User Guide Standards

7.0″ ePaper Display (VD1400-GOE)

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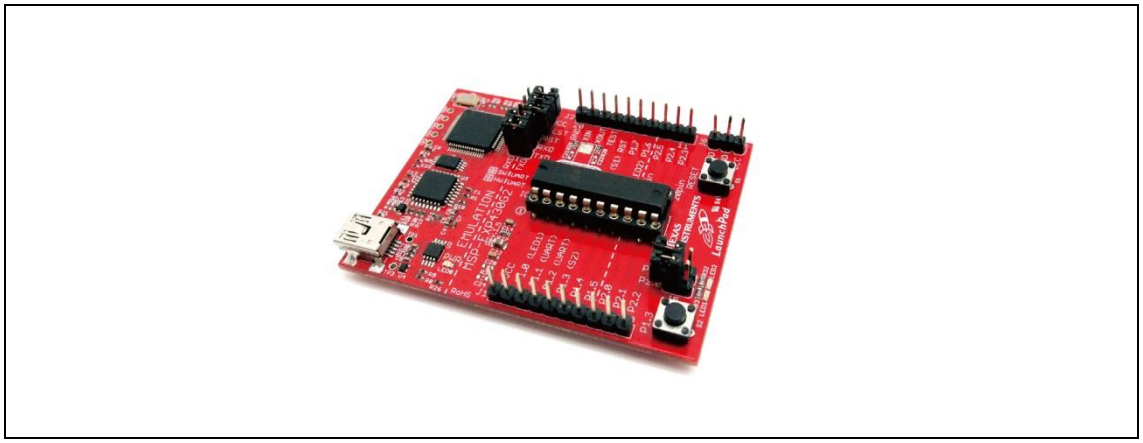
1 Hardware Guide

(1) Hardware Requirements

Buy a set of MSP-EXP430G2 from Digi-Key

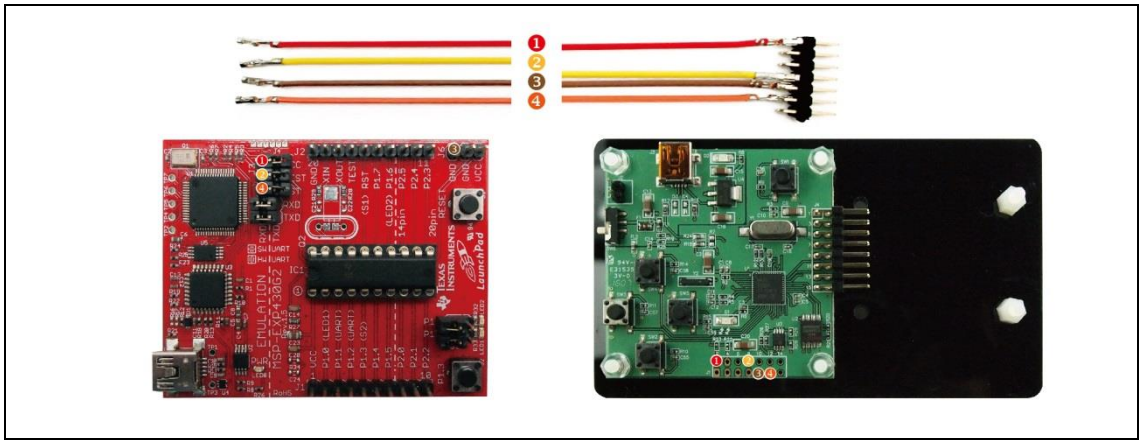
You will get following stuffs in the package



MSP-EXP430G2

(2) Hardware Installation

The programmer need the jump line as the picture below



Connect to MSP430 and HULK MCU board

- Please connect the Dupont line from J3 (VCC pin) of MSP430 LaunchPad to J1's 2nd pin of HULK
- Please connect the Dupont line from J3 (TEST pin) of MSP430 LaunchPad to J1's 8th

