

# LILYGO T-Encoder Pro User Guide

## Manualsum, simplified manuals

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# LILYGO T-Encoder Pro User Guide

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Shenzhen Xin Yuan Electronic Technology T-Encoder pro User Manual [Manualsum](#)

# LILYGO<sup>®</sup>

## About This Guide

This document is intended to help users set up the basic software development environment for developing app using hardware based on the T-Encoder pro. Through a simple example, this document illustrates how to use Arduino, including the menu based configuration wizard, compiling the Arduino and firmware download to the ESP32-S3 module.

## Introduction

### T-Encoder pro

T-Encoder pro is a development board. It can work independently.

It consists of ESP32-S3 MCU supporting Wi-Fi + BLE communication protocol and motherboard PCB. The screen is 2.04 inch AMOLED.

ESP32-S3 integrates Wi-Fi (2.4 GHz band) and Bluetooth 5.0 solutions on a single chip, along with 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 empowers application developers to build their ideas around the ESP32-S3 series hardware. The software development framework provided by Xinyuan is intended for rapidly developing Internet-of-Things (IoT) applications, with Wi-Fi, Bluetooth, flexible power management and other advanced system features.

The T-Encoder pro 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 [Manualsum](#)

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 or Mac operating system
- Toolchain to build the Application for ESP32-S3
- Arduino that 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


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## Download the Arduino Software



**ARDUINO 1.8.1**  
The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. It runs on Windows, Mac OS X, and Linux. The environment is written in Java and based on Processing and other open-source software.  
This software can be used with any Arduino board. Refer to the [Getting Started](#) page for Installation instructions.

