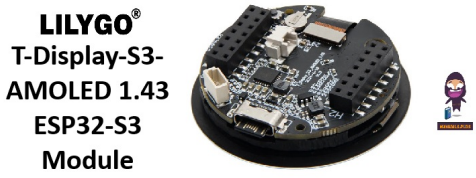


LILYGO T-Display-S3-AMOLED 1.43 ESP32-S3 Module User Guide

Contents

LILYGO®

LILYGO T-Display-S3-AMOLED 1.43 ESP32-S3 Module

Specifications

- **Product Name**: T-Display-S3-AMOLED 1.43
- **Release Date**: 2024.12
- **Version**: V1.0

Introduction

T-Display-S3-AMOLED 1.43
T-Display-S3-AMOLED 1.43 is a development board. It can work independently. It consists of an ESP32-S3 MCU that supports Wi-Fi + BLE communication protocol and a motherboard PCB. The screen is 1.43 inch AMOLED. At the core of this module is the ESP32-S3-R8 chip. ESP32-S3 integrates Wi-Fi (2.4 GHz band) and Bluetooth 5.0 solutions on a single chip, dual high-performance cores, and many other versatile peripherals. Powered by 40 nm technology, ESP32-S3 provides a robust, highly integrated platform to meet the continuous demands for efficient power usage, compact design, security, high performance, and reliability. Xinyuan provides the basic hardware and software resources that empower application developers to build their ideas around the ESP32-S3 series hardware. The software development framework supplied by Xinyuan is intended for rapidly developing Internet (IoT) applications, with Wi-Fi, Bluetooth, flexible power management, and other advanced system features. The T-Display-S3 AMOLED 1.43 manufacturer is Xin Yuan Electronic Technology Co., Ltd.

Arduino
A set of cross-platform applications written in Java. The Arduino Software IDE is derived from the Processing programming language and the integrated development environment of the Wiring program. Users can develop applications in Windows/Linux/ MacOS based on Arduino. It is recommended to use Windows 10. Windows OS has been used as an example in this document for illustration purposes.

Preparation
To develop applications for ESP32-S3 you need:

- PC loaded with either Windows, Linux,x, or Mac operating system
- Toolchain to build the Application for ESP32-S3
- Arduino essentially contains API for ESP32-S3 and scripts to operate the Toolchain
- The ESP32-S3 board itself and a USB cable to connect it to the PC

Get Started

Download the Arduino Software

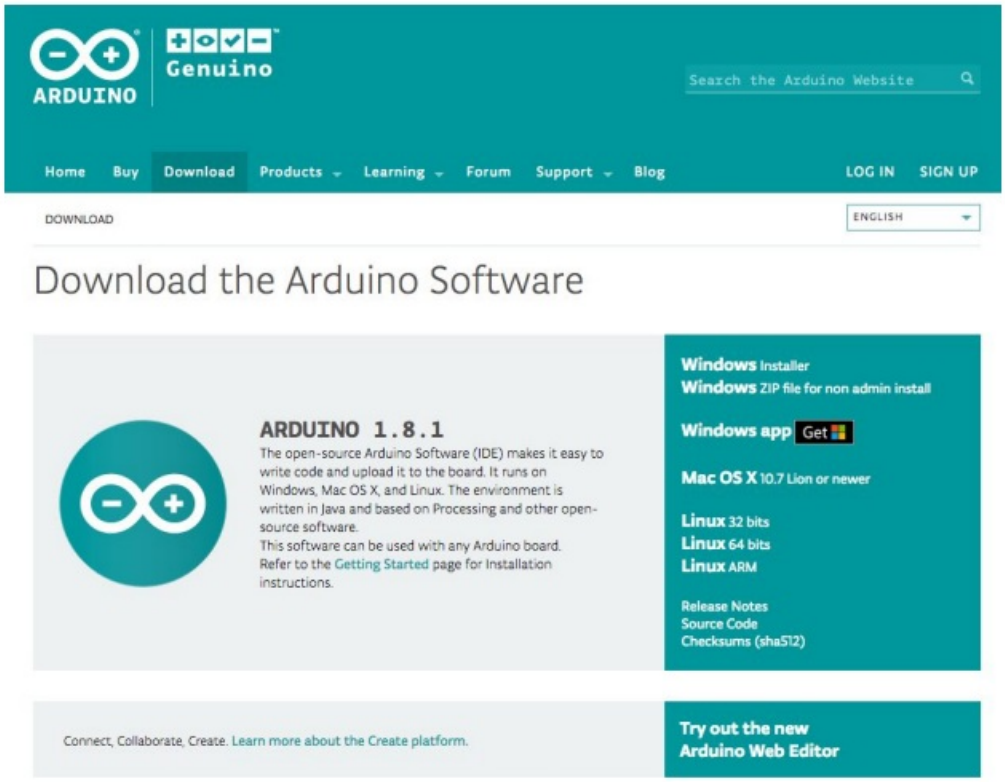
The quickest how to install the Arduino Software (IDE) on Windows machines