pin of HULK

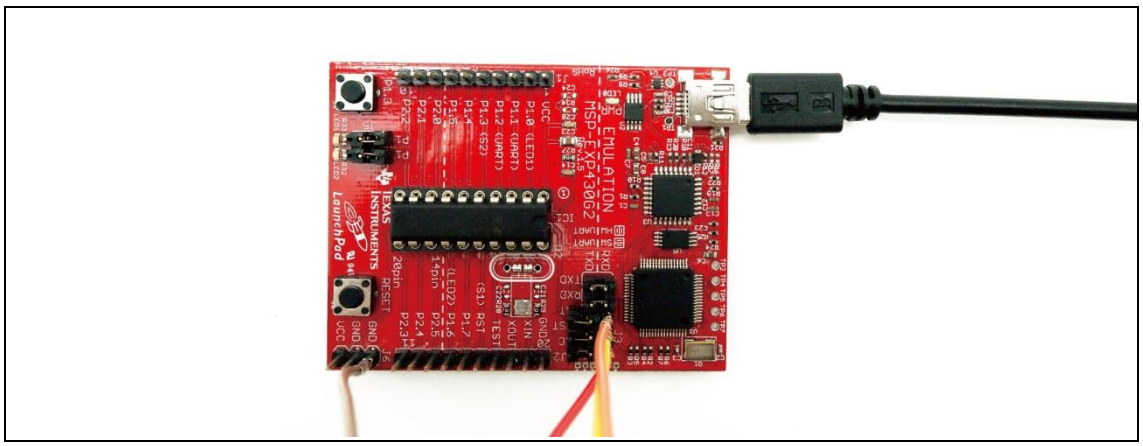
- Please connect the Dupont line from J3 (RST pin) of MSP430 LaunchPad to J1's 11th pin of HULK
- Please connect the Dupont line from J6 (GND pin) of MSP430 LaunchPad to J1's 9th pin of HULK

Please pay attention! It must remove the HULK's adapter board when updating Firmware.

When you update Firmware, please confirm if the D2(power indicator) or D2(power indicator) and D1(data indicator) of HULK are lighted.

- It can update Firmware when indicators are lighted.
- If the indicators are not lighted, please confirm the connect again.

Refer to following figure to setup MSP-EXP430G2 and connect it to your PC



Connect to PC

2 Software Guide

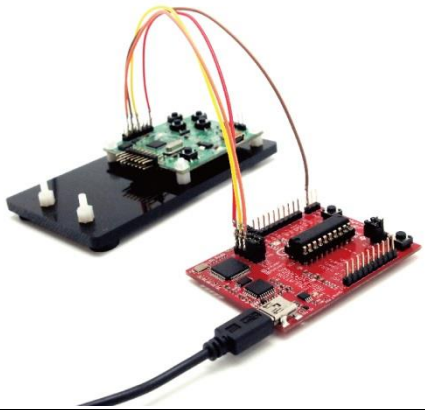
(1) Software Requirements

Refer the guideline in following FET-Pro430 Lite website to download and setup driver of MSP-EXP430G2

https://www.elprotronic.com/pages/downloads

FET-Pro-430	
Inst. package for FET-Pro-430, includes GUI, DLL, and supporting material. **Standard**. V3.51 (TI-DLL V3.14.00.00) (21.Jun.2019)	
Inst. package for FET-Pro-430-LITE, includes GUI, and supporting material. **Lite**. V3.51 (TI-DLL V3.14.00.00) (21.Jun.2019)	

Refer to following figure to connect MSP-EXP430G2 with your PC and HULK together.

