DIYmalls ESP32-2432S028R

DIYmalls ESP32-2432S028R 2.8-inch Resistive Touchscreen Display Module User Manual

Model: ESP32-2432S028R

1. Introduction

The DIYmalls ESP32-2432S028R is a compact development module integrating an ESP32 microcontroller with a 2.8-inch resistive touchscreen TFT LCD. This module is designed for various embedded projects, offering a convenient solution for applications requiring both processing power and a user interface. It is compatible with the Arduino IDE for programming.

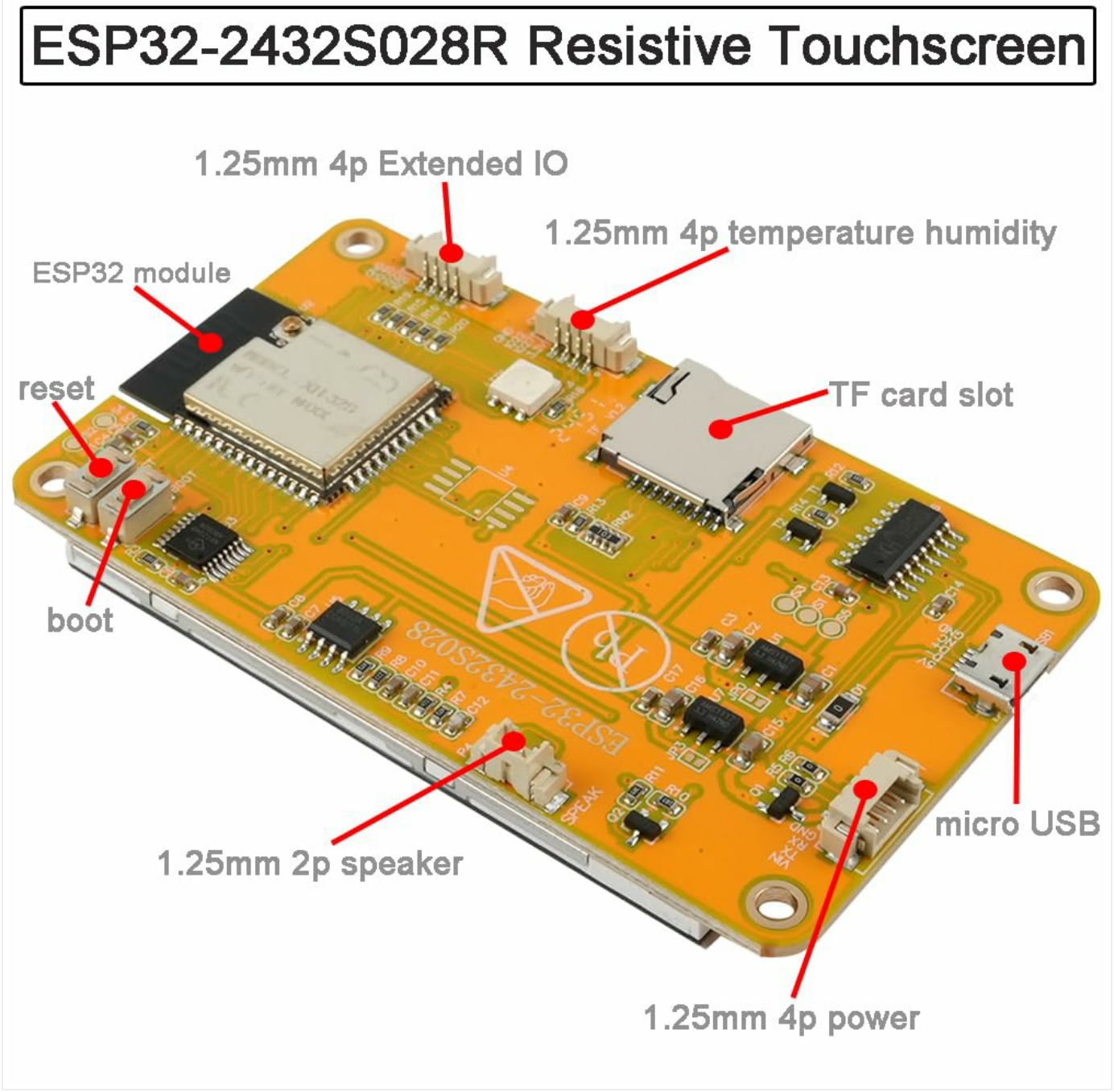


Figure 1: Overview of the DIYmalls ESP32-2432S028R module.

