

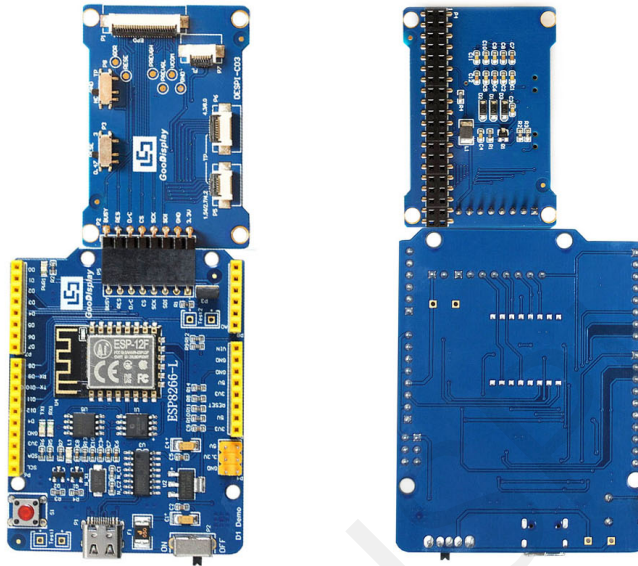


**E-Paper Display Evaluation Kit  
for ESP8266  
ESP8266-L(C03)**



Dalian Good Display Co., Ltd.

# Product Specifications



<b>Customer</b>	<b>Standard</b>
<b>Description</b>	<b>Evaluation Kit for E-paper Display</b>
<b>Model Name</b>	<b>ESP8266-L(C03)</b>
<b>Date</b>	<b>2022/08/19</b>
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## Contents

1. Overview .....	4
2. Mechanical Specifications .....	4
3. Functions .....	5
4. Connection Mode and RESE Selection.....	7
5. Program Downloading .....	10

## 1. Overview

ESP8266-L evaluation 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 Good Display's black-white e-paper display and three-color (black, white and red/Yellow) e-paper display: 0.97", 1.54", 2.13", 2.66", 2.7", 2.9", 3.71", 4.2", 5.83" and 7.5". And it is added the functions of USB serial port and LED indicator light, Reset button, font chip, Flash chip and etc.

ESP8266-L (C03) development kit consists of motherboard ESP8266-L for EPD and connector board DESPI-C03.

ESP8266-L (C03) 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 (C03)
Platform	Arduino
Dimension	Mother Board: 70mm x 54mm (ESP8266-L) Adapter: 52mm x 36mm (DESPI-C03)
Power Interface	Type-C
Example Code	Available
Operating Temp.	-20 °C ~ 70 °C
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

