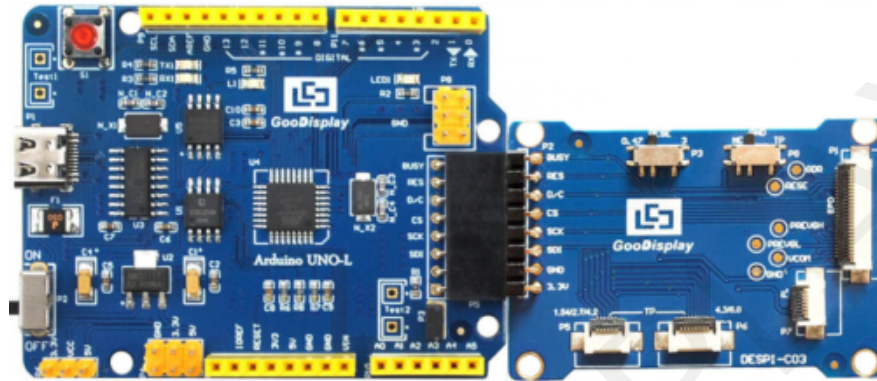




Evaluation Kit for E-Paper Display Arduino UNO-L(C03)

Dalian Good Display Co., Ltd.

Product Specifications



Customer	Standard
Description	Evaluation Kit For E-paper Display
Model Name	Arduino UNO-L(C03)
Date	2022/10/19
Revision	1.0

	Design Engineering		
	Approval	Check	Design
			

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1. Overview

Arduino is a simple I/O platform based on open raw code, using languages similar to Java and C. The Arduino language functions some of the parameter settings so that users don't need to know the underlying code. Arduino UNO-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.

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

2. Structure Specification

Parameter	Specification
Model	Arduino UNO-L (C03)
Platform	Arduino
Dimension	Mother Board: 70mm x 54mm (Arduino UNO-L) Adapter : 52mm x 36mm (DESPI-C03)
Power Interface	Type-C
Example Code	Available
Operating Temp.	-20 ~70 (-4 ~158)
Main Function	Learn to drive E-paper display; Test and evaluate E-paper display; Support secondary development
Additional Function	Type-C`dcfh, LED indicator light, Reset button, Font chip, Flash chip, Current detection