**Windows** Installer  
**Windows** ZIP file for non admin install

**Windows app** 

**Mac OS X** 10.7 Lion or newer

**Linux** 32 bits  
**Linux** 64 bits  
**Linux** ARM

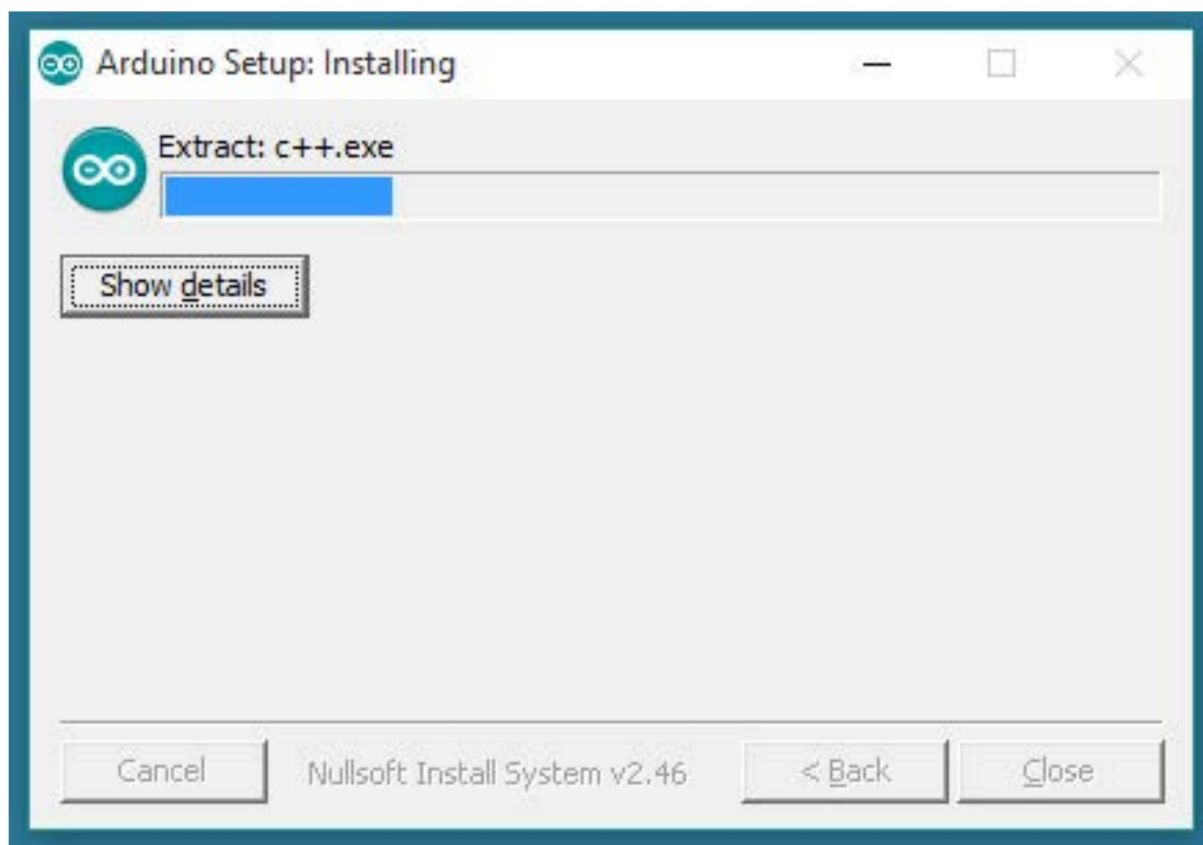
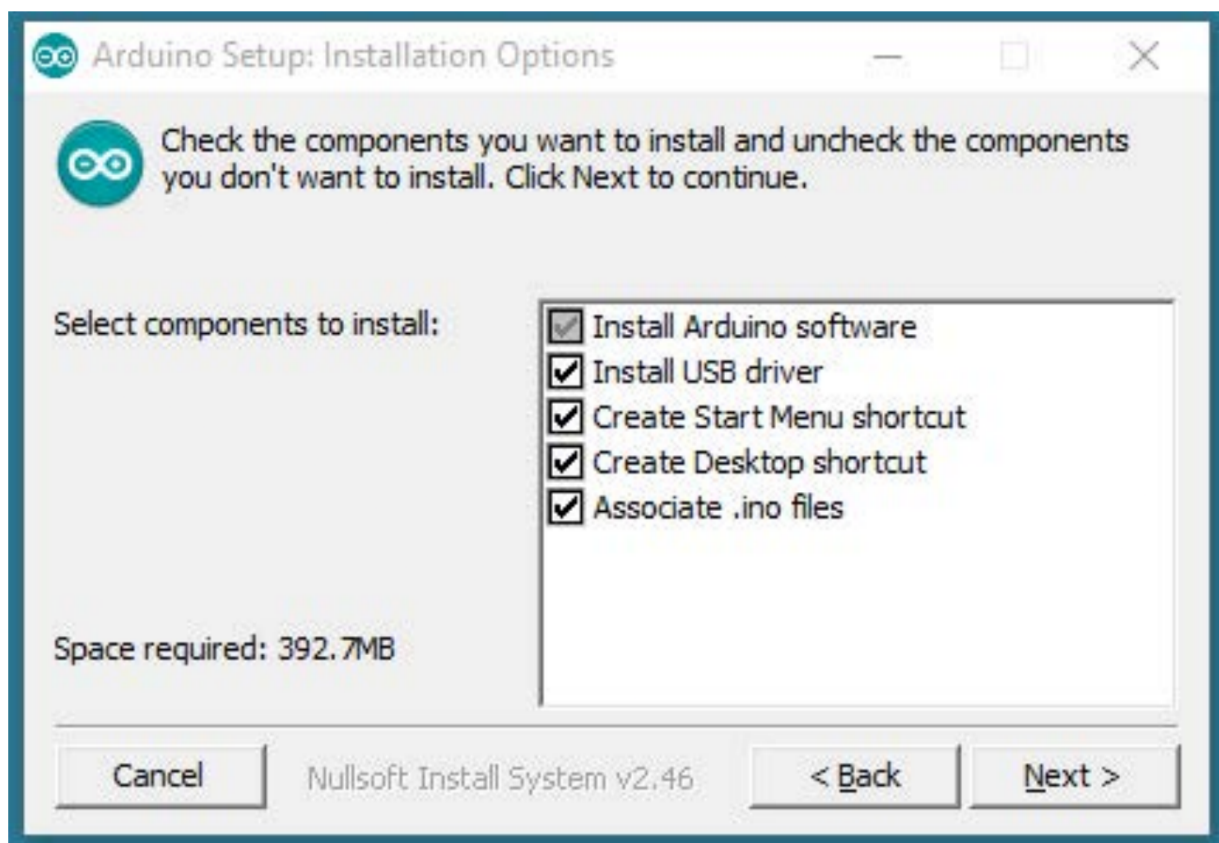
[Release Notes](#)  
[Source Code](#)  
[Checksums \(sha512\)](#)