Quick Start Guide

The website provides a quick-start tutorial

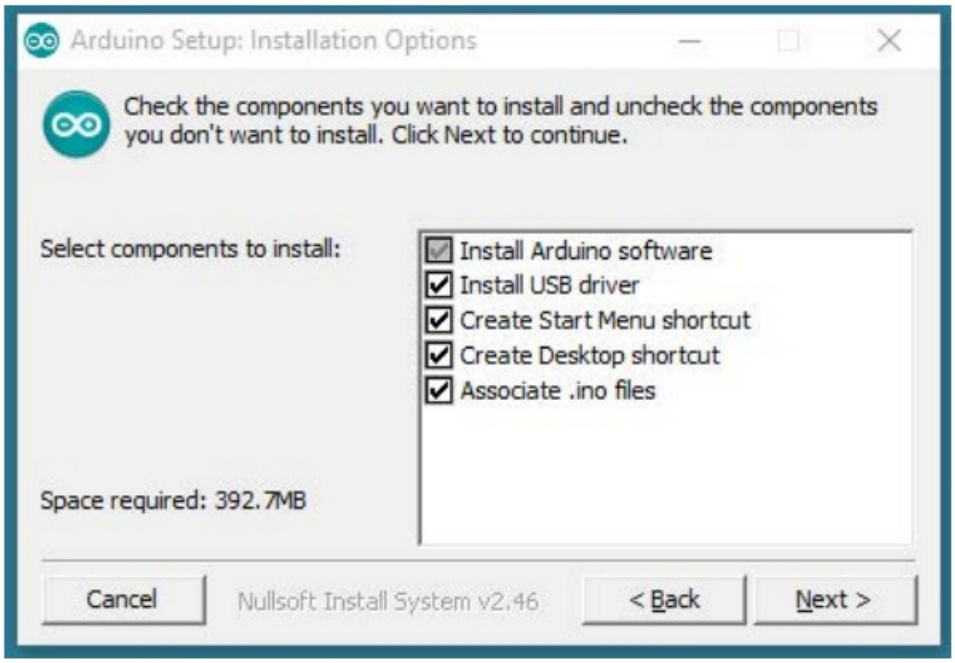
- **Windows**:
  https://www.arduino.cc/en/Guide/Windows
- **Linux**:
  https://www.arduino.cc/en/Guide/Linux
- **Mac OS X**:
  https://www.arduino.cc/en/Guide/MacOSX

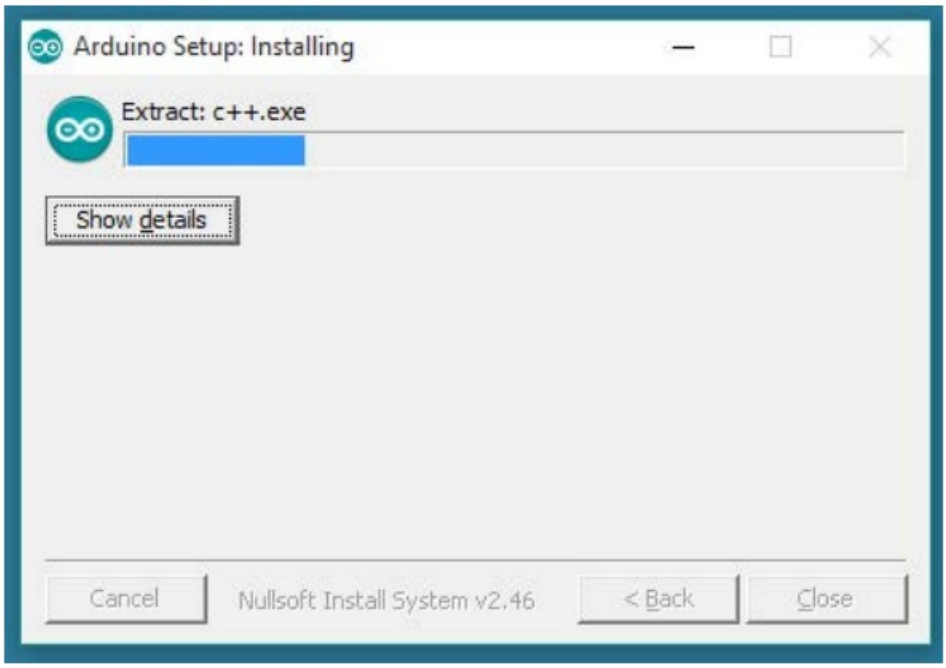
Installation steps for Windows platform Arduino