2. Package Contents

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

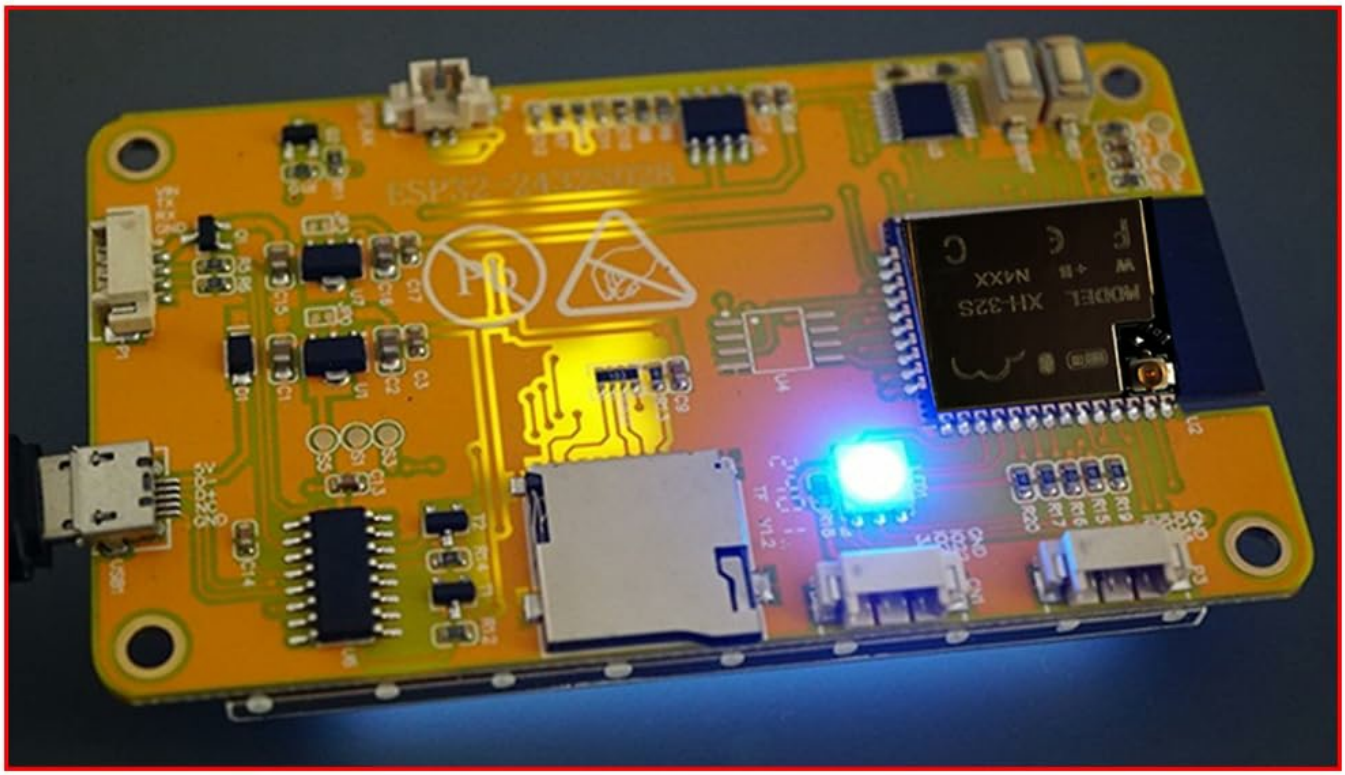
- 1x ESP32-2432S028R Board
- 1x USB 2.0 to Micro USB Data Cable (1 meter)
- 1x 4-pin Dupont Female to 1.25mm Wire
- 1x 4-pin Dupont Male to 1.25mm Wire
- 1x 2-pin 1.25mm Cable
- 1x Adapter

3. Features

The ESP32-2432S028R module offers the following key features:

- Integrated ESP32 development board with a 2.8-inch resistive touchscreen.
- 240x320 resolution TFT LCD display.
- Supports code upload via Arduino IDE or ESP32 flash tool.
- Equipped with a TF card slot for expanded storage.
- Includes 1.25mm 4-pin extended I/O, 4-pin temperature/humidity, 2-pin speaker, and 4-pin power connectors.
- Features an RGB LED at the back for debugging purposes.
- Integrated Light Dependent Resistor (LDR) connected to GPIO 34.

With RGB LED at the back, useful for debugging.



