Development Kit for
1.02 inch E-paper Display

ESP32-102

Product Specifications
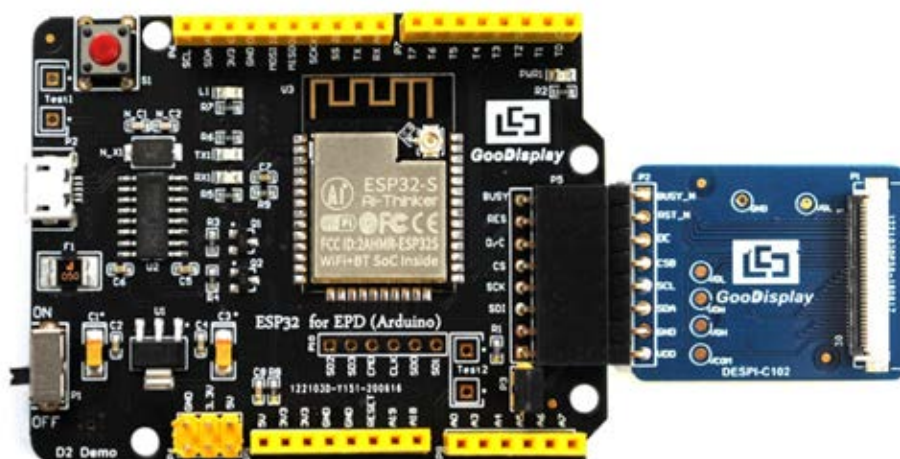
Customer	Standard
Description	Development Kit for E-paper Display
Model Name	ESP32-102
Date	2020/07/27
Revision	1.0

	Design Engineering		
	Approval	Check	Design

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Contents

1.Overview

ESP32-102 development kit supports program development using Arduino development platform.This development kit is used to help users develop e-paper display projects with provided source code to create more differentiated solutions. It is designed for SPI e-paper display. It supports driving e-paper GDEW0102I3F and GDEW0102T4.

ESP32-102 development kit consists of motherboard ESP32 for EPD and connector board DESPI-C102_30P.

ESP32 development kit is only for driving the e-paper, WIFI and other functions need to be developed by users according to the project.

2.Mechanical Specifications

| Parameter	Specification
Model	ESP32-102
Platform	Arduino
Dimension	70mm x 54mm (ESP32 for EPD) 33.8mm x 22.2mm (DESPI-C102_30P)
Power Interface	USB interface
Sample Code	Available (please contact sales)
Operating Temp.	-20°C ~+70°C
Main Function	Learn to drive e-paper display; Test and evaluate e-paper display; For secondary development.
Additional Function	USB to serial port; Indicator light; Reset key; Current measurement.

3.Functions
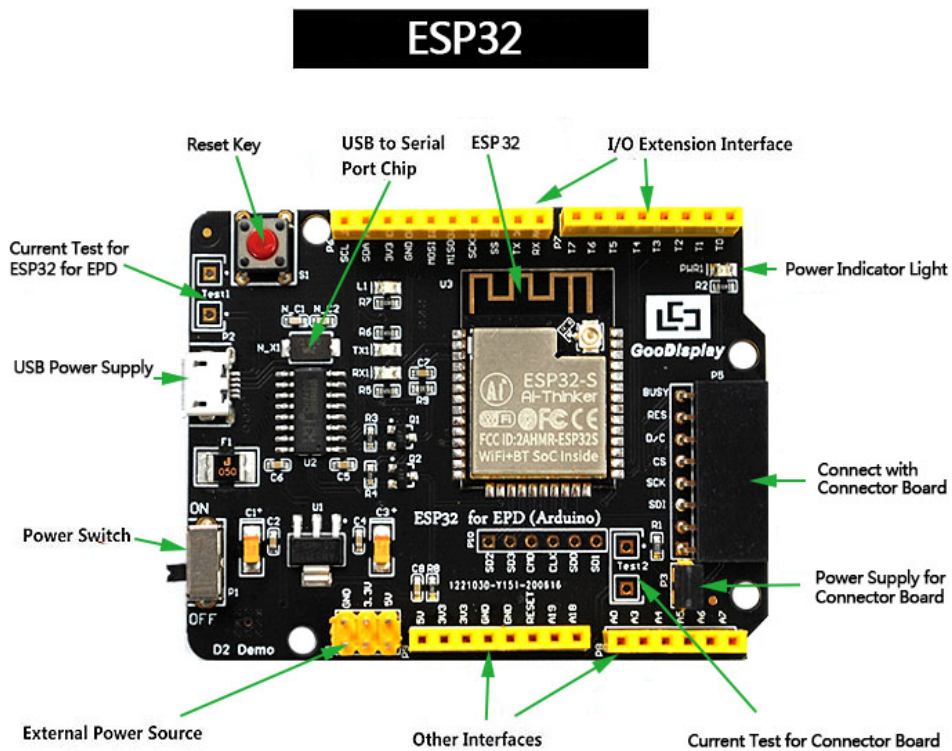
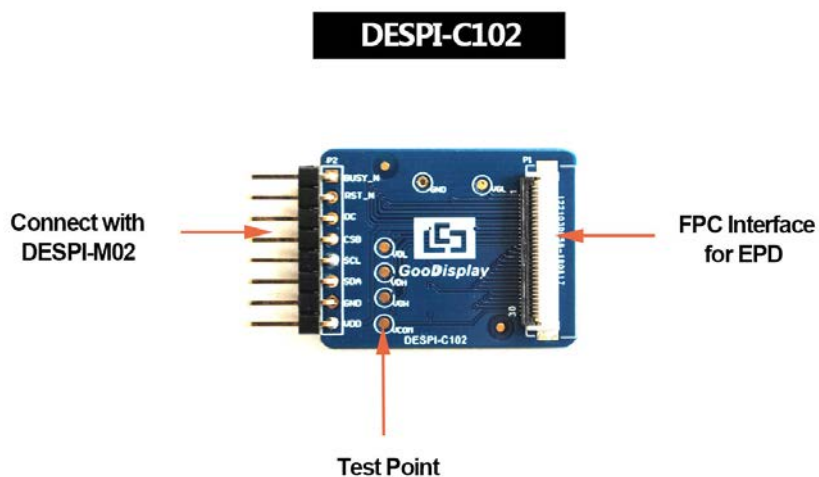**Figure 1 : ESP32 for EPD**