Enter the download interface and select Windows installer to install directly.

Install the Arduino Software

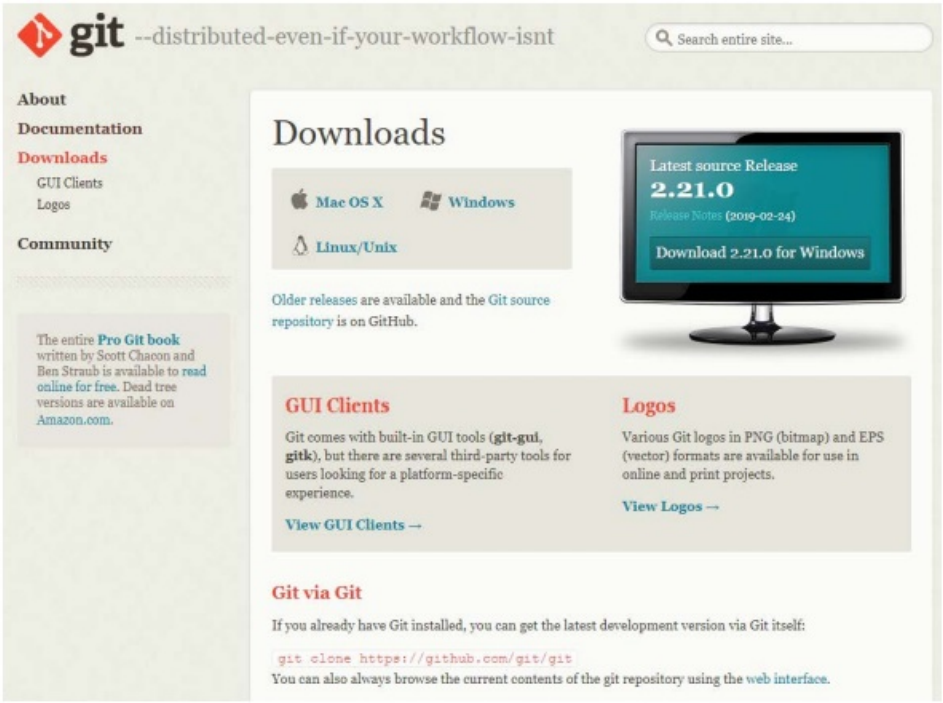




Wait for installation

Configure

Download Git
Download the installation package **Git.exe**



Pre-build configuration
Click the Arduino icon, then right-click and select “Open folder where “

- Select hardware ->
- Mouse ** Right click ** ->
- Click Git Bash Here

Cloning a remote repository

- $ mkdir espressif
- $ cd espressif
- $ git clone –recursive https://github.com/espressif/arduino-esp32.git esp32

Connect

You are almost there. To be able to proceed further, connect the ESP32-S3 board to the PC, check under what serial port the board is visible, and verify if serial communication works.