3. Diagram

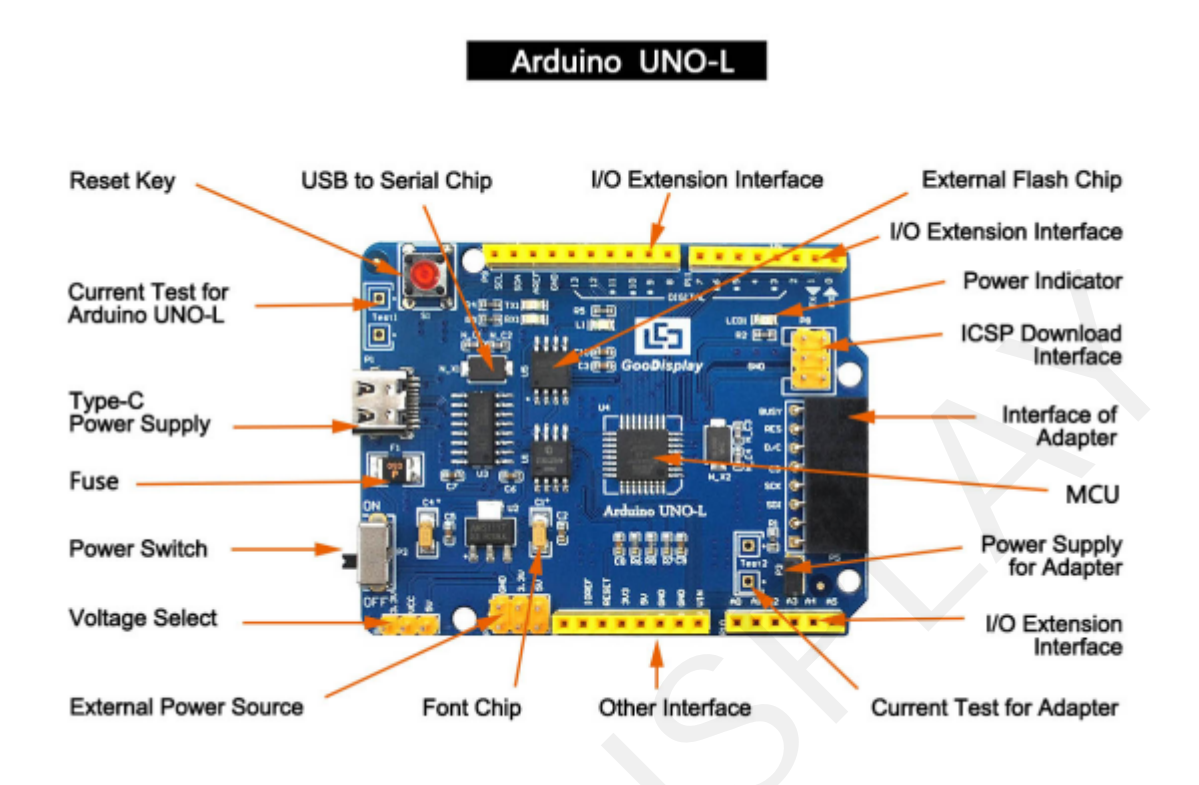


Figure 1: Arduino UNO-L

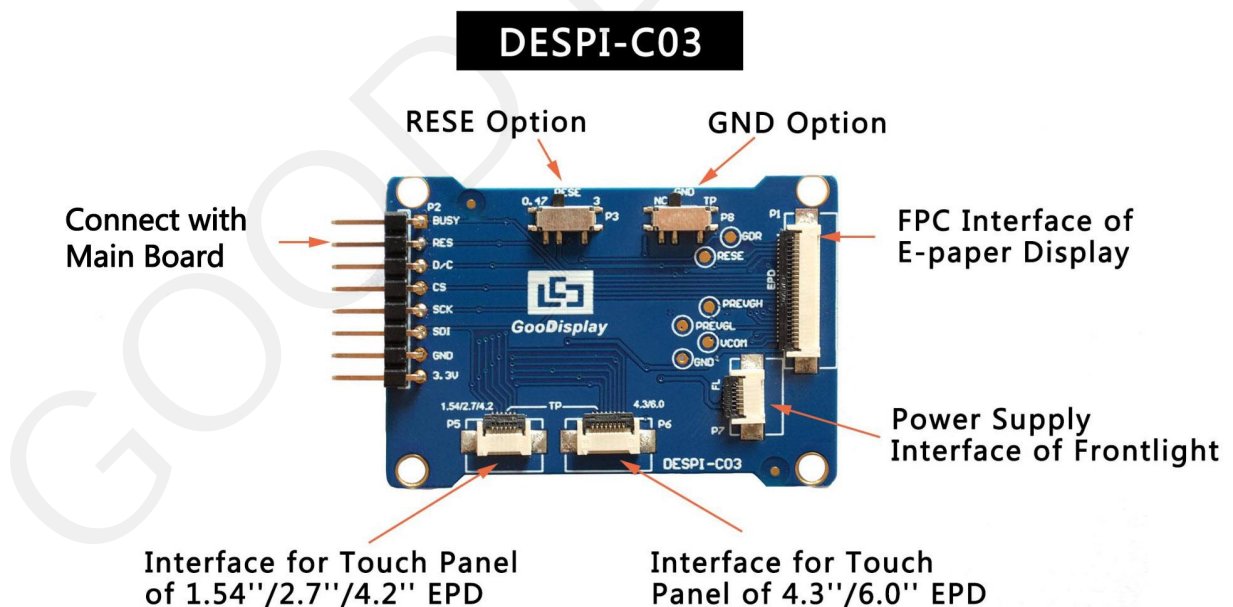


Figure 2: DESPI-C03

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

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 Arduino UNO for EPD and DESPI-C03.

