

DollaTek ST7735

DollaTek 1.44 Inch TFT LCD Module ST7735 User Manual

Model: ST7735 | Brand: DollaTek

1. INTRODUCTION

This manual provides detailed instructions for the setup, operation, and maintenance of the DollaTek 1.44 Inch TFT LCD Module, featuring the ST7735 controller. This compact display is designed for integration with various microcontrollers, including Arduino and ARM platforms, offering a 128x128 pixel, 65K color display via a Serial Peripheral Interface (SPI).

2. PRODUCT FEATURES

- **Screen Size:** 1.44 inches
- **Display Material:** TFT LCD
- **Resolution:** 128 x 128 pixels
- **Controller Chip:** ST7735
- **Color Depth:** 65K colors
- **Interface Type:** SPI (Serial Peripheral Interface)
- **Number of Pins:** 8-pin interface
- **Working Voltage:** 2.8V - 3.3V
- **Operating Temperature:** -20°C to 70°C
- High contrast and wide viewing angle for clear visuals.

Equipped with ST7735
controller chip



Figure 2.1: The DollaTek 1.44 Inch TFT LCD Module, highlighting its ST7735 controller chip.

High contrast

Extremely wide viewing angle

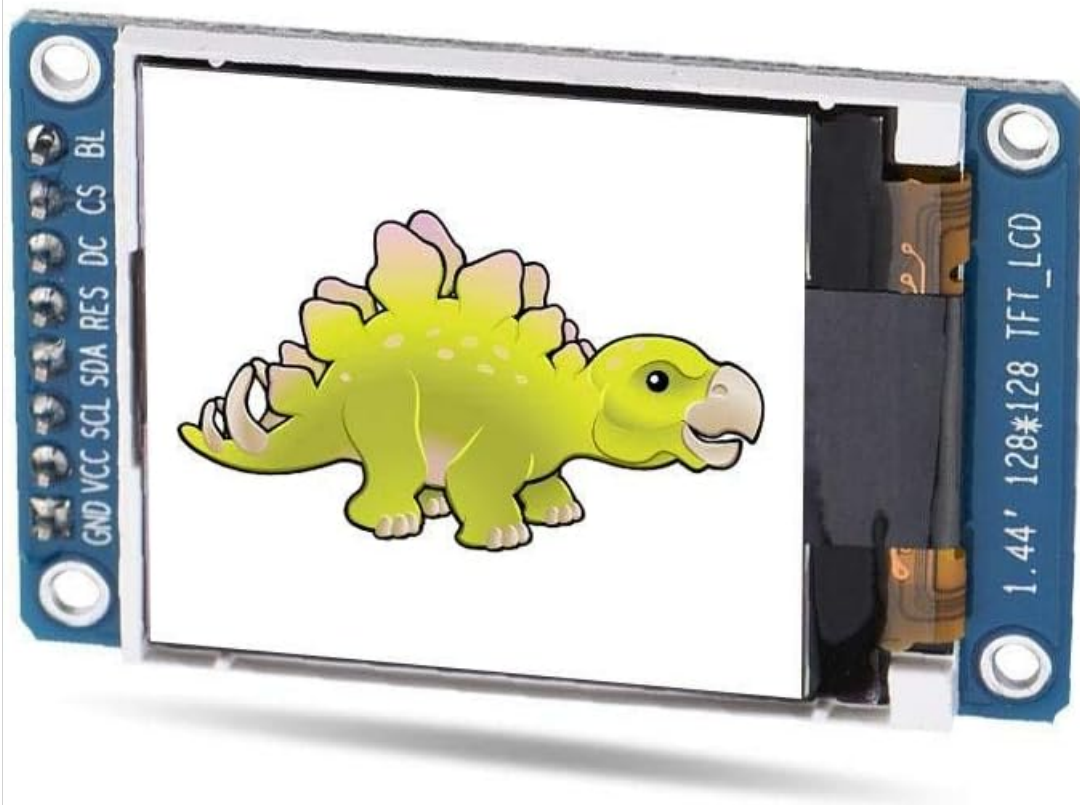


Figure 2.2: The display module showcasing its high contrast and wide viewing angle capabilities with a sample image.