Connect, Collaborate, Create. [Learn more about the Create platform.](#)

**Try out the new Arduino Web Editor**

Enter the download interface, select **Windows installer** to install directly

## Install the Arduino Software



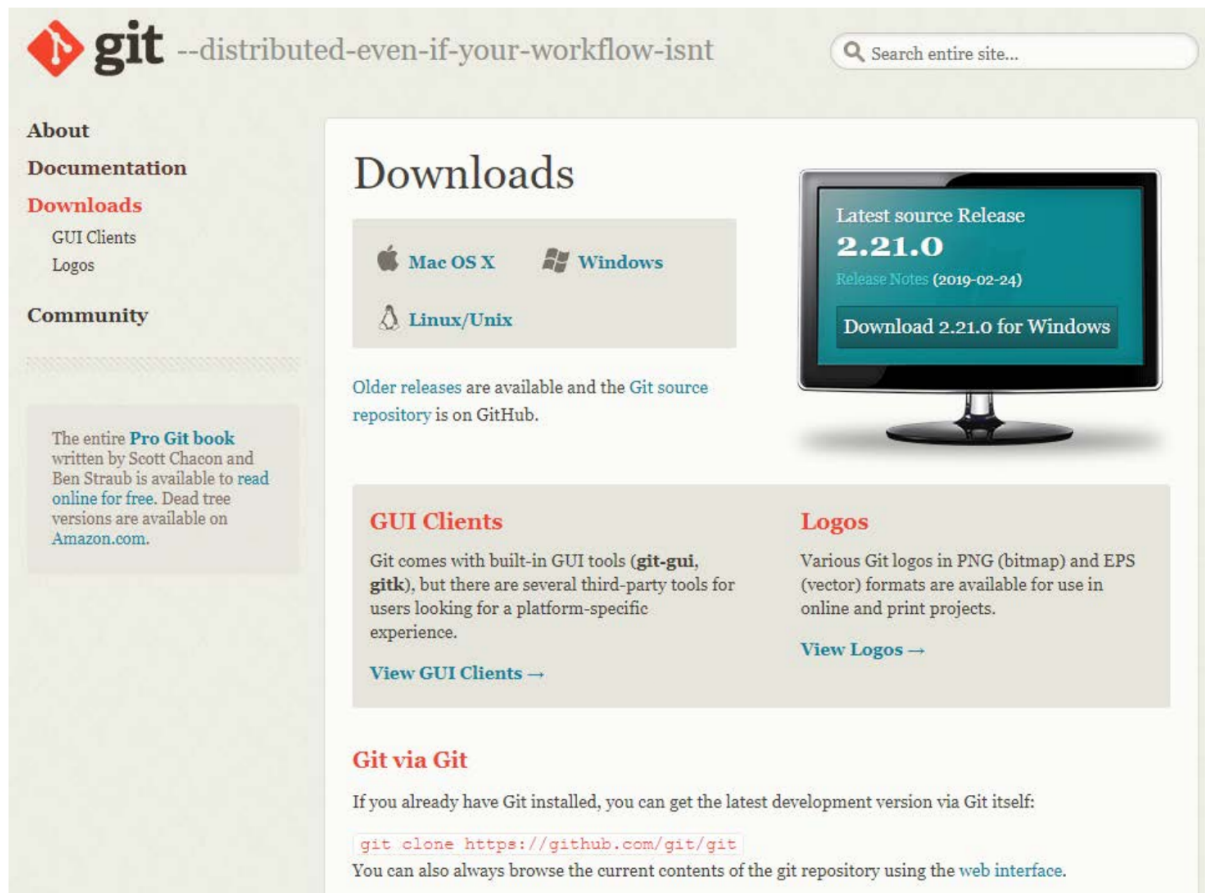
Wait for installation

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# Configure

## Download Git

Download the installation package Git.exe



The screenshot shows the Git website's 'Downloads' page. At the top left is the Git logo with the tagline '--distributed-even-if-your-workflow-isnt'. A search bar is at the top right. The left sidebar contains navigation links: 'About', 'Documentation', 'Downloads' (highlighted), 'GUI Clients', 'Logos', and 'Community'. Below the sidebar is a box for the 'Pro Git book'. The main content area features a 'Downloads' section with buttons for 'Mac OS X', 'Windows', and 'Linux/Unix'. A monitor graphic displays 'Latest source Release 2.21.0' and a 'Download 