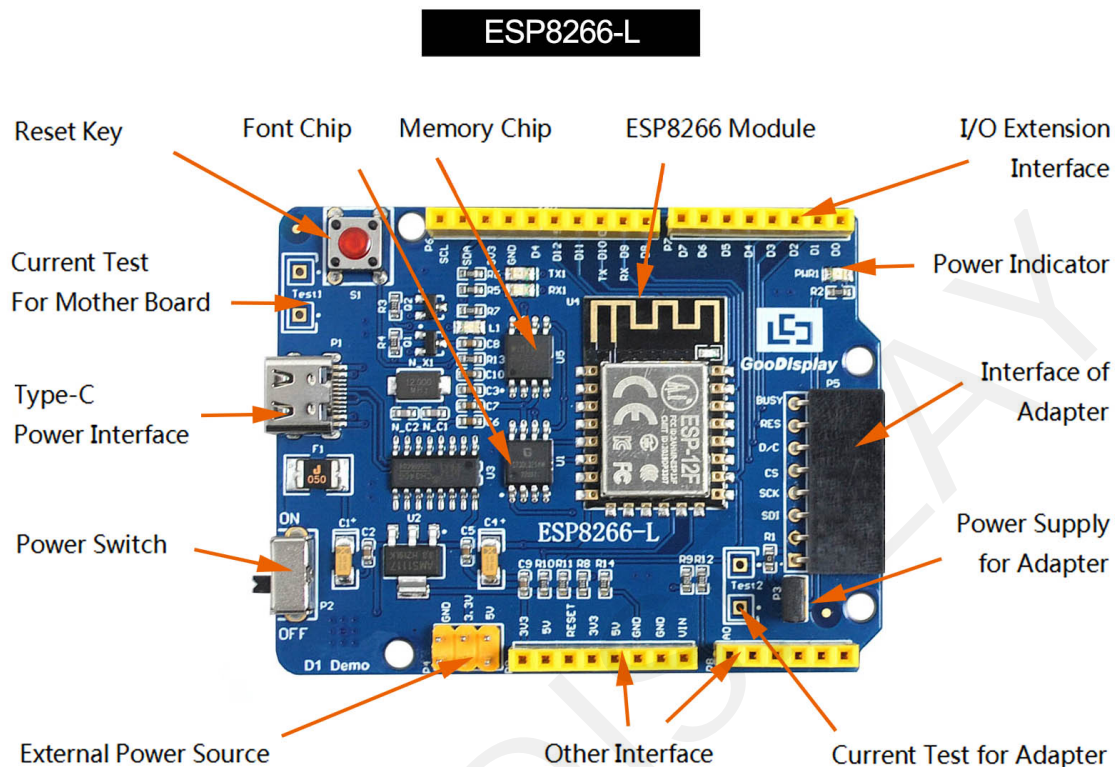


Figure 1 : ESP8266-L

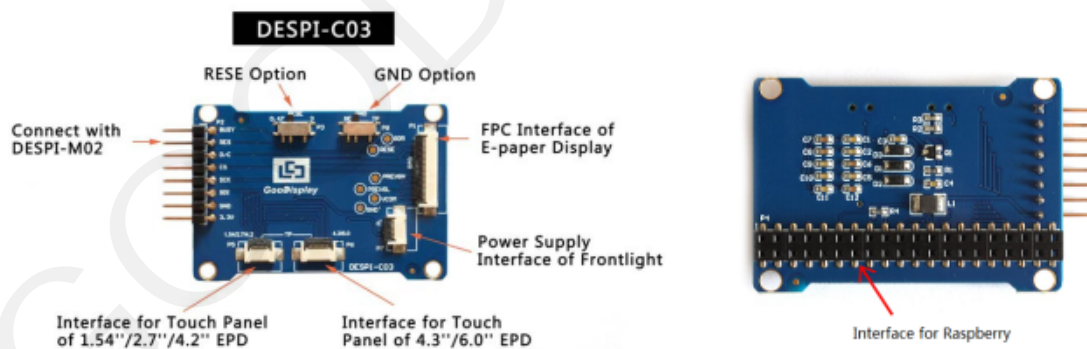


Figure 2 : DESPI-C03

### **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-C03'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-C03.

- 1) ESP8266-L: Power off and make series connection between ampere meter and TEST1.
- 2) DESPI-C03: 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 0~13 and the analog I/O 0~5 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 DESPI-C03 Adapter**

DESPI-C03 supports 1.54-inch, 2.7-inch, 4.2-inch, 4.3-inch and 6.0-inch touch panel driving and 3.3V-powered front light panel driving. Besides, There is a Raspberry Pi interface in the back of DESPI-C03, which can connect Raspberry Pi motherboard to the e-paper.

### **3.9 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-C03 to ESP8266-L for EPD as shown in Figure 3. Connect e-paper FPC to DESPI-C03 as shown in Figure 4. (Please note the direction of the e-paper.)



Figure 3 : Connection between ESP8266-L for EPD and DESPI-C03

### 4.2 Connection between e-paper and adapter board

1) Identify the front and back sides of the e-paper, and insert the e-paper into the adapter plate with the front side facing up

*Note: The mirror side of the e-paper is facing down and the display side is facing up.*

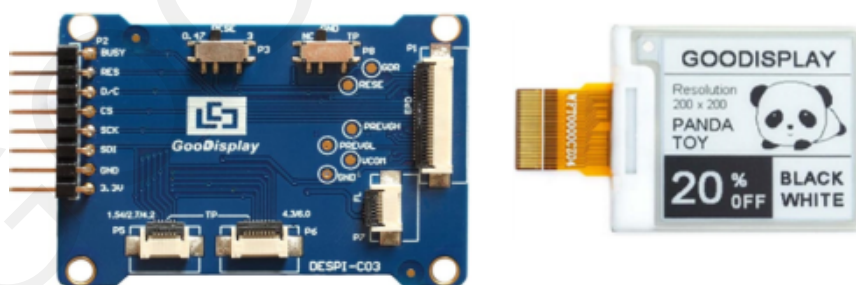


Figure 4 Schematic diagram of e-paper and adapter board plugging

2) Insert the e-paper FPC gold finger upward into the P1 connector of the adapter board as shown in Figure 5.