Figure 2 : DESPI-C102_30P

3.1 Power Supply

The input voltage of this board is DC5V, which is powered by the USB port. Since the e-paper is 3.3V powered, it is necessary to connect VCC at P6 to 3.3V when using.

Tips: If you use 5V power supply, the e-paper can be driven theoretically, but it is not recommended, long-term operation will make e-paper damage.

3.2 USB to serial port transmission

This development board uses USB to serial port communication. Users should install CH340 driver on computer before downloading program.

3.3 P3 short-circuit jumper

P3 short-circuit jumper controls DESPI-C102_30P's power supply, which is e-paper's power supply. Be sure to short it when using.

3.4 Current measurement

The development kit supports current measurement of ESP32 for EPD and DESPI-C102_30P.

1) ESP32 for EPD: Power off and make series connection between ampere meter and TEST1.

2) DESPI-C102_30P: Power on and take off the short-circuit jumper P3, then make series connection between ampere meter and TEST2. Put on the short-circuit jumper P3 after measurement.

3.5 I/O port extension

This development board led out the digital I/O D0~D12 and the analog I/O A0 for development.

3.6 LED indicator light

There is a indicator light reserved for developing.

3.7 Reset key

This development board contains a reset key for users operation.

4.Connection Mode

4.1 Connection between e-paper and development board

Connect DESPI-C102_30P to ESP32 for EPD as shown in Figure 3.

Connect e-paper FPC to DESPI-C102_30P as shown in Figure 4.

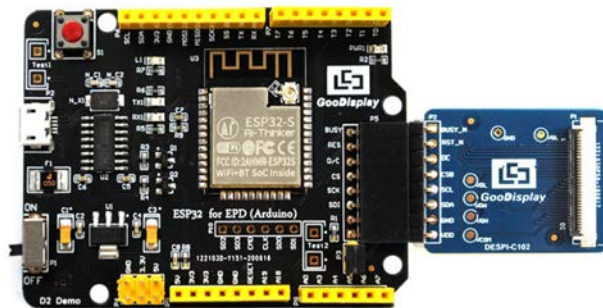(Pay attention to the direction of the e-paper.)