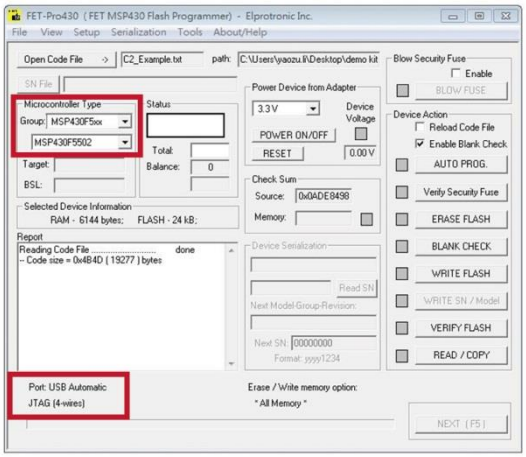


Connect to PC

(2) Firmware Update by Application Software

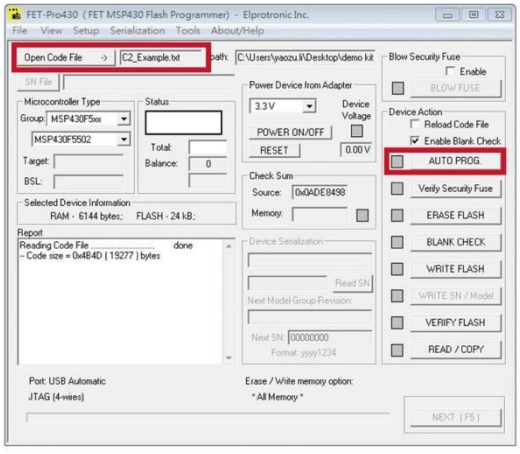
Press drop-down menu "Microcontroller Type" to select a MCU model MSP430F5502

Please check "Port USB Automatic" to select 4-wires

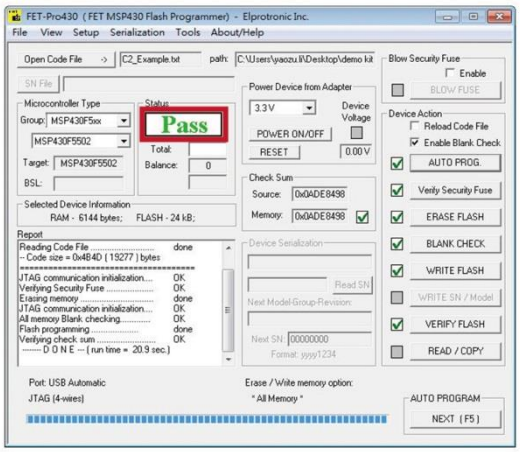


Press "Open code file" button to select a firmware file (.txt)

Press "AUTO PROG" button to update the firmware into MCU



Show the Pass is firmware update ok.



ePaper Display Update SOP

1 Introduction

HULK - demo kit, with 7.0" ePaper display (EPD) – VD1400-GOE, allows E Ink clients to access hardware and software for evaluation. This kit demonstrates as a turnkey solution for those who are interested in designing with E Ink displays. Hardware and software design support is available from E Ink directly.

7.0" EPD is suitable for various applications, e.g. Logistics box.

The low power consumption of the VD1400-GOE is ideal for applications such as electronic shelf labels and indicators.

An All-in-one IC is embedded in the EPD, it include source/gate driver, TCON (Timing controller), PMIC(power management IC) and Temp. sensor. It allows users to rapidly design systems by using E Ink displays.

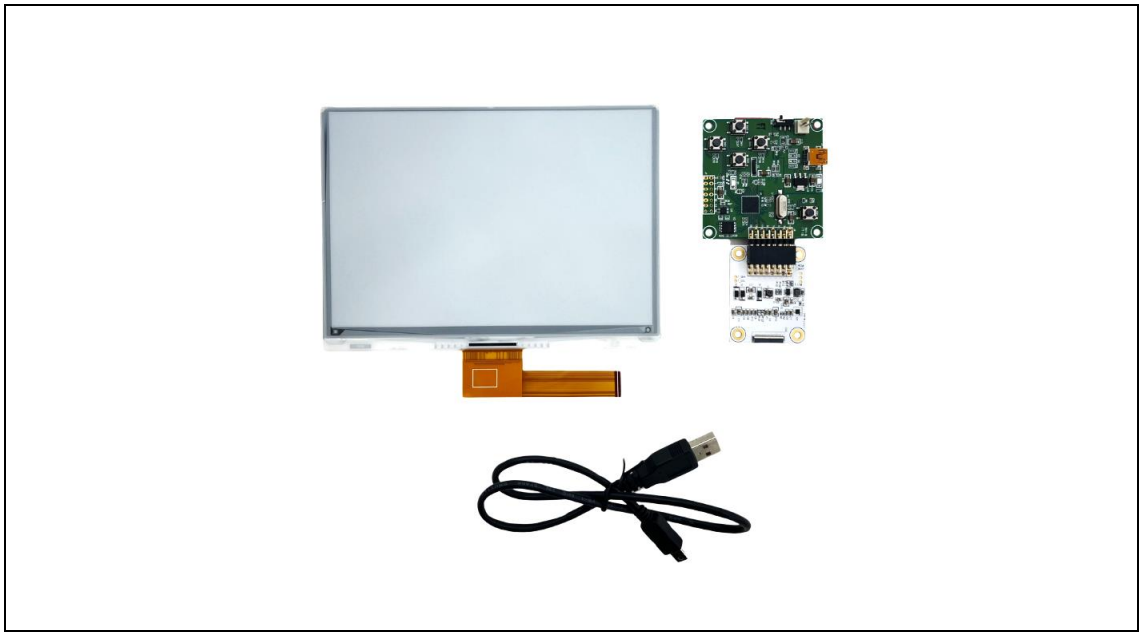
The kit allows E Ink clients to experience loading and viewing custom images on 7.0" EPD. The use of MCU board to drive an E Ink EPD is demonstrated with the kit.