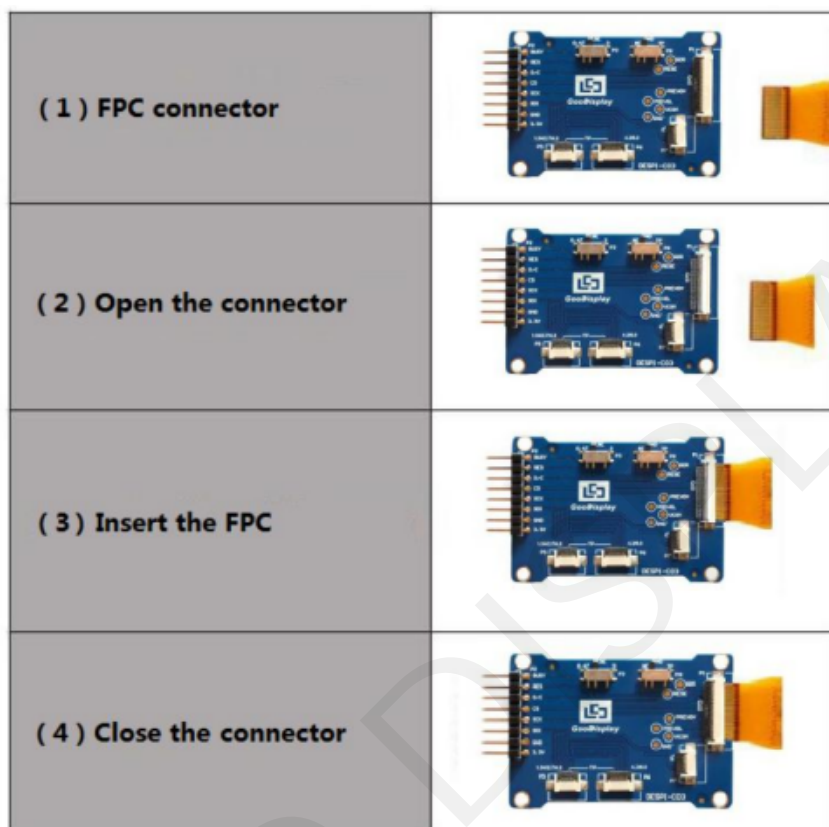


Figure 5 : Connection between DESPI-C03 and e-paper

## 4.2 RESE resistor selection of DESPI-C03

The switch on DESPI-C03 is used to select the RESE resistor, different e-papers need to match different RESE resistors, a wrong RESE resistor will cause the e-paper cannot be refreshed.

**Note:** when designing the actual product, users should strictly follow the circuit in the electronic paper product specification.

1) When RESE is set to 0.47 : Applicable to ULTRACHIP series driver ICs (starting with UC), fitipower series driver ICs (starting with JD)

1.54 inch GDEW0154T8D、GDEW0154I9FD、GDEW0154M09、GDEW0154M10

2.13 inch: GDEW0213T5D、GDEW0213I5FD、GDEW0213M21

2.6 inch: GDEW026M01

2.7 inch: GDEW027W3

2.9 inch: GDEW029M06、GDEW029Z13

3.71 inch: GDEW0371W7、GDEY037T03、GDEY037Z03

4.2 inch: GDEW042T2、GDEQ042Z21

5.83 inch: GDEW0583T8、GDEW0583Z83

7.5 inch: GDEY075T7、GDEY075Z08

2) When RESE is set to 3: Applicable to Solomon series driver ICs (starting with SSD)

1.54 inch: GDEY0154D67、GDEY0154D90LT、GDEY0154Z90、GDEY0154T94

2.13 inch: GDEY213B74、GDEY213B75、GDEY0213D32LT

2.66 inch: GDEY0266T90、GDEY0266Z90

2.7 inch: GDEY027T91

2.9 inch: GDEY029T94

4.2 inch: GDEY042T91

## 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 6 with Arduino 1.8.6.

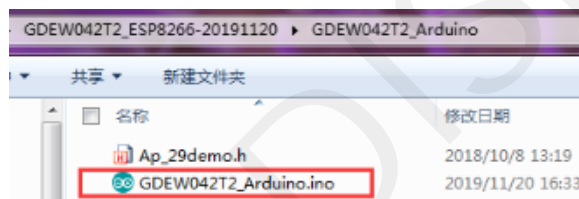


Figure 6 Open Arduino.ino

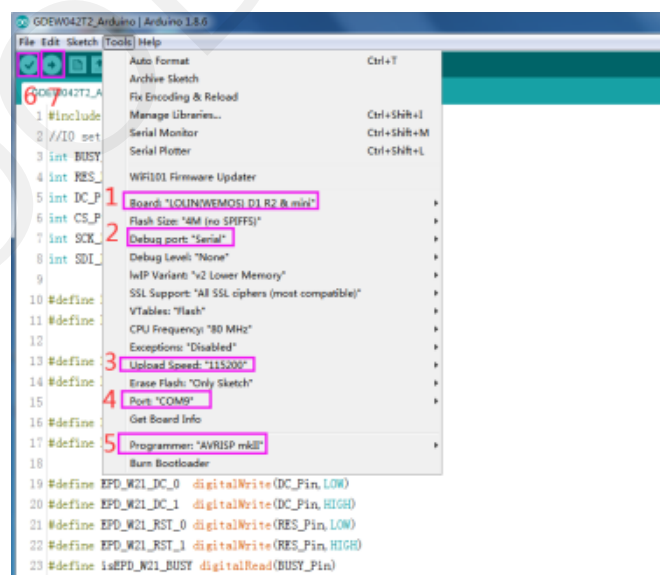




Figure 7 : Steps of downloading program

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.