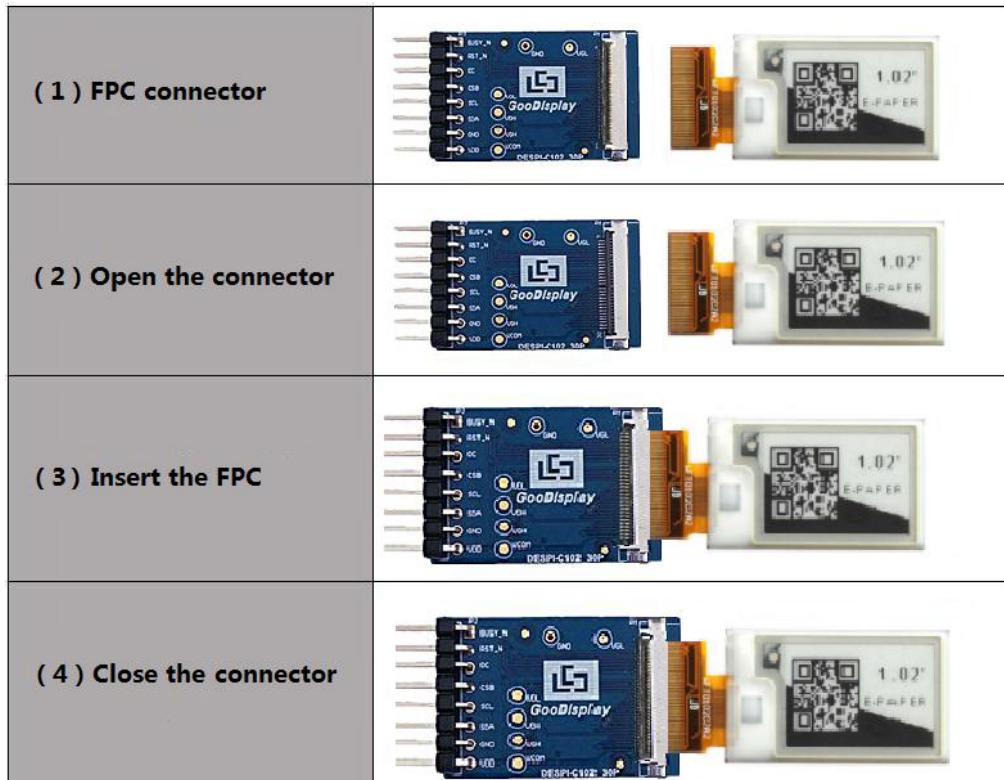**Figure 3 : Connection between DESPI-C102_30P and motherboard**

(1) FPC connector	
(2) Open the connector	
(3) Insert the FPC	
(4) Close the connector	

Figure 4 : Connection between DESPI-C102_30P and e-paper

5.Program Downloading

This development board uses serial port to download the program, need to use data cable with micro USB interface, CH340 driver, esp32_package_v1_0_2 firmware package,python-2.7.17 plug-in and Arduino programming software, the operation steps are as follows:

1. Install CH340 driver,esp32_package_v1_0_2 firmware

package and python-2.7.17 plug-in in computer before

downloading for the first time.

1) The unzipped file for the esp32_package_v1_0_2 firmware package is named espressif,unzip the espressif folder and put it in the Arduino/hardware directory,the Arduino programming software must be turned off during installation,the firmware package can also be searched directly in the Arduino Library manager.

2) CH340 driver and python-2.7.17 plug-in can use the default

installation path.

3) Run "get.exe" in esp32/tools(the premise is that the python

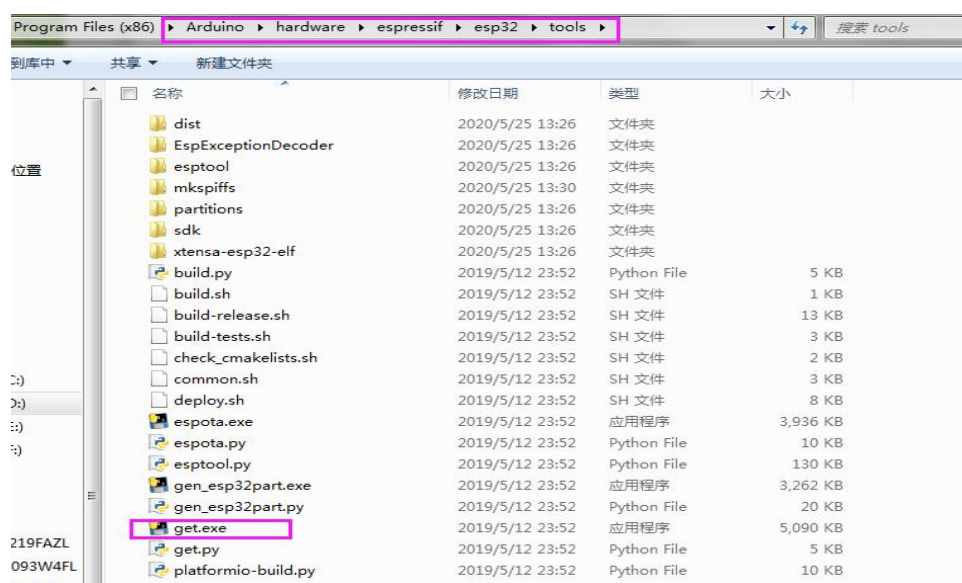plug-in is installed.) as shown in Figure 5.