IAR Integrated Development Environment (IDE) is adopted to write, download, and debug an application.

(1) Package Contents

This demo kit contains the following:

- Thor Driving Board
- Loki Accessory
- 7.0" EPD
- Mini USB cable

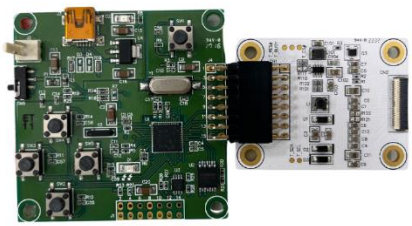


Specification

Item	Specification
MCU	MSP430
TCON Solution	Hardware TCON
E Ink Display Panel	
Dimension (W × H × D, unit: mm)	157.5(H) x 113.6(V) × 0.82 (D) (without masking film)
Shape	Rectangle
Resolution	960(H) x 640(V)
Controller Board	
Input	5V(USB), power on when connected to PC

2 Hardware Guide

(1) Hardware Requirements



MCU board

EPD panel

Mini USB cable

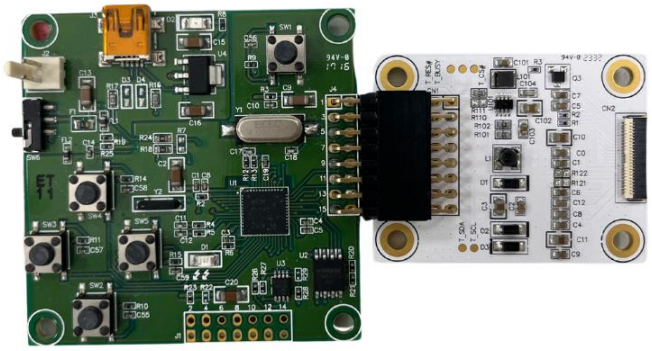
Windows PC

Minimum PC Requirements

CPU	Pentium III 800 MHz or later
RAM	128MB or greater
Required Software	Windows XP
Interface	USB port

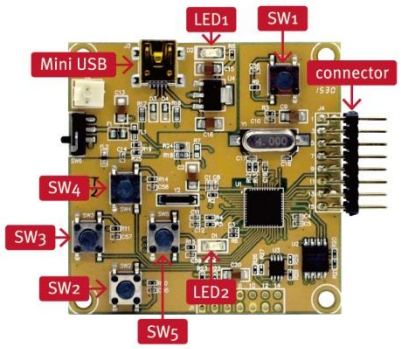
(2) Demo Kit Hardware Description

The _7.0" demo Kit includes an MCU board and an E Ink display adapter board. The MCU board and E Ink display adapter board are connected via a 16 pin header. The mini USB port on the demo kit supplies data and power to the MCU board and E Ink panel. Using the E Ink PC application, users can send image data to the board or update settings.



Demo Kit

There are two LEDs on the MCU board, LED 1 and LED 2. LED 1 indicates the board is powered. LED 2 is used as a multi-purpose function light



MCU Board for Demo Kit

* When LED2 is light on, EPD can't accept any command

Four push button switches are also on the MCU board. The table below provides a short description of the functions for each button.

