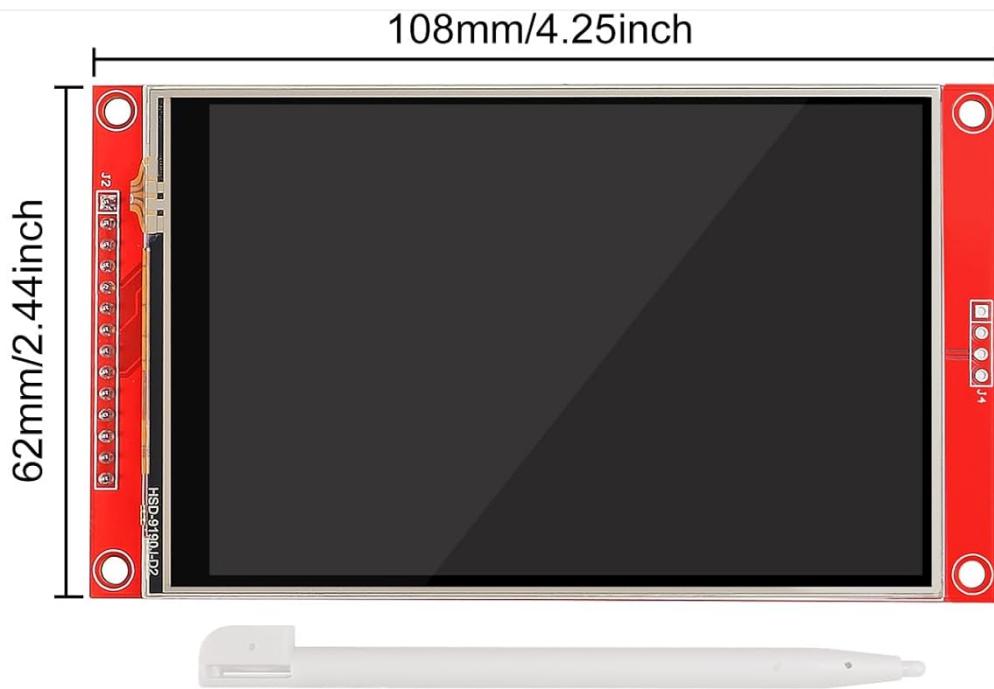


Image: The DWEII 4.0 Inch TFT LCD Display Module shown with the included touch pen.

4. SPECIFICATIONS

Display Color	RGB 65K color
Screen Size	4.0 inches
Resolution	480x320 pixels
Driver IC	ST7796S
Module Interface	4-wire SPI
Active Area	55.68 x 83.52 mm
Module PCB Size	61.74 x 108.04 mm
Touch Screen Type	Resistive
Touch IC	XPT2046
Operating Temperature	-10°C to 60°C
Storage Temperature	-20°C to 70°C

Operating Voltage	3.3V / 5V
Weight	71g



4.0" SPI 480x320 Display

Color: RGB 65K Color	Touch Screen Type: Resistive
Touch: Yes	Interface: 4 Wire SPI
Driver IC: ST7796S	Effective Area: 55.6x83.52(mm)
Weight: 71g	PCB Floor Size: 108x62(mm)
VCC Power Voltage: 3.3V~5V	

Image: Visual representation of the display dimensions and key specifications.

