E-Paper Display Evaluation Kit

for ESP8266-L(C102)

Product Specifications

Customer	Standard
Description	Evaluation Kit for E-paper Display
Model Name	ESP8266-L(C102)
Date	2022/08/25
Revision	1.0

	Design Engineering		
	Approval	Check	Design

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1.Overview

ESP8266-L (C102) evaluation kit supports development using Arduino development platform. This development kit can help users develop electronic paper display projects more quickly and smoothly. It is specially designed for SPI interface e-paper display and can drive 1.02 inch e-paper GDEW0102I3F and GDEW0102T4.

ESP8266-L (C102) development kit consists of motherboard ESP8266-L for EPD and connector board DESPI-C102.

ESP8266-L (C102) development kit is only for users to develop and drive electronic paper display screens. The application of WiFi and other functions requires users to develop on their own according to the project.

2. Structure Specification

Parameter	Specification
Model	ESP8266-L（C102）
Platform	Arduino
Dimension	Mother Board：70mm x 54mm (ESP8266-L) Adapter：33.8mm x 22.2mm (DESPI-C102)
Power Interface	Type-C
Example Code	Available
Operating Temp.	-20 ℃ ~ 70 ℃
Main Function	Learn to drive E-paper display; Test and evaluate e-paper display; Support secondary development
Additional Function	Type-C,LED indicator, Reset button, Font chip, Flash chip, Current detection

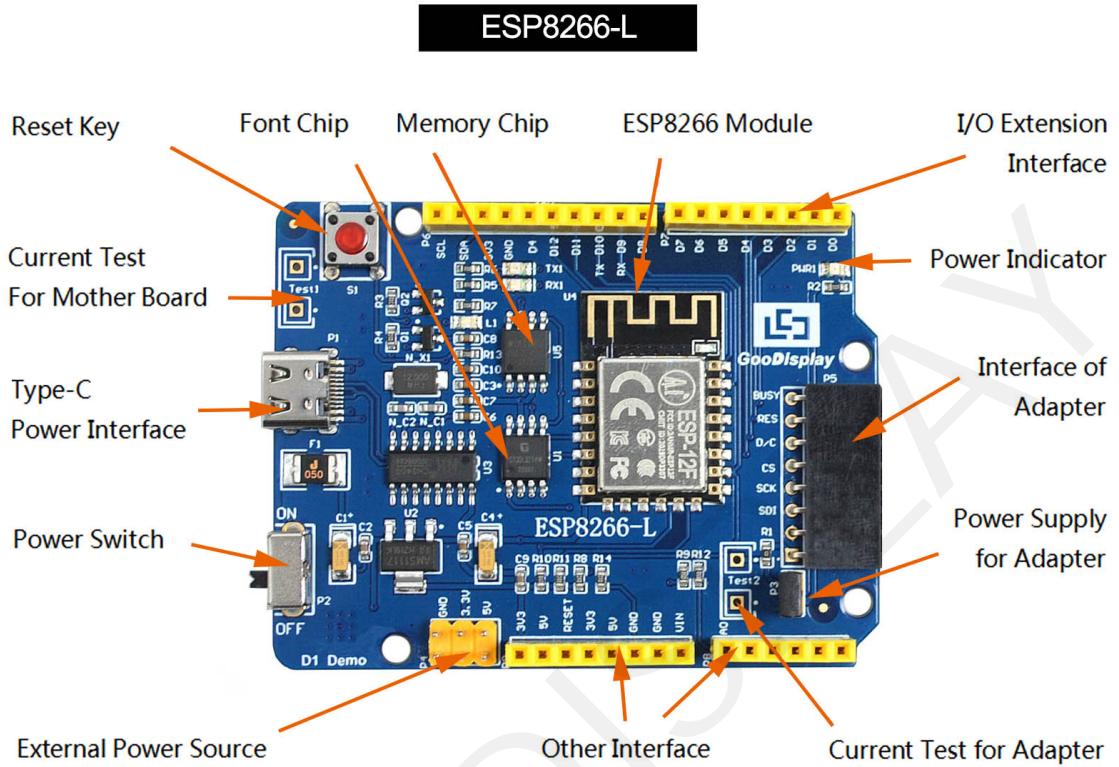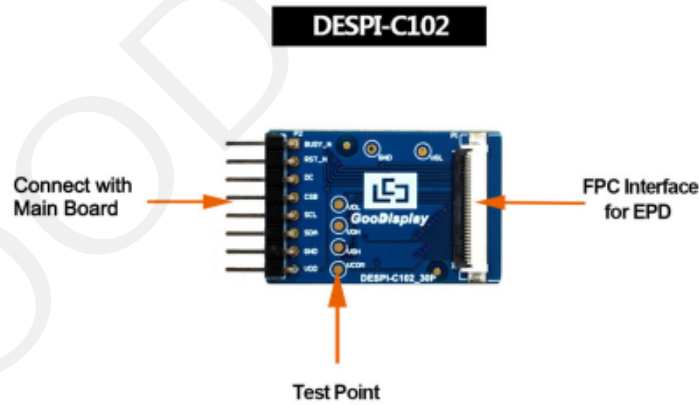## 3. Functions