- 1) Arduino UNO for EPD: 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

In addition to driving e-paper display, the adapter also supports 1.54 inch, 2.7 inch, 4.2 inch, 4.3 inch and 6.0 inch E-paper display touch screen and 3.3V front light.

In addition, at back it contains a Raspberry Pi interface, which can be connected to the Raspberry motherboard.

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 display and development board

1) Connect DESPI-C03 to Arduino UNO for EPD as shown in Figure 3. Connect e-paper FPC to DESPI-C03 as shown in Figure 4. (Pay attention to the direction of the e-paper display.)

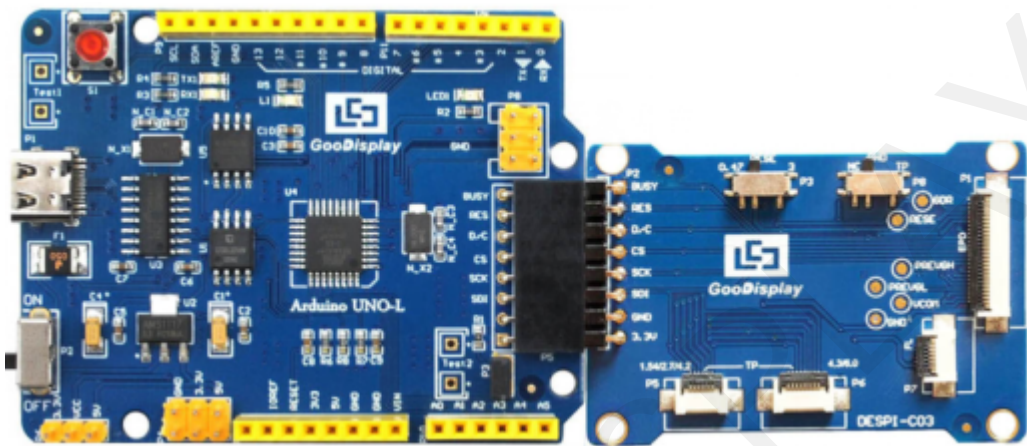


Figure 3 : Connection between Arduino UNO-L for EPD and DESPI-C03

4.2 Connection between e-paper and adapter board

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

Note: e-paper display mirror faces down and the FPC golden finger faces up

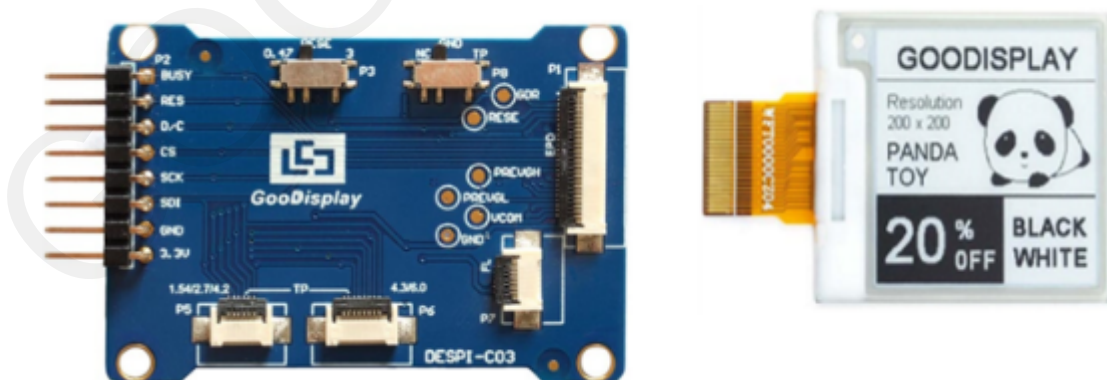


Figure 4.1 : Connection between DESPI-C03 and e-paper display

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

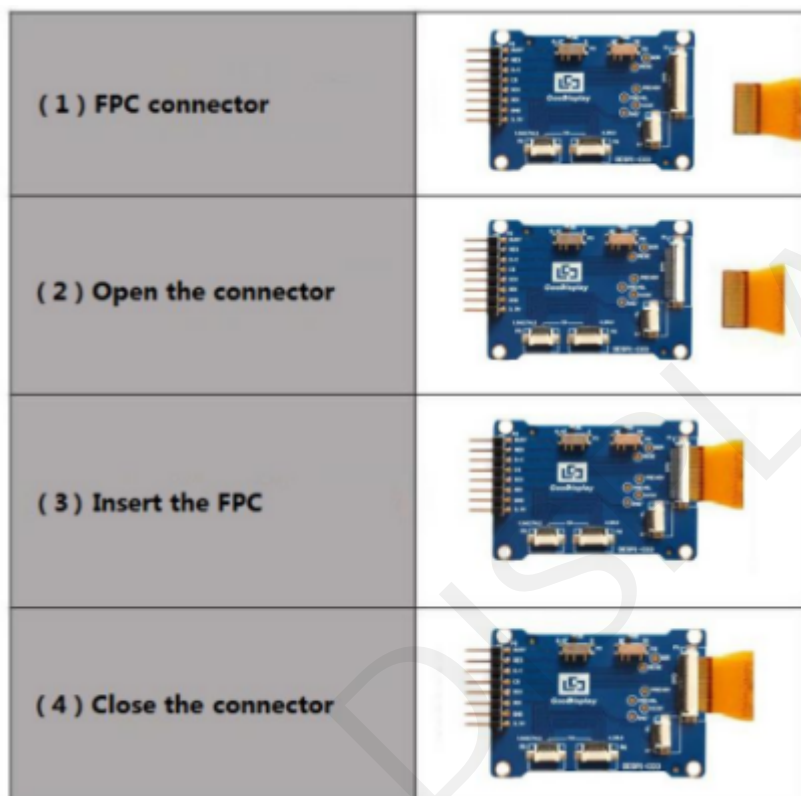


Figure 4.2 : Connection between DESPI-C03 and e-paper display

