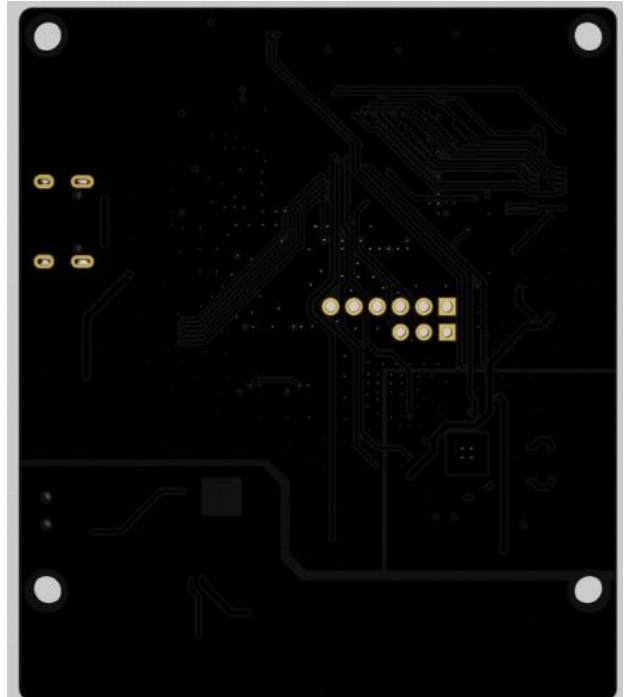
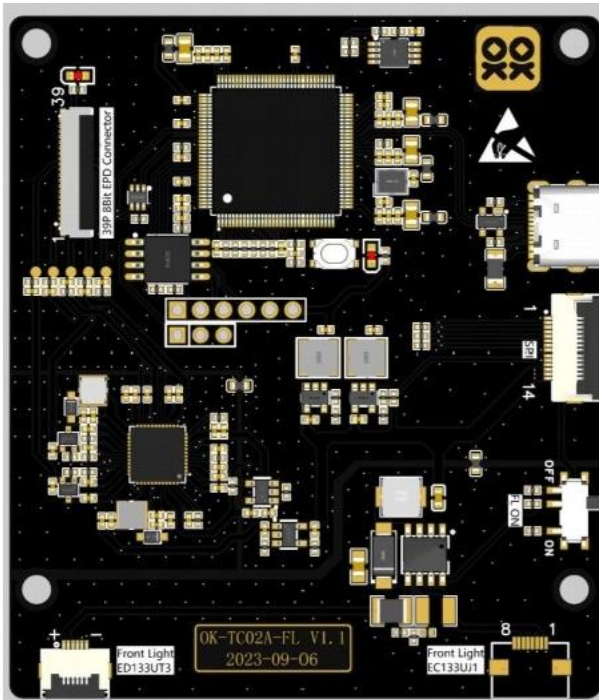


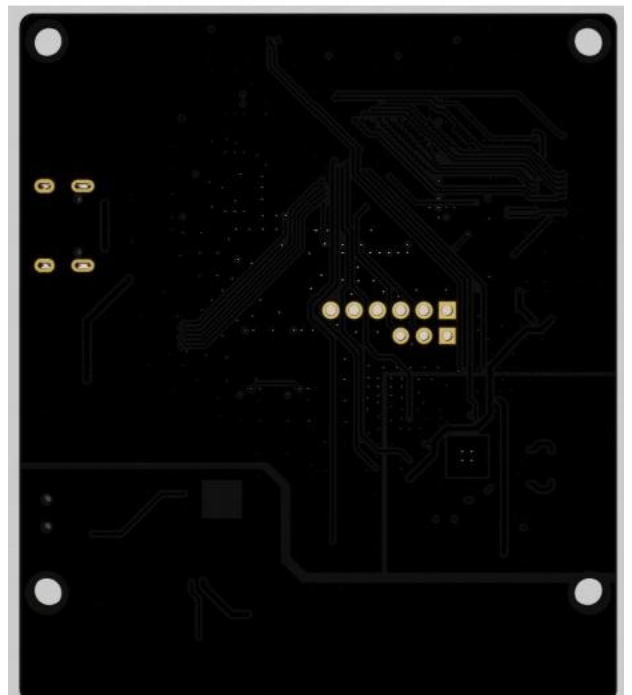
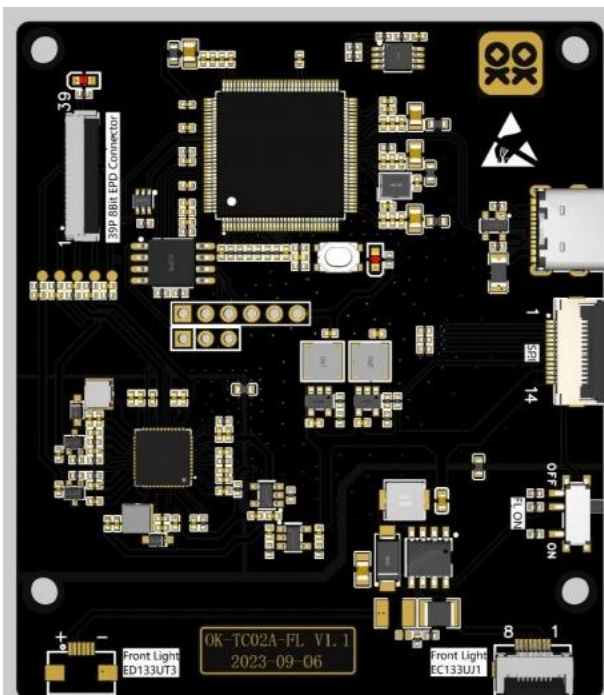
OK-TC02A User manual