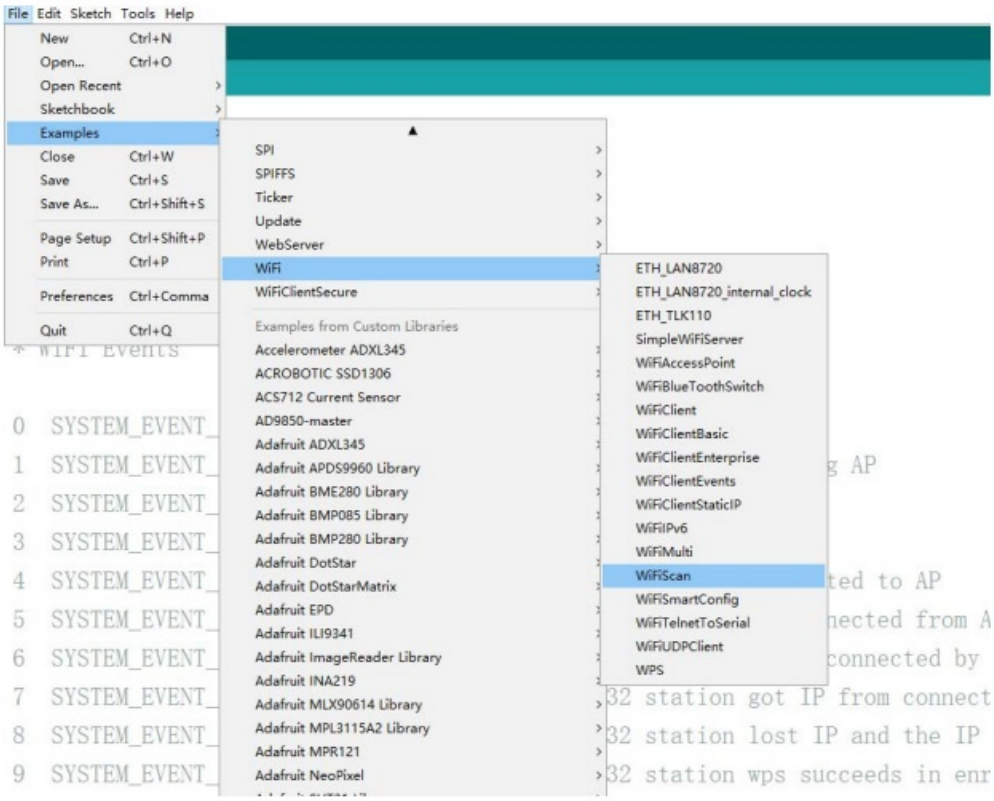
1. Connect the USB

2. The screen displays “E-Label” for 5 seconds.

AMOLED 1.43 AMOLED 1.75 AMOLED 1.75 hemispherical

Test Demo

Select File>>Example>>WiFi>>WiFiScan



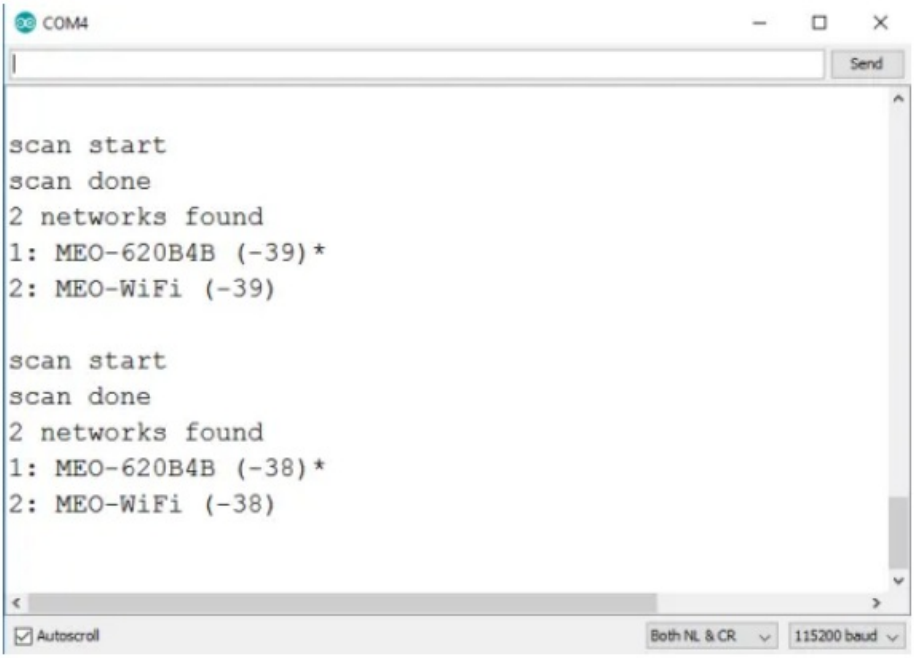
Upload Sketch

Select Board

Tools -> Board -> ESP32S3 Dev Module

Upload
Sketch -> Upload

Serial Monitor
Tools ->Serial Monitor



SSC Command Reference

Here are some common Wi-Fi commands for you to test the module.

op
Description
op commands are used to set and query the Wi-Fi mode of the system.