4.3 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 uses serial port to download the program, need to use data cable with micro USB interface, CH340 driver and Arduino programming software, the operation steps are as follows:

- 1) Install CH340 driver in computer before downloading for the first time.
- 2) Connect the micro USB port of the development board to computer with a USB data cable.
- 3) Open the Arduino.ino file in the folder shown in Figure 5 with Arduino 1.8.6.

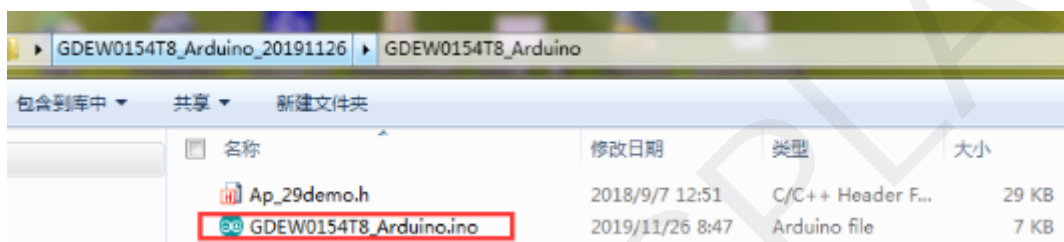




Figure 5 : Open Arduino.ino

- 4) Configure in "Tools" in Figure 6.
- 5) Select development board model " Arduino/Genuino Uno" in position 1 of Figure 6.
- 6) Select COM port in position 2 of Figure 6.
- 7) Select programmer model " AVRISP MKII" in position 3 of Figure 6.
- 8) Click position 4  of Figure 6 to compile the program.
- 9) Click position 5  of Figure 6 to download the program to development board.
- 10) After downloading successfully, power off the development board, connect the e-paper display to DESPI-C03 and re-power the development board. Then the E-paper can display the image normally.