Figure 1：ESP8266-L

Figure 2：DESPI-C102

3.1 Power Supply
The input voltage of this board is DC5V, which is powered by the USB port.

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'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 ESP8266-L for EPD and DESPI-C102.

1) ESP8266-L: Power off and make series connection between ampere meter and TEST1.
2) DESPI-C102: 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 leads out the digital input / output terminals D0 ~ D12 and the analog input / output terminal 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.

3.8 Expanded Functions

Built-in Chinese font chip GT30L32S4W.
Built-in data storage chip W25Q16.

4. Connection Mode and RESE Selection

4.1 Connection between e-paper and development board

Connect DESPI-C102 to ESP8266-L for EPD as shown in Figure 3. Connect e-paper FPC to DESPI-C102 as shown in Figure 4. (Please note the direction of the e-paper.)
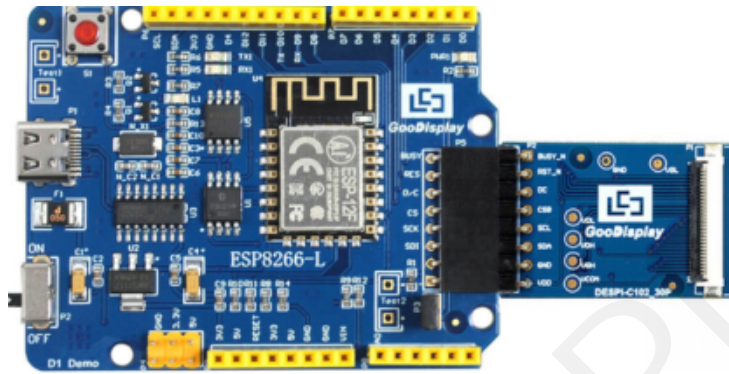

Figure 3 : Connection between ESP8266-L for EPD and DESPI-C102

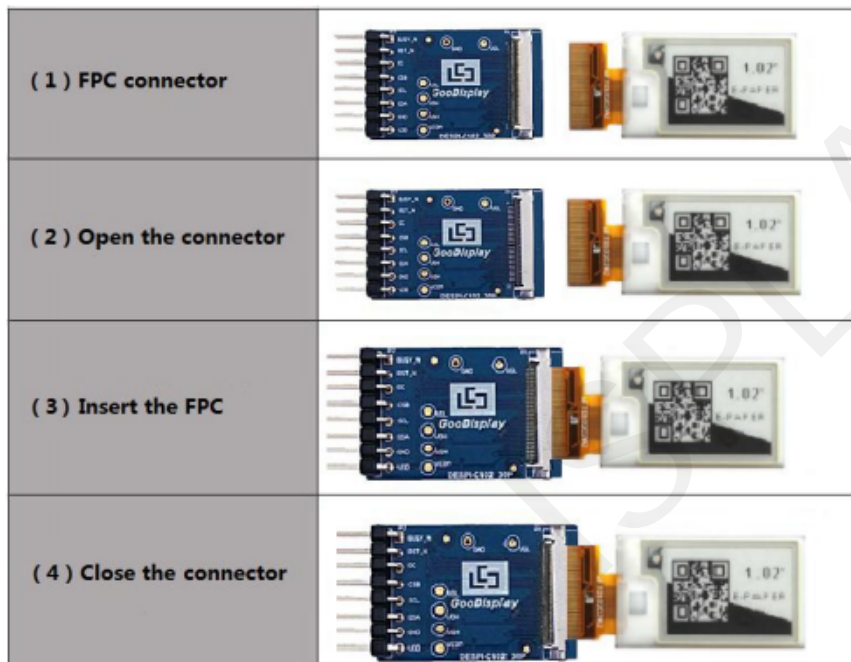2) Insert the e-paper FPC gold finger upward into the P1 connector of the adapter board as shown in Figure 4.