3. SETUP AND INSTALLATION

3.1 Pin Definition

The module features an 8-pin interface. Understanding each pin's function is crucial for proper connection.

Pin No.	Label	Description
1	GND	Power Ground
2	VCC	Power Input (2.8V-3.3V)
3	SCL	SPI Clock Input
4	SDA	SPI Data Input

Pin No.	Label	Description
5	RES	Reset Pin
6	DC	Data/Command Select Pin
7	CS	Chip Select Signal (Active Low)
8	BLK	Backlight Control (Default floating, low to disable)

3.2 Connection Guide

Connect the module to your microcontroller using the SPI interface. Pay close attention to the voltage requirements:

- The module operates at **3.3V logic levels**.
- If connecting to a 5V microcontroller (e.g., Arduino UNO), a **logic level shifter** is highly recommended for the SPI data lines (SCL, SDA, RES, DC, CS) to prevent damage to the display module.
- Connect GND to the microcontroller's ground.
- Connect VCC to a 3.3V power supply from your microcontroller or an external source.
- The BLK pin can be left floating for default backlight operation or connected to a digital pin for software control (pull low to turn off backlight).



Figure 3.1: Physical dimensions of the DollaTek 1.44 Inch TFT LCD Module.

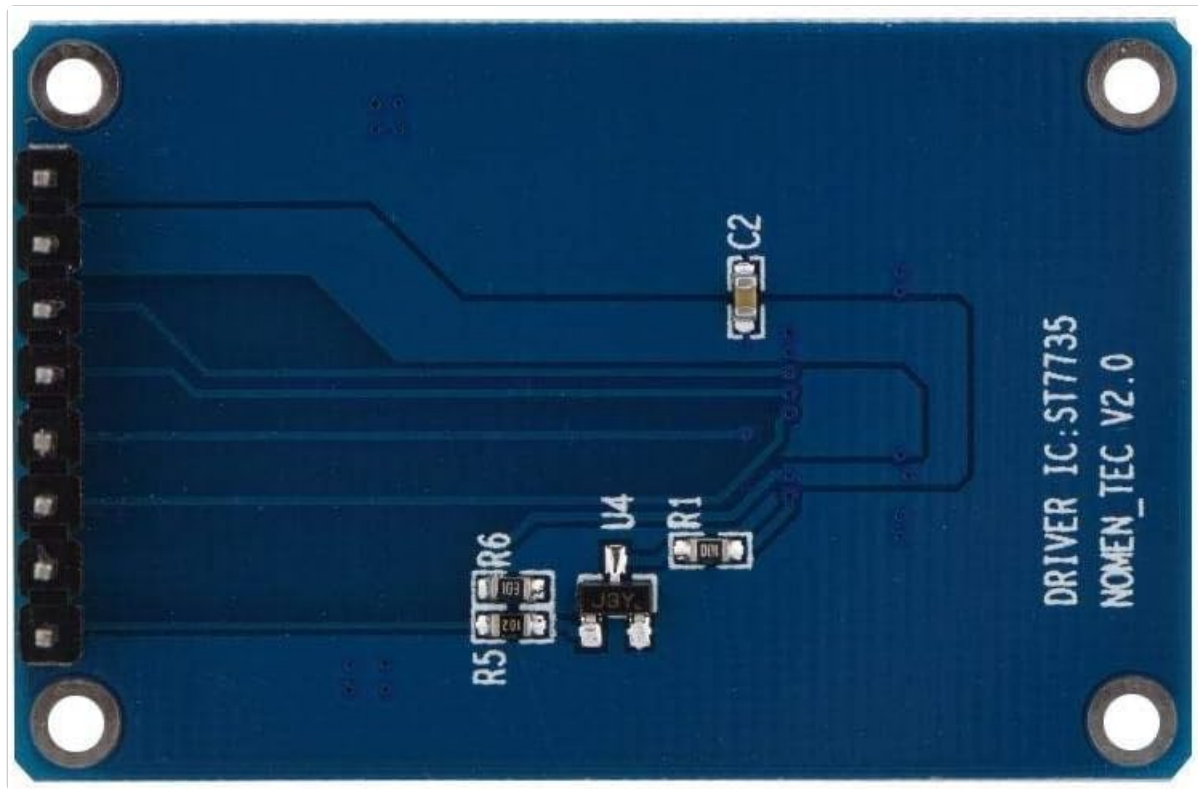


Figure 3.2: Rear view of the module, showing the PCB and the ST7735 driver IC.

4. OPERATING INSTRUCTIONS

To operate the DollaTek 1.44 Inch TFT LCD Module, you will typically use a compatible library for your chosen microcontroller platform. For Arduino, the Adafruit ST7735 library is a widely used and well-supported option.

4.1 Basic Operation Steps:

1. **Install Library:** Download and install the appropriate library for the ST7735 controller on your development environment (e.g., Arduino IDE Library Manager).
2. **Include Header:** In your code, include the necessary header files for the display and SPI communication.
3. **Initialize Display:** Call the display initialization function, passing the correct pin assignments for CS, DC, and RES.
4. **Set Rotation (Optional):** Configure the display orientation if needed.
5. **Clear Screen:** Fill the screen with a background color.
6. **Draw Graphics/Text:** Use the library's functions to draw pixels, lines, shapes, and display text at desired coordinates and colors.