Here's the RGB LED pinout:

RGB LED	GPIO
Red LED	GPIO 4
Green LED	GPIO 16
Blue LED	GPIO 17

Figure 2: The RGB LED on the back of the board, useful for debugging.

RGB LED Pinout

RGB LED Component	GPIO Pin
Red LED	GPIO 4
Green LED	GPIO 16

RGB LED Component	GPIO Pin
Blue LED	GPIO 17

Light Dependent Resistor (LDR)

The board includes an LDR for light sensing, connected to GPIO 34.



Figure 3: Location of the Light Dependent Resistor (LDR).

4. Specifications

Attribute	Value
Display Type	TFT LCD
Touchscreen Type	Resistive
Resolution	240x320 pixels
Display Size	2.8 inches
Operating Voltage	5V
Module Dimensions	50.0 x 86.0 mm
Effective Display Area	43.2 x 57.6 mm
Color Depth	RGB 65K colors
Item Weight	3.87 ounces

5. Setup

5.1 Power Supply

The ESP32-2432S028R display module requires a stable 5V power supply. It is recommended to use a 5V wall charger for power. Avoid powering the module directly from a PC's USB port, even if the PC provides 5V, as this may not supply sufficient current for stable operation.

5.2 TF Card Installation

If your project requires external storage or specific boot configurations, install a TF (MicroSD) card into the designated slot on the

board. Ensure the card is inserted correctly before uploading any code that utilizes TF card functions.



Figure 4: Location of the TF card slot. Install the TF card before uploading code.

5.3 Pinout and Connections

The module provides various connectors for extended functionality. Refer to the diagram below for key connection points:



Figure 5: Labeled components and connectors on the ESP32-2432S028R board.

TF Card SPI Pins

The TF card uses the SPI communication protocol, utilizing the ESP32's default VSPI pins:

Card SPI Function	GPIO Pin
MISO	GPIO 19
MOSI	GPIO 23
SCK	GPIO 18
CS	GPIO 5

6. Programming and Software

The ESP32-2432S028R module can be programmed using the Arduino IDE or an ESP32 flash tool. Detailed instructions and

example code can often be found by searching for "ESP32-2432S028R" online.