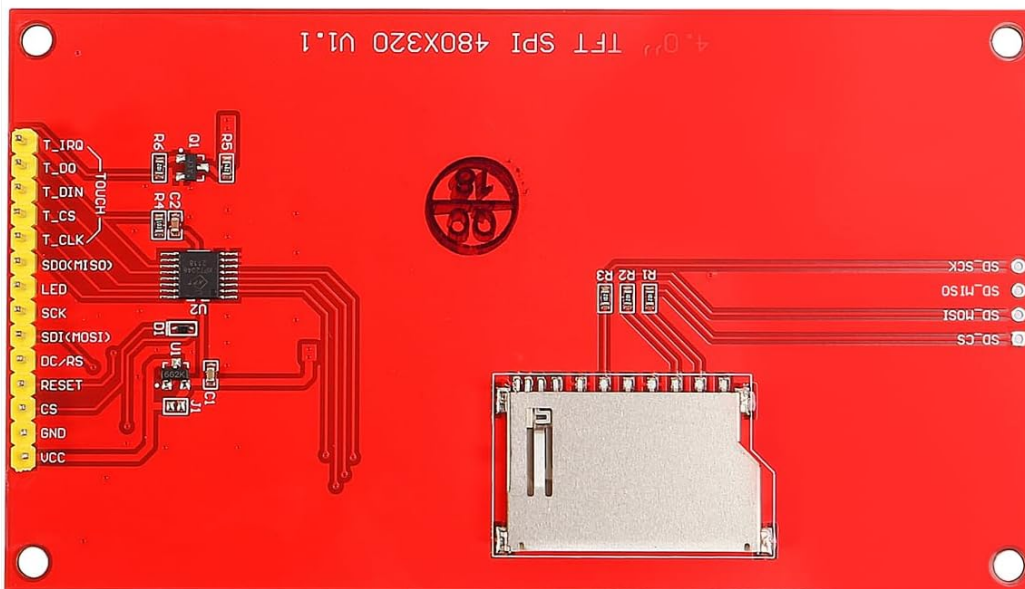
5. SETUP AND CONNECTION

This section details the necessary steps to connect your DWELL 4.0 Inch TFT LCD Module to compatible Arduino boards. The following wiring instructions have been verified for Arduino UNO and Arduino NANO 33 IoT. Ensure your Arduino IDE is set up with the appropriate libraries for ST7796S and XPT2046 (e.g., Adafruit_GFX, Adafruit_ST7735, XPT2046_Touchscreen).

5.1 Pinout Diagram



FRONT



BACK

Image: Front and back views of the display module, showing pin labels and SD card slot.

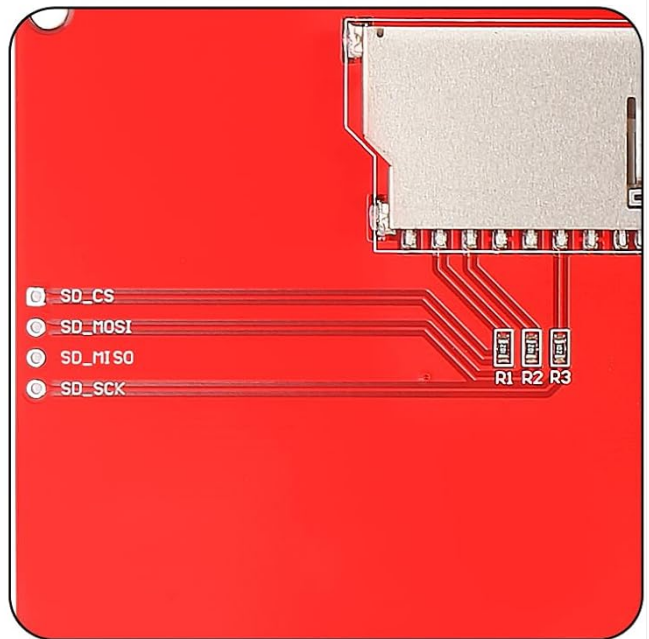
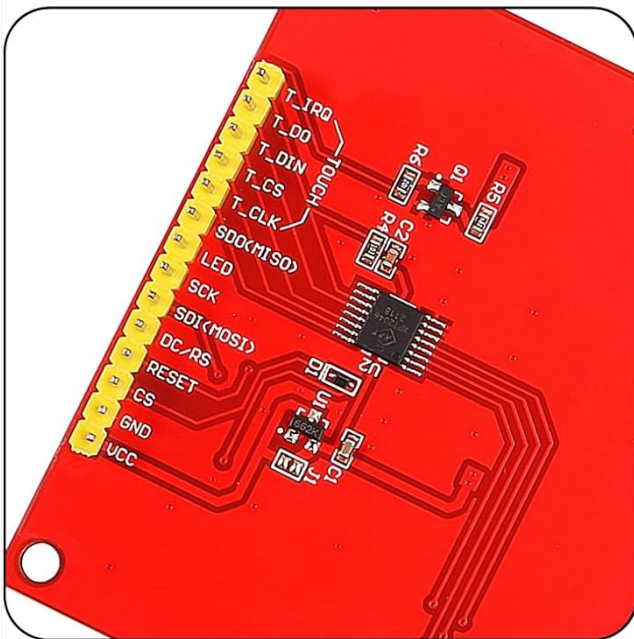
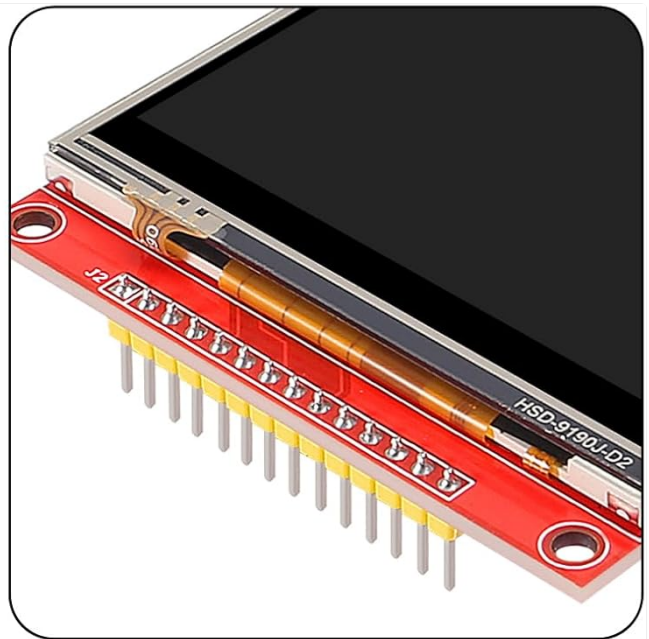


Image: Detailed view of the connection pins and the integrated SD card slot on the module.

5.2 Wiring Instructions (Arduino UNO/NANO 33 IoT)

Connect the display module pins to your Arduino board as follows:

Display Pin	Arduino Pin	Description
VCC	+5V	Power supply for the module.
GND	GND	Ground connection.
CS (Chip Select)	Digital Pin 10	SPI Chip Select for the display.
RST (Reset)	Digital Pin 9	Reset pin for the display.
DC (Data/Command)	Digital Pin 8	Data/Command selection pin.
SDI (MOSI)	Digital Pin 11	SPI Master Out Slave In (Data from Arduino to display).
SCK (Serial Clock)	Digital Pin 13	SPI Serial Clock.

Display Pin	Arduino Pin	Description
LED	+3.3V	Backlight power supply.
SDO (MISO)	Digital Pin 12	SPI Master In Slave Out (Data from display to Arduino).

Note: For other Arduino models or microcontrollers, refer to their specific SPI pinouts and adjust connections accordingly. Always double-check your wiring before powering on to prevent damage.

6. OPERATING INSTRUCTIONS

Once the display module is correctly wired and powered, you can begin programming your Arduino to utilize its features. The display functions as both a visual output and an input device via its resistive touch screen.

6.1 Displaying Graphics and Text

To display content, you will typically use a graphics library compatible with the ST7796S driver, such as `Adafruit_GFX` and `Adafruit_ST7735` (often adapted for ST7796S). These libraries provide functions for drawing shapes, lines, text, and images. Refer to the library documentation for specific API calls.



Image: The display module showing a vibrant landscape image, demonstrating its color capabilities.

6.2 Using the Touch Screen

The resistive touch screen allows for user interaction. Libraries like `XPT2046_Touchscreen` are used to read touch coordinates. When a touch is detected, the library provides X and Y coordinates, which can then be mapped to on-screen elements for button presses, menu navigation, or drawing applications. Use the included touch pen for precise input.



Image: A hand interacting with the display using the provided touch pen, demonstrating touch input functionality.

6.3 SD Card Functionality

The integrated SD card slot can be used to store images, fonts, or other data for your projects. Standard Arduino SD card libraries can be used to read and write files to the card. Ensure the SD card is properly formatted (FAT16 or FAT32) before use.

7. MAINTENANCE

- **Cleaning:** Use a soft, dry, lint-free cloth to gently wipe the screen. For stubborn smudges, slightly dampen the cloth with water or a screen-safe cleaner. Avoid harsh chemicals or abrasive materials.
- **Handling:** Handle the module by its edges to avoid touching the display surface or the electronic components on the back.
- **Storage:** Store the module in a cool, dry place, away from direct sunlight and extreme temperatures. Keep it in its original packaging or an anti-static bag when not in use.
- **Power:** Always ensure the correct voltage (3.3V/5V) is supplied. Incorrect voltage can damage the module.

8. TROUBLESHOOTING

- **No Display/Blank Screen:**

- Check all wiring connections, especially VCC, GND, and LED power.
- Verify that the correct libraries are installed and initialized in your Arduino code.
- Ensure the backlight (LED pin) is receiving power (3.3V).
- Confirm that the SPI pins (MOSI, MISO, SCK, CS, DC, RST) are correctly mapped to your Arduino.

- **Touch Screen Not Responding:**

- Ensure the XPT2046 touch controller library is correctly installed and initialized.
- Check the touch-related pins (T_IRQ, T_DO, T_DIN, T_CS, T_CLK) for proper connection.
- Calibrate the touch screen if the coordinates are inaccurate.

- **Incorrect Colors/Distorted Display:**

- Verify that the display driver (ST7796S) is correctly configured in your code.
- Check for loose connections on the data lines.

- **SD Card Not Detected:**

- Ensure the SD card is properly inserted and formatted (FAT16/FAT32).
- Check the SD card SPI connections (SD_CS, SD_MOSI, SD_MISO, SD_SCK).
- Verify that the Arduino SD library is correctly used in your sketch.

9. WARRANTY INFORMATION

The manufacturer provides a limited warranty for this product. Specific warranty details, including duration and coverage, may vary. Please refer to the product packaging or contact your retailer for precise warranty terms and conditions. Keep your purchase receipt as proof of purchase.

10. SUPPORT

For technical assistance, programming examples, or further inquiries, please refer to the following resources:

- **Online Forums:** Community forums for Arduino and electronics enthusiasts often provide solutions and examples for similar display modules.
- **Manufacturer/Seller Website:** Check the DWEII brand page or the seller's information on the platform where you purchased the product for additional documentation or contact options.
- **Library Documentation:** The documentation for the display driver (ST7796S) and touch controller (XPT2046) libraries (e.g., Adafruit_GFX, Adafruit_ST7735, XPT2046_Touchscreen) contains valuable information for programming.