Foreword

- OK-TC02A is a TCon [Timing Controller]board specially developed by [Shanghai OKRA Technologies CO,LTD.](<https://www.okratechnologies.com>)for 13.3-inch black&white and Kaleido color E-paper display(EPD).
- OK-TC02A provides 8bit 39P TTL interface,which can directly drive ES133UT2,ED133UT3, EC133UJ1 and other EPDs.
- OK-TC02A provides USB/SPI interface for connecting to host computer (PC or Linux platform or microcontroller)
 - o OK-TC02A-KW- for ED133UT3 with front light module



- o OK-TC02A-Kaleido -for EC133UJ1

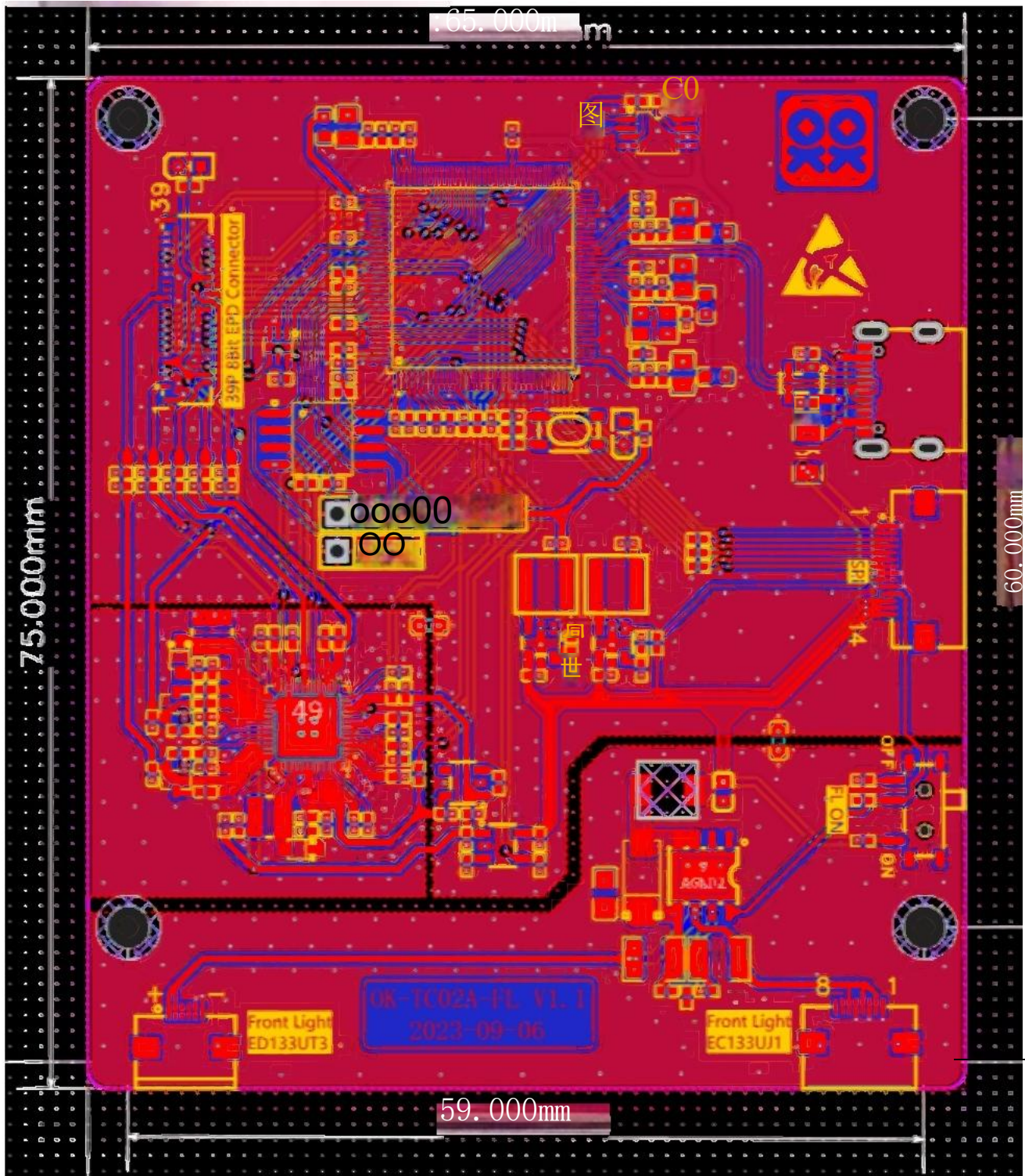


Product Features

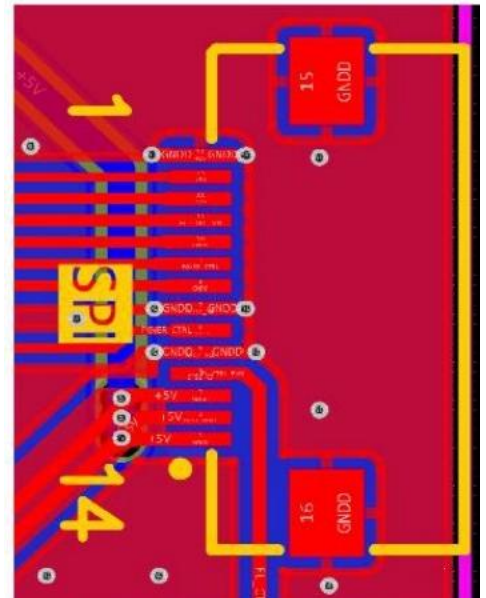
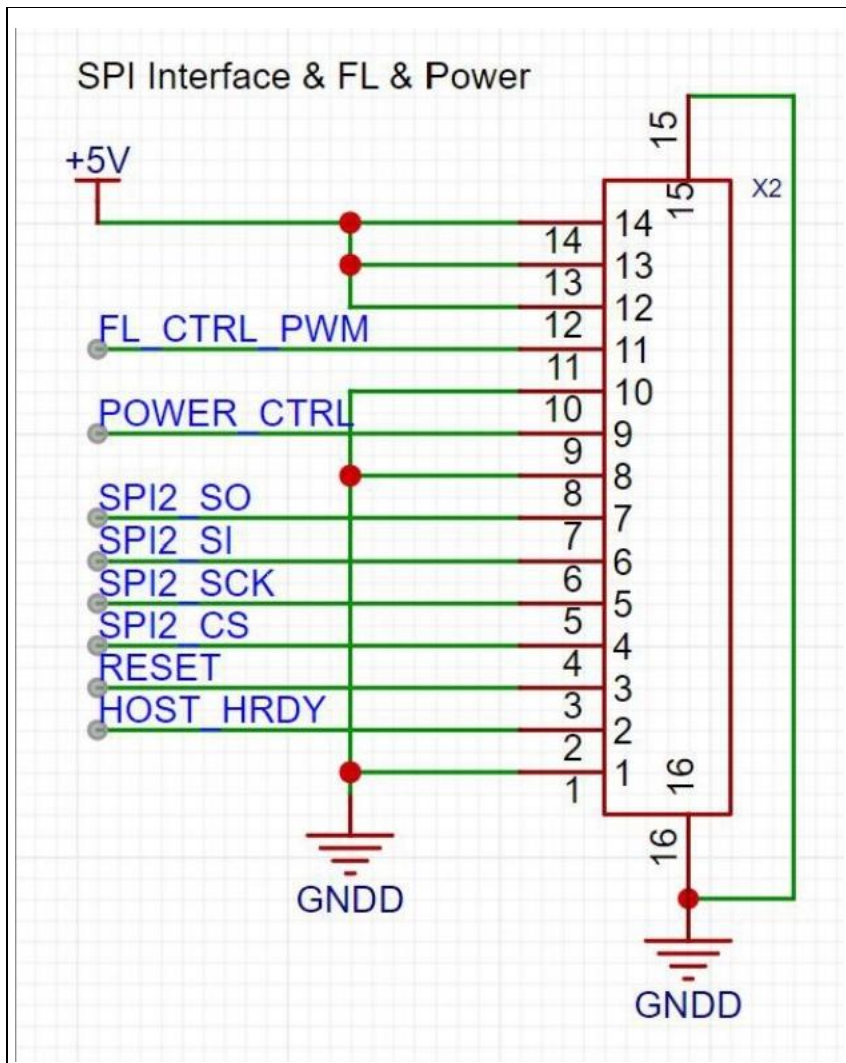
- Working voltage:5V
- Communication interface:USB,SPI (14P)
- Display color:black and white (16 gray levels),also supports Kaleido color.
- Full refresh time:480ms (depends on Waveform)
- Partial refresh time:120ms (depends on Waveform)
- EPD interface and supported models:
 - o39P(8bit):ES133UT2、ED133UT3、EC133UJ1

Product Size

OK-TCO2A outline dimension is 65x75mm.