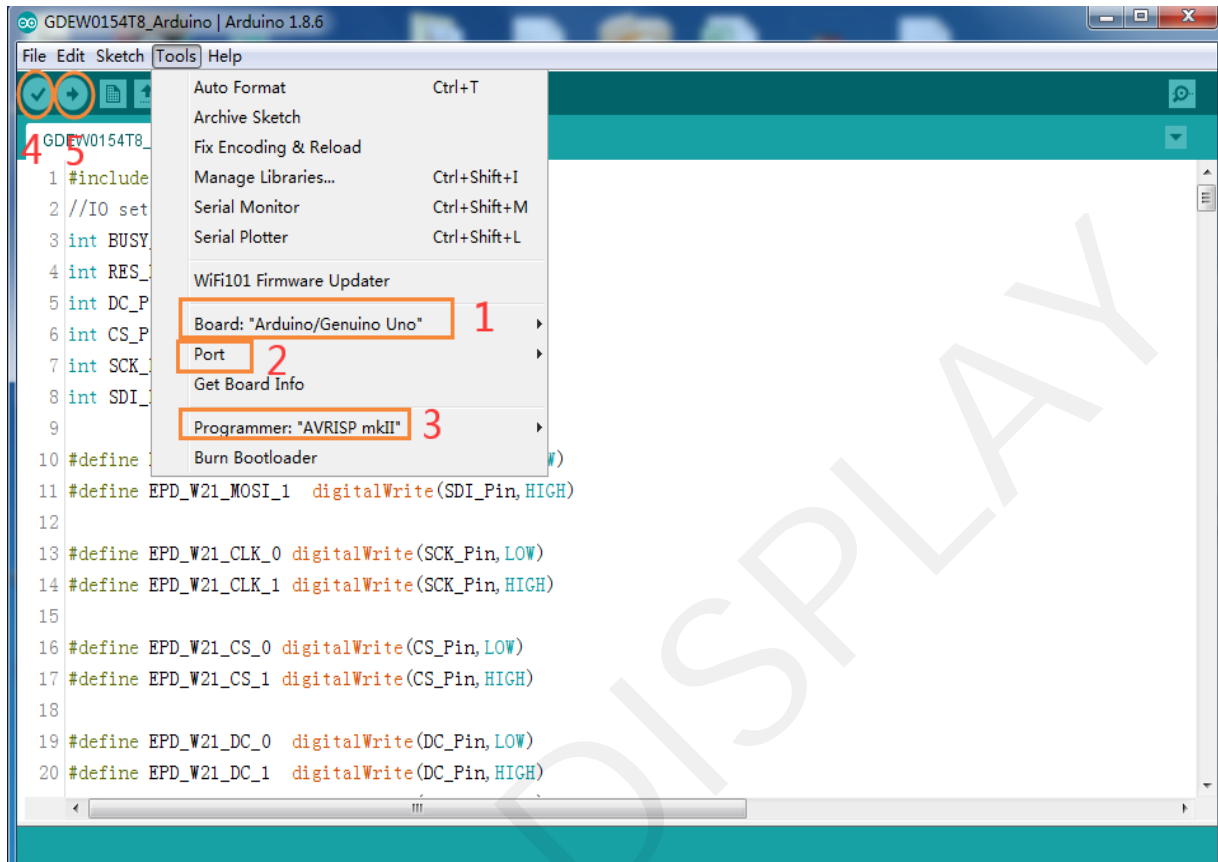


Figure 6 : Steps of downloading program