2.21.0 for Windows' button. Below this are sections for 'GUI Clients' and 'Logos'. At the bottom, a 'Git via Git' section provides a terminal command: `git clone https://github.com/git/git`.

## Pre-build configuration

Click Arduino icon, then right click and select "Open folder where <sup>TM</sup>

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
```

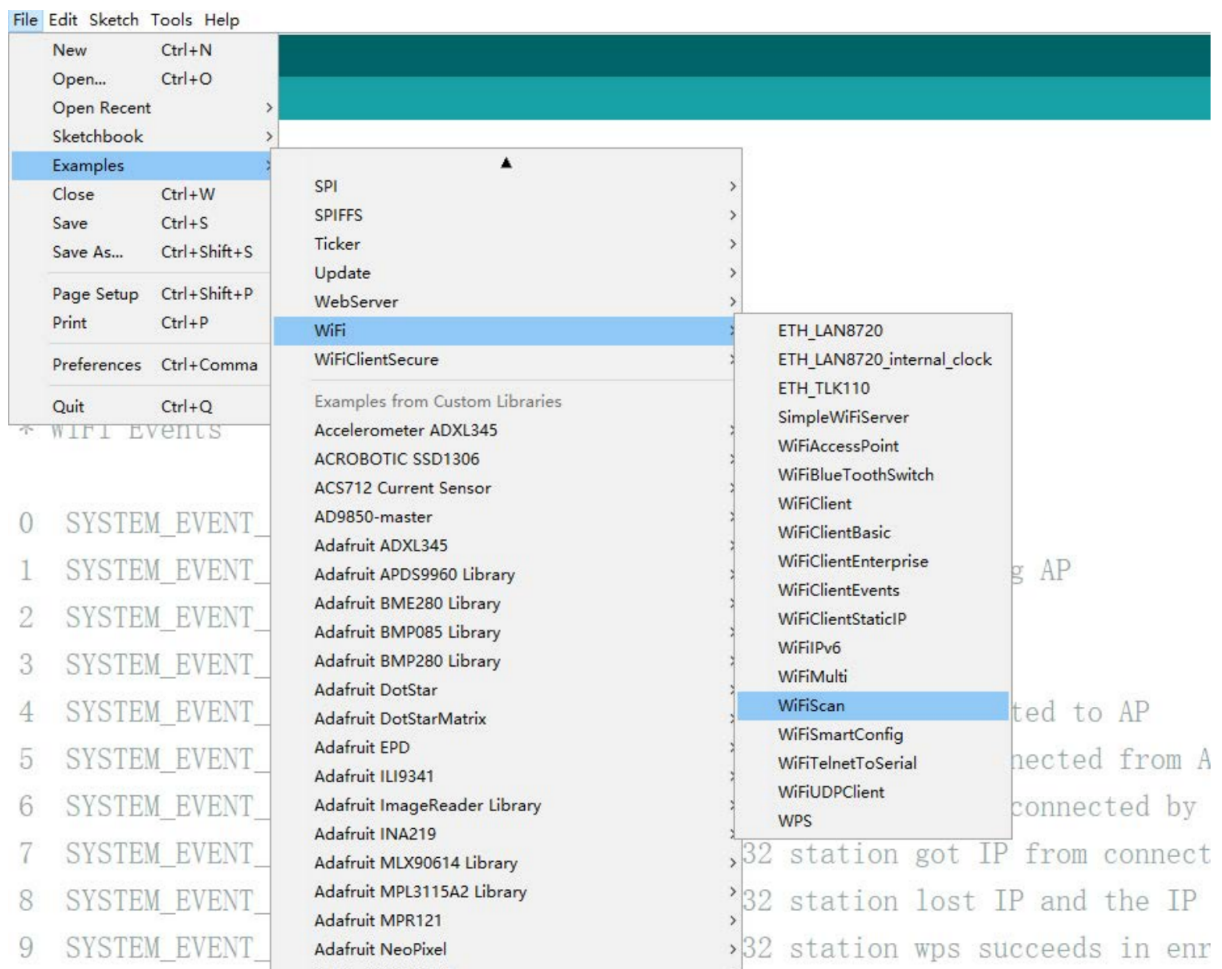
You are almost there. To be able to proceed further, connect ESP32-S3 board to PC, check under what serial port the board is visible and verify if serial communication works.



After connecting USB to power on. The screen can directly display the electronic label for 3 seconds.

## Test Demo

Select File>>Example>>WiFi>>WiFiScan



## Upload Sketch

### Select Board

Tools -> Board -> ESP32S3 Dev Module

### Upload

Sketch -> Upload

### Serial Monitor

Tools -> Serial Monitor





- 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 STA network interface.

### Example