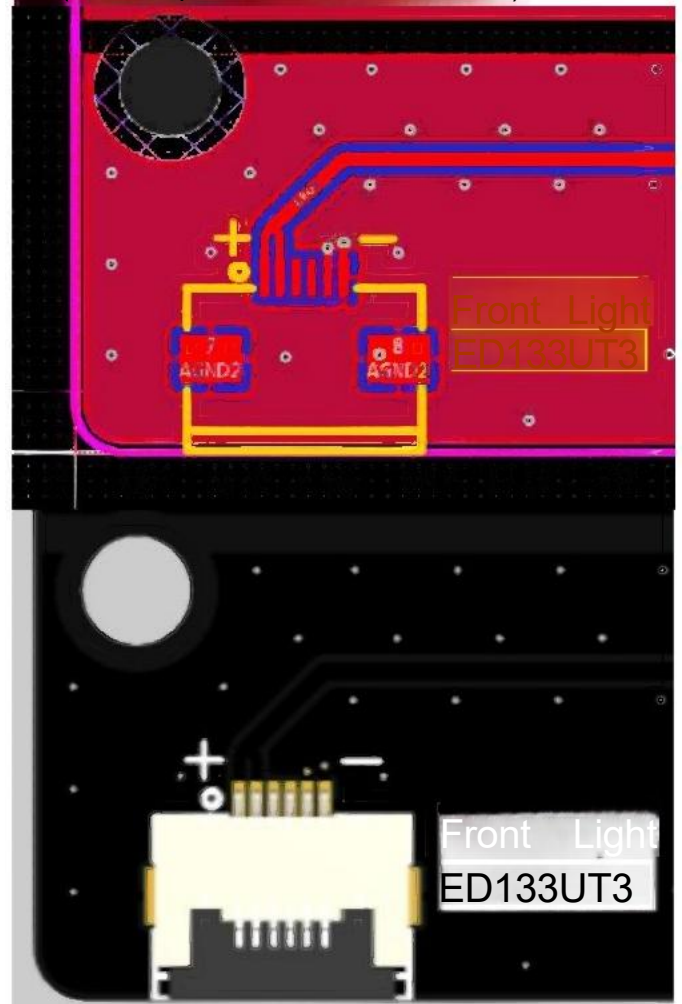
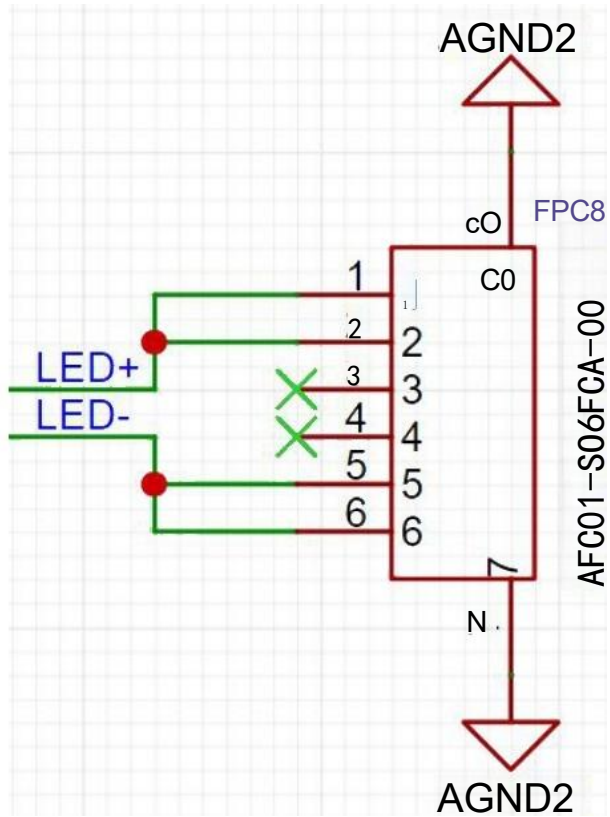
SPI interface pin definition