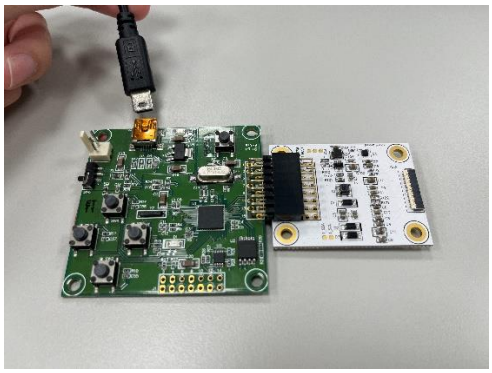
Description of button functions

Button	Function
SW1	Reset
SW2	Next image
SW3	Slide Show Mode
SW4	Previous image
SW5	White/Black image

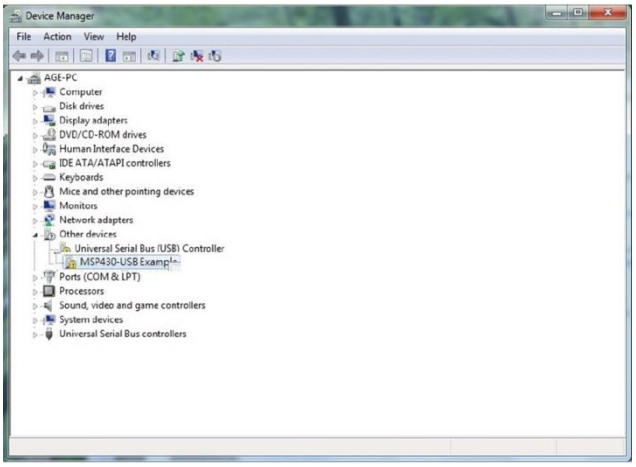
(3) Hardware Installation

The 7.0" demo kit is connected to a PC via a mini USB cable. The PC requires a USB driver to be installed on the PC.

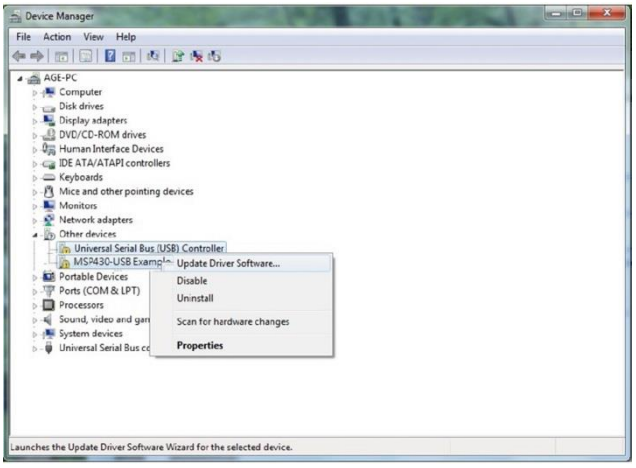
Connect one end of the mini-USB cable to the 7.0" demo kit and other end to a USB port on a PC.



Open Device Manager on the computer. A new device called **MSP430-USB Example** should be in the list. If this is the first time setting up the hardware, installation of the device driver is required.

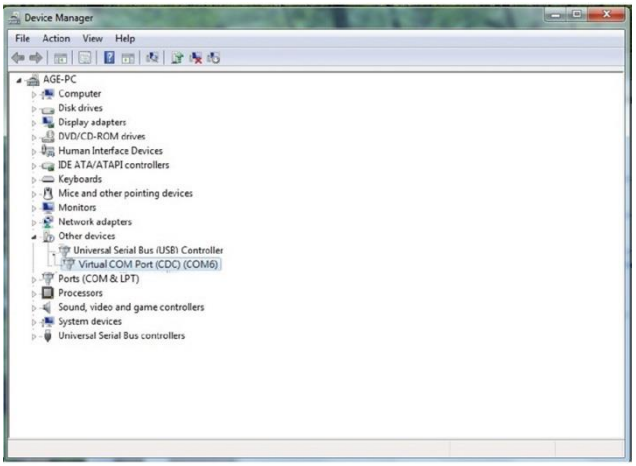


To install the device driver for **MSP430-USB Example**, double click on the device to bring up the device Window. Click on "Update Driver" and select the file "HULK-USB-Driver.inf".