```
sta -S [-s ssid] [-b bssid] [-n channel] [-h]
```

```
sta -Q
```

```
sta -C [-s ssid] [-p password]
```

```
sta -D
```

### Parameter

**Table 6-2. sta Command Parameter**

Parameter	Description
-S scan	Scan Access Points.
-s ssid	Scan or connect Access Points with the ssid.
-b bssid	Scan the Access Points with the bssid.
-n channel	Scan the channel.
-h	Show scan results with hidden ssid Access Points.
-Q	Show STA connect status.
-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

**Table 6-3. ap Command Parameter**

Parameter	Description
-S	Set AP mode.
-s ssid	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 MAC Address and IP Address of the connected station.

## mac

### Description

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

### Example

mac -Q [-o mode]

### Parameter

**Table 6-4. mac Command Parameter**

Parameter	Description
-Q	Show MAC address.
-o mode	<ul style="list-style-type: none"> <li>mode = 1: MAC address in STA mode.</li> <li>mode = 2: MAC address in AP mode.</li> </ul>

## dhcp

### Description

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

### Example

dchp -S [-o0 mode]

dhcp -E [-0 mode]

dhcp -Q [-o mode]

### Parameter

**Table 6-5. dhcp Command Parameter**

Parameter	Description
-S	Start DHCP (Client/Server).
-E	End DHCP (Client/Server).
-Q	show DHCP status.
-o mode	<ul style="list-style-type: none"> <li>• mode = 1: DHCP client of STA interface.</li> <li>• mode = 2 : DHCP server of AP interface.</li> <li>• mode = 3: both.</li> </ul>

## ip

### Description

ip command 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

**Table 6-6. ip Command Parameter**

Parameter	Description
-Q	Show IP address.
-o mode	<ul style="list-style-type: none"> <li>• mode = 1: IP address of interface STA.</li> <li>• mode = 2 : IP address of interface AP.</li> <li>• mode = 3: both</li> </ul>
-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.

ram