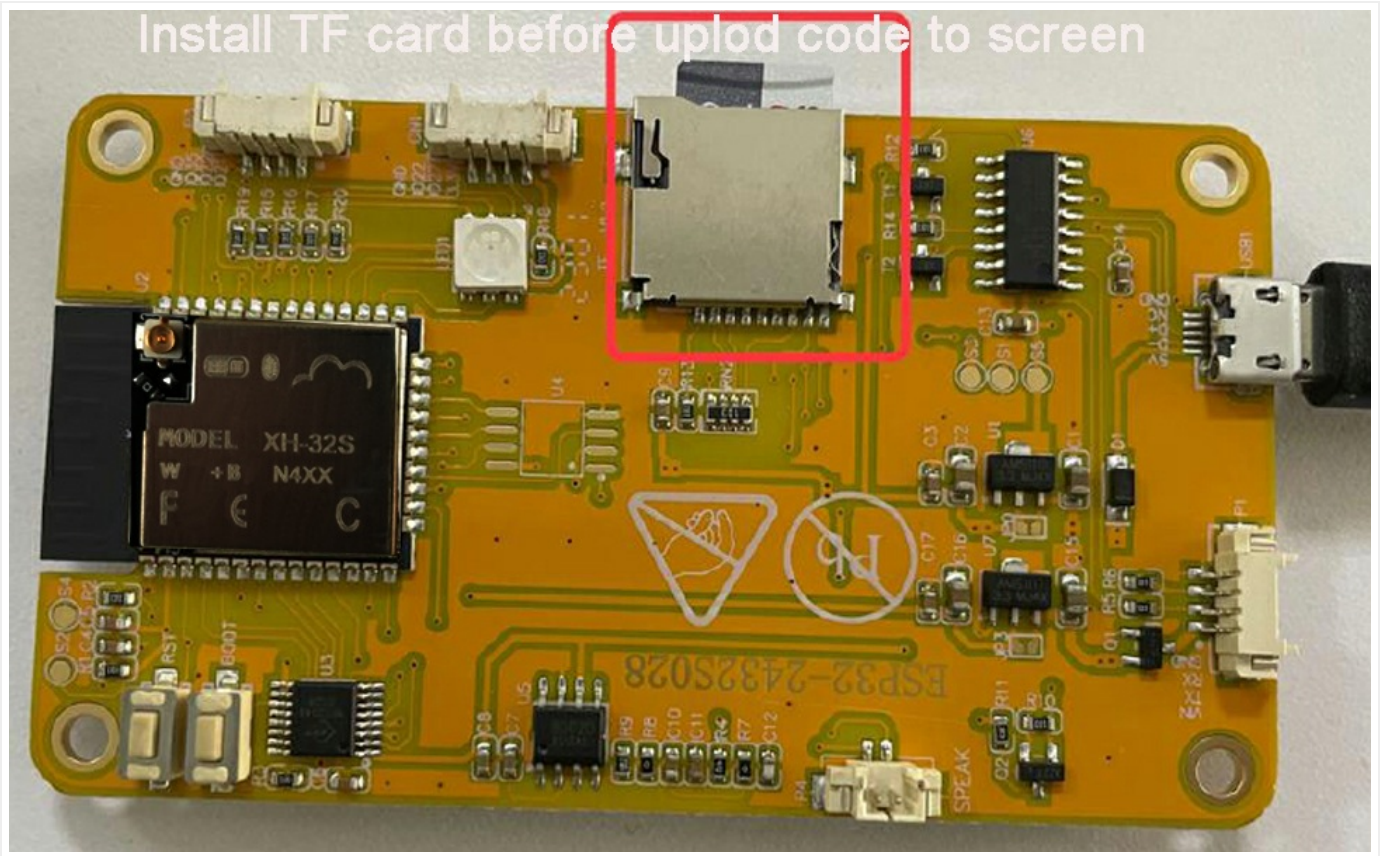


Figure 6: Example of uploading code to the module using Arduino IDE or ESP32 Download Tool.

7. Operating Instructions

7.1 Touchscreen Calibration

As the ESP32-2432S028R features a resistive touchscreen, calibration is required for accurate touch input. Follow the specific calibration procedures provided with your chosen software library or development environment.



ESP32-2432S028R is resistive touch screen, so calibration is required



Figure 7: Touchscreen calibration in progress, showing X, Y, and Pressure values.

7.2 Basic Touchscreen Interaction

Once calibrated, the touchscreen allows for direct interaction with the displayed interface. Use a stylus or a fingernail for precise input on the resistive surface.

Your browser does not support the video tag.

Video 1: Demonstration of touchscreen interaction on the ESP32-2432S028R module, showing navigation through various controls and visuals.

8. Maintenance

To ensure the longevity and optimal performance of your ESP32-2432S028R module, consider the following maintenance guidelines:

- **Cleaning:** Gently wipe the screen and board with a soft, dry, anti-static cloth. Avoid using liquid cleaners directly on the components.
- **Storage:** Store the module in a dry, cool environment, away from direct sunlight and extreme temperatures.

- **Handling:** Handle the board by its edges to prevent damage to components and static discharge.
- **Power:** Always disconnect power before making or changing connections to the board.

9. Troubleshooting

If you encounter issues with your ESP32-2432S028R module, refer to the following common troubleshooting steps:

- **Module Not Powering On:** Ensure you are using a stable 5V power supply, preferably a wall charger, as some PC USB ports may not provide sufficient current. Check all power connections.
- **Display Not Showing Anything:** Verify that the module is receiving power. Re-upload your code to ensure it's correctly flashed. Check for any loose connections to the display.
- **Touchscreen Unresponsive/Inaccurate:** Perform a touchscreen calibration. Ensure your software library for the touchscreen is correctly configured.
- **Code Upload Failure:** Check your USB cable and port. Ensure the correct board and port are selected in your Arduino IDE or flash tool. Verify that the necessary drivers are installed.
- **General Instability:** Ensure your power supply is adequate and stable. Check for any short circuits or incorrect wiring.

For more detailed troubleshooting or specific error messages, consult online forums and communities dedicated to ESP32 development and the ESP32-2432S028R module.

10. Additional Resources

For further information, tutorials, and community support, search for "ESP32-2432S028R" on popular search engines and development forums. Many resources are available to help with setup, programming, and project ideas.

Your browser does not support the video tag.

Video 2: General overview of the DIYmalls ESP32-2432S028R module, showcasing its physical aspects and features.

Your browser does not support the video tag.

Video 3: Detailed look at the ESP32-2432S028R module, including close-ups of components and a brief demonstration of its capabilities.

11. Warranty and Support

For warranty information or technical support, please contact DIYmalls customer service through the platform where the product was purchased. Keep your purchase receipt or order number handy for faster service.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question