* This driver has been tested on Windows 7 64-bits

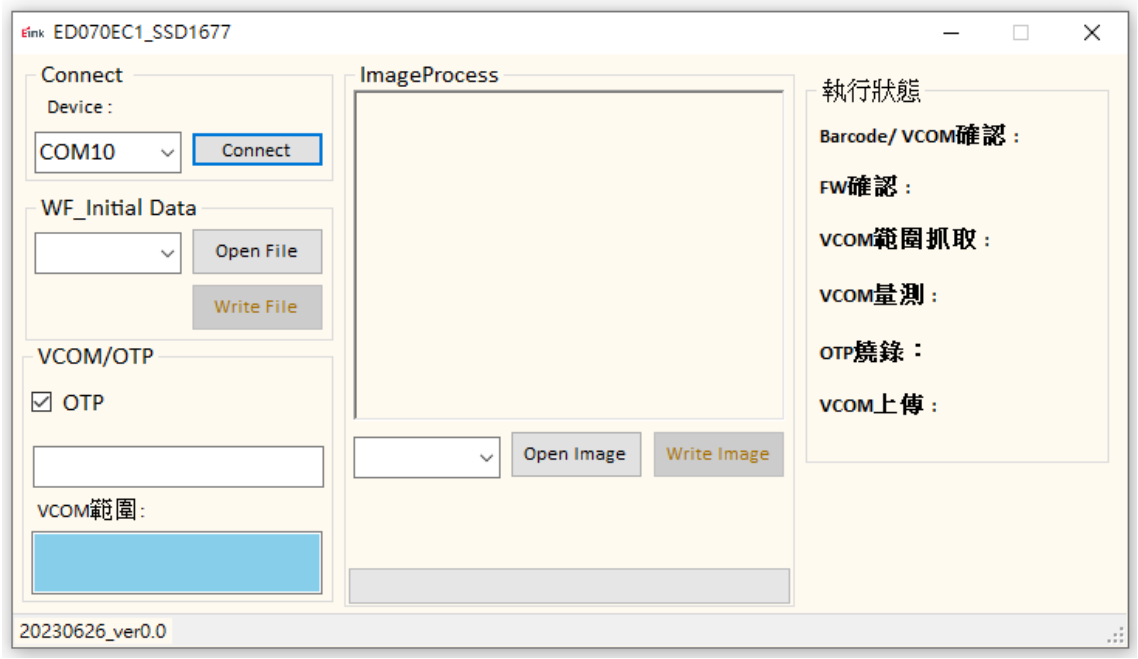
To verify the installation of the driver was successful, a new device called **Virtual COM Port (CDC)** should be present under **COM LPT.**



3 Software Guide

(1) Demo Kit Connection

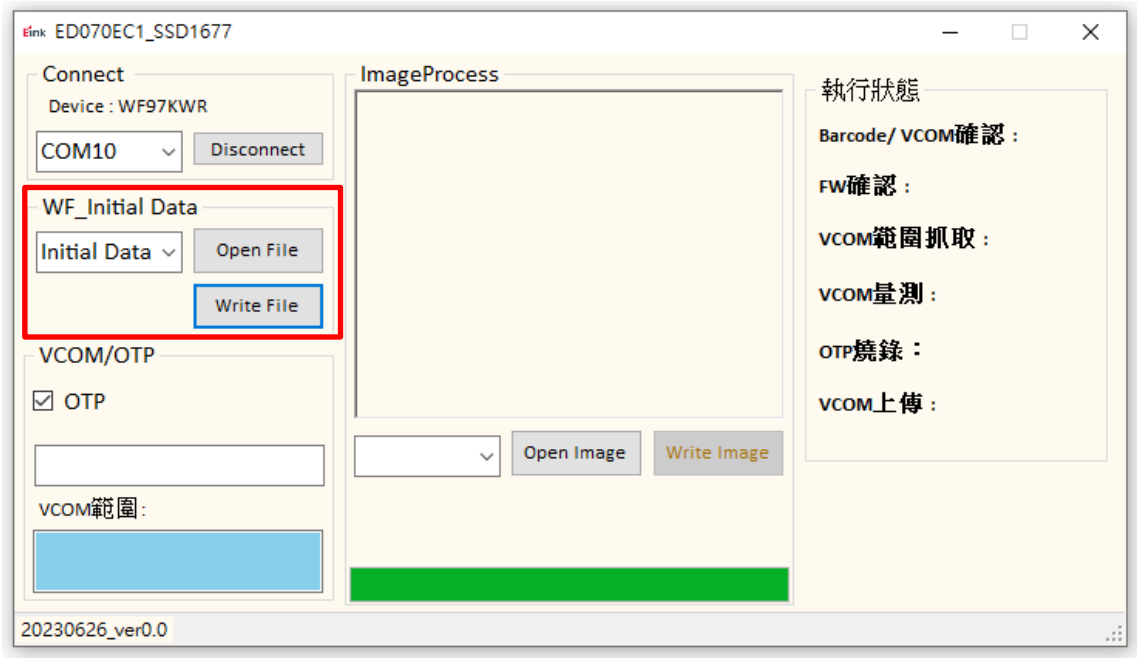
- Open ED070EC1.exe
- If connection is correct, the COM port number will show up.
- Select the COM port and press "Connect"