Figure 5 : Run the "get.exe" file

2. Connect the micro USB port of the development board to computer with a USB data cable.

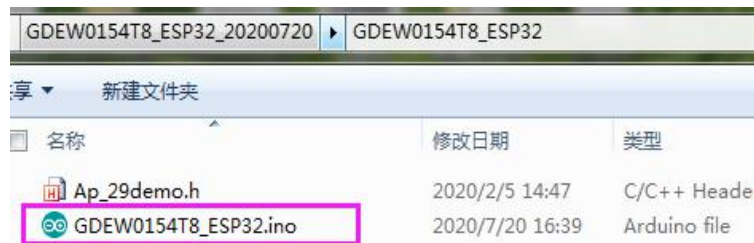3. Open the Arduino file in the folder shown in Figure 6 with Arduino 1.8.6.
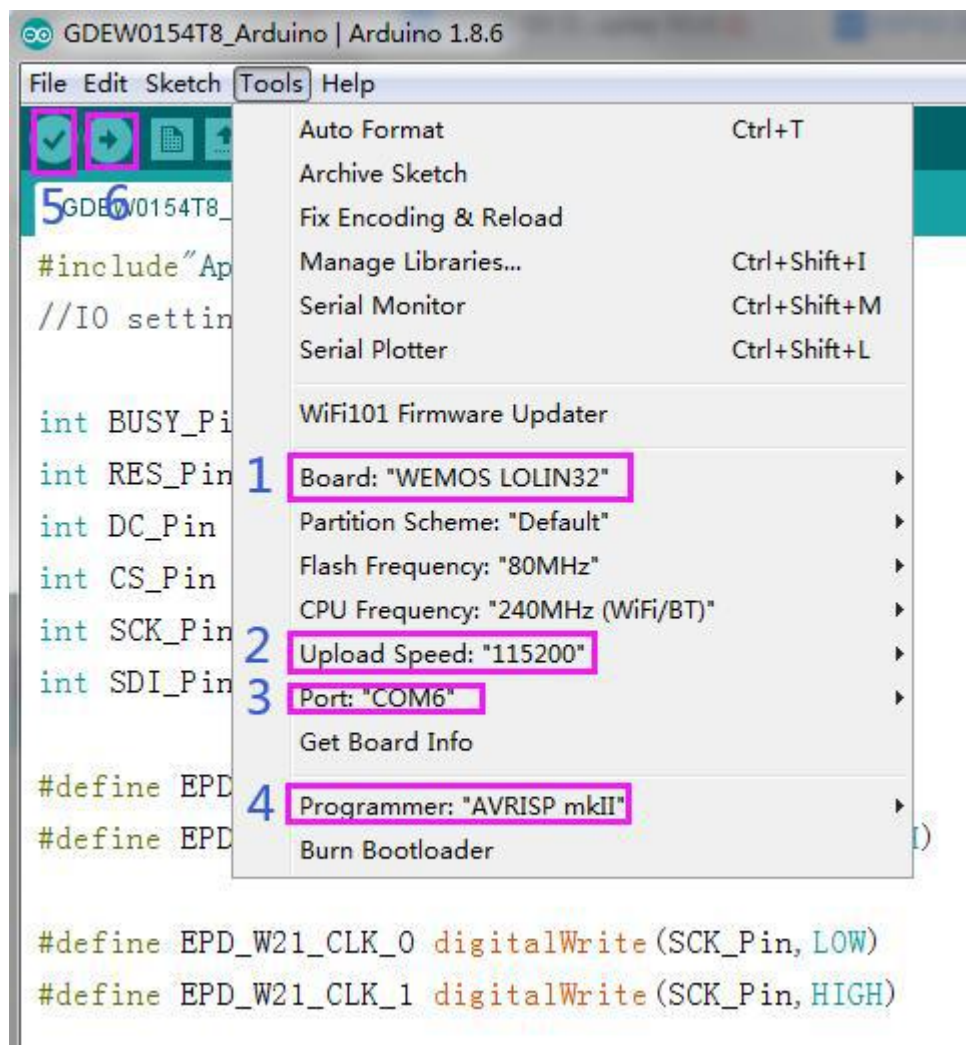

Figure 6 : Open Arduino file

Figure 7 : Steps of downloading program

4. Configure in "Tools" in Figure 7.

5. Select development board model "WEMOS LOLIN32" in position 1 of Figure 7.

6. Select upload speed "115200" in position 2 of Figure 7.

7. Select COM port in position 3 of Figure 7.

8. Select programmer model "AVRISP MKII" in position 4 of Figure 7.

9. Click position 5 [✓] of Figure 7 to compile the program.

10. Click position 6 [→] of Figure 7 to download the program to development board.

11. After downloading successfully, power off the development board, connect the e-paper to DESPI-C02 and power the development board. Then the e-paper can display the image normally.

Note: If the compiler prompts "Invalid library found" during program compilation, please ignore the prompt. This will not affect the actual program download.