Figure 4 : Connection between DESPI-C102 and e-paper

ESP8266-L(C102)

5. Program Downloading

This development board adopts the serial port method to download the program, which requires the Arduino programming software, the data cable of the micro USB interface, the CH340 driver, and the 8266_package_2.5.2 firmware package. The operation steps are as follows:

1. For the first download, you need to install the CH340 driver and the 8266_package_2.5.2 firmware package on the computer (it needs to be installed to the default path of the software, and the Arduino programming software must be closed during installation). The firmware package can also be directly searched in the Arduino library manager.

2. Use a USB data cable to connect the USB interface of the development board to the computer.

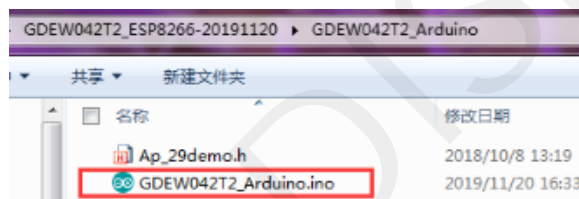3. Open the Arduino.ino project file in the driver folder shown in Figure 5 with Arduino 1.8.6.
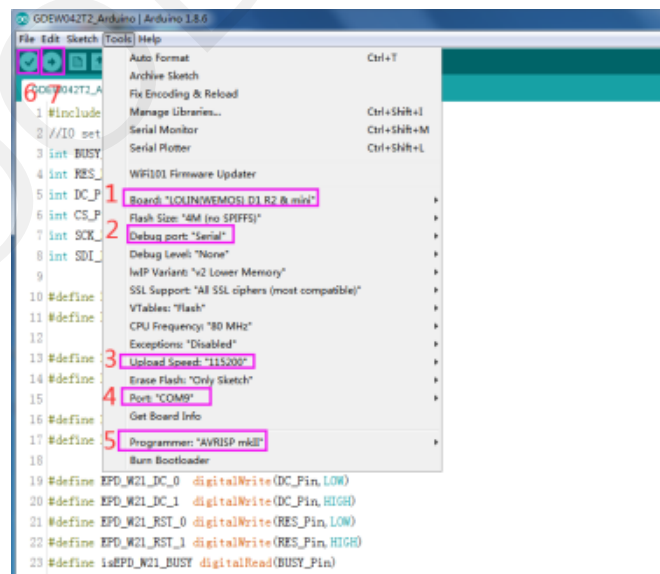

Figure 5 Open Arduino.ino

Figure 6：Steps of downloading program

4. Set in "Tools".

5. Click 1 to select the development board model "LOMIN (WEMOS) D1 R2 & mini".

6. Click 2 to select the program download interface "Serial".

7. Click 3 to select the serial port baud rate "115200".

8. Click 4 to select COM port.

9. Click 5 to select the programmer model, here select "AVRISP mkII".

10. Click 6 to compile the program.

11. Click 7 to download the program to the development board.

12. After the download is successful, first power off the development board, connect the electronic paper display screen to the adapter board, and then power on again, the electronic paper can display the screen normally.