Example

- op -Q
- op -S -o wmode

Parameter
op Command Parameter

Parameter	Description
-Q	Query Wi-Fi mode.
-S	Set Wi-Fi mode.
wmode	There are 3 Wi-Fi modes: • mode = 1: STA mode • mode = 2: AP mode • mode = 3: STA+AP mode

sta
Description
sta commands are used to scan the STA network interface, connect or disconnect AP, and query the connecting status of the STA network interface.

Example

- sta -S [-s ssid] [-b bssid] [-n channel] [-h]
- sta -Q
- sta -C [-s ssid] [-p password]
- sta -D

Parameter
sta Command Parameter

Parameter	Description
-S scan	Scan Access Points.
-s sid	Scan or connect Access Points with the SSID.
-b bssid	Scan the Access Points with the bid.
-n channel	Scan the channel.
-h	Show scan results with hidden ssid Access Points.
-Q	Show STA connect stutus.
-D	Disconnected with current Access Points.

ap
Description
ap commands are used to set the parameter of AP network interface.

Example

- ap -S [-s ssid] [-p password] [-t encrypt] [-n channel] [-h] [-m max_sta]
- ap –Q
- ap –L

Parameter
ap Command Parameter

Parameter	Description
-S	Set AP mode.
-s sid	Set AP SSID.
-p password	Set AP password.
-t encrypt	Set AP encrypt mode.
-h	Hide ssid.
-m max_sta	Set AP max connections.
-Q	Show AP parameters.
-L	Show the MAC Address and IP Address of the connected statio n.

mac
Description
mac commands are used to query the MAC address of the network interface.

Example

- mac -Q [-o mode]

Parameter
mac Command Parameter

Parameter	Description
-Q	Show MAC address.
-o mode	• mode = 1: MAC address in STA mode. • mode = 2: MAC address in AP mode.

dhcp
Description
dhcp commands are used to enable or disable the dhcp server/client.

Example

- dchp -S [-o mode]
- dhcp -E [-o mode]
- dhcp -Q [-o mode]

Parameter
dhcp Command Parameter

Parameter	Description
-S	Start DHCP (Client/Server).
-E	End DHCP (Client/Server).
-Q	show DHCP status.
-o mode	• mode = 1 : DHCP client of STA interface. • mode = 2 : DHCP server of AP interface. • mode = 3: both.

ip
Description
IP commands are used to set and query the IP address of the network interface.

Example

- ip -Q [-o mode]
- ip -S [-i ip] [-o mode] [-m mask] [-g gateway]

Parameter
ip Command Parameter

Parameter	Description
-Q	Show IP address.
-o mode	• mode = 1 : IP address of interface STA. • mode = 2 : IP address of interface AP. • mode = 3: both
-S	Set IP address.
-i ip	IP address.
-m mask	Subnet address mask.
-g gateway	Default gateway.

reboot
Description
reboot command is used to reboot the board.

Example

- reboot

ram
ram command is used to query the size of the remaining heap in the system.

Example

- ram

FCC Caution:
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IMPORTANT NOTE:
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used by the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment t.T equipment should be installed and operated with a minimum distance of 20 cm between the radiator& your body.

FAQs

Q: What is the purpose of the T-Display-S3-AMOLED 1.43?

A: The T-Display-S3-AMOLED 1.43 is a hardware platform for developing applications using Arduino.

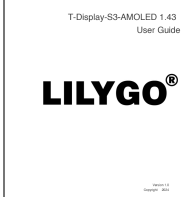
Q: How do I flash firmware to the ESP32-S3 module?

A: You can flash firmware to the ESP32-S3 module by following the steps outlined in section 6 of this user guide.

Q: What are some common SSC commands used with this product?

A: Common SSC commands include 'op', 'sta', 'ap', 'mac', DHCPp', 'ip', and 'reboot'. Refer to section 7 for more details on these commands.

Documents / Resources

	LILYGO T-Display-S3-AMOLED 1.43 ESP32-S3 Module [pdf] User Guide TDISS3-AMOLED, 2ASYE-TDISS3-AMOLED, 2ASYETDISS3AMOLED, T-Display-S3-AMOLED 1.43 ESP32-S3 Module, T-Display-S3-AMOLED 1.43, ESP32-S3 Module, Module

References

- arduino.cc/en/Guide/Linux
- arduino.cc/en/Guide/MacOSX
- User Manual