* If connection is incorrect, the COM port will show COM1~COM6 (Please check driver for the EVK)

(2) Update Initial Data

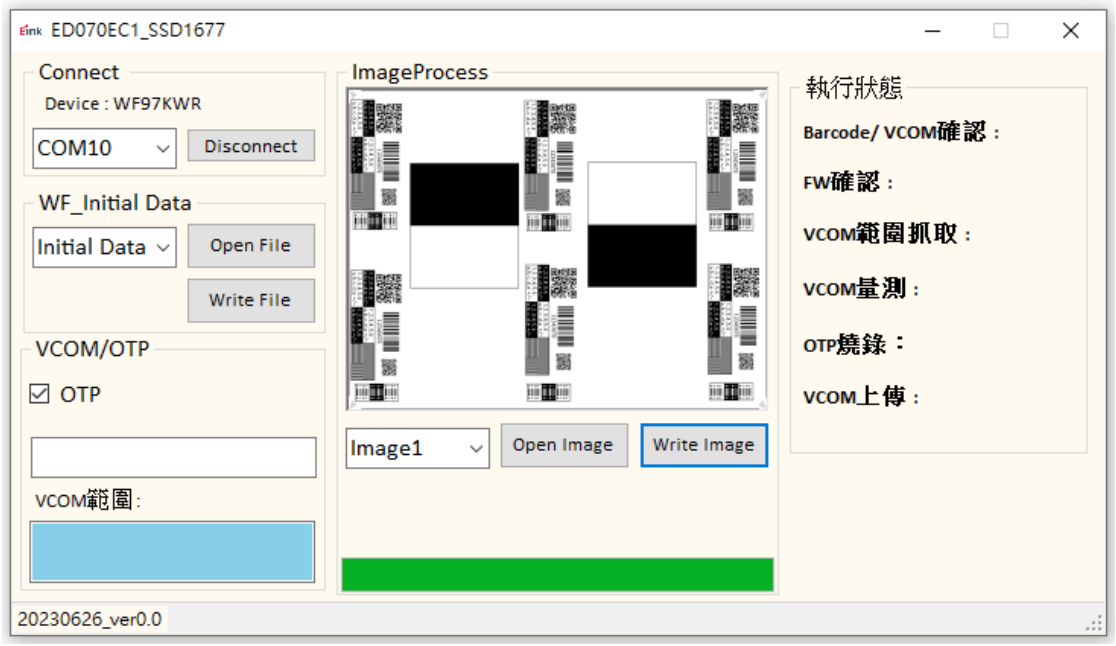
- Select "Initial Data"
- Press "Load file" to select a Initial file (.eink) that you want to use for the EPD.
- Press "Write data" to update Initial file into the kit



* After Initial Data are updated, you should press “disconnect” and un-plug/plug Mini USB to restart the kit. If update is successful, the device name(WF97KWR) will show up

(3) Uploading Image

- Press "Load_Image" to select an image
- Select "image 1" ~ "image 5" to decide display sequence
- Press "Write_Image" to update image into the kit



* After all image are updated, you should press “disconnect” and un-plug/ plug Mini USB to restart the kit.

4 Troubleshooting

Below lists commonly asked questions.

Num	Name	Description
1	7.0" demo kit is not detected by the PC	Cause: USB cable is damaged
		Solution: Replace the USB cable
2	Demo kit connection fails	Cause: Progress bar is not completed
		Solution: Disconnect the demo kit from Mini USB and restart ED070EC1.exe
		Cause: USB cable is damaged

5 Contact Information

For more information, please visit

http://www.eink.com

For sales office addresses, please visit

http://www.eink.com/contact_sales.html

6 Legal Information

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- Revision History

Version	Date	Pag	Description	Author
0.1	2024/9/18		Initial	Jennifer Chen