7. **Update Display:** Some libraries require an explicit command to push the buffer to the display.

Refer to the examples provided with the ST7735 library for detailed code implementation.

5. TROUBLESHOOTING

- **Blank Screen:**
 - Verify all connections (GND, VCC, SPI pins) are secure and correct.
 - Ensure the module is receiving 3.3V power.

- Check if a logic level shifter is used when connecting to 5V microcontrollers. Incorrect voltage levels can prevent the display from initializing or cause damage.
- Confirm your code correctly initializes the ST7735 controller and sends display commands.
- Check the BLK pin; if pulled low, the backlight will be off.
- **Incorrect Colors or Distorted Display:**
 - Double-check SPI data line connections (SDA, SCL).
 - Ensure the correct display initialization sequence is used in your code, as different ST7735 variants might have slight differences.
 - Verify that the library is configured for the correct color mode (e.g., RGB vs. BGR).
- **Physical Stain on Screen:** If a yellow or other colored stain appears on the screen, it may indicate a manufacturing defect or physical damage. Contact customer support for assistance.

6. MAINTENANCE

- **Cleaning:** Use a soft, dry, anti-static cloth to gently wipe the display surface. Avoid abrasive materials or harsh chemical cleaners.
- **Handling:** Handle the module by its edges to avoid touching the display area or the sensitive electronic components on the PCB.
- **Storage:** Store the module in a dry, dust-free environment, away from direct sunlight and extreme temperatures.

7. SPECIFICATIONS

Feature	Value
Screen Size	1.44 inches
Display Material	TFT LCD
Resolution	128 x 128 pixels
Controller Chip	ST7735
Display Area	25.5mm x 26.5mm
Physical Size	30.0mm x 46.5mm
Interface Type	SPI (Serial Peripheral Interface)
Number of Pins	8
Working Voltage	2.8V - 3.3V
Operating Temperature	-20°C to 70°C

8. SUPPORT AND WARRANTY

For technical support, inquiries, or warranty information regarding your DollaTek 1.44 Inch TFT LCD Module, please refer to the retailer's return policy or contact DollaTek customer service directly through their official channels. Please have your purchase details and model number (ST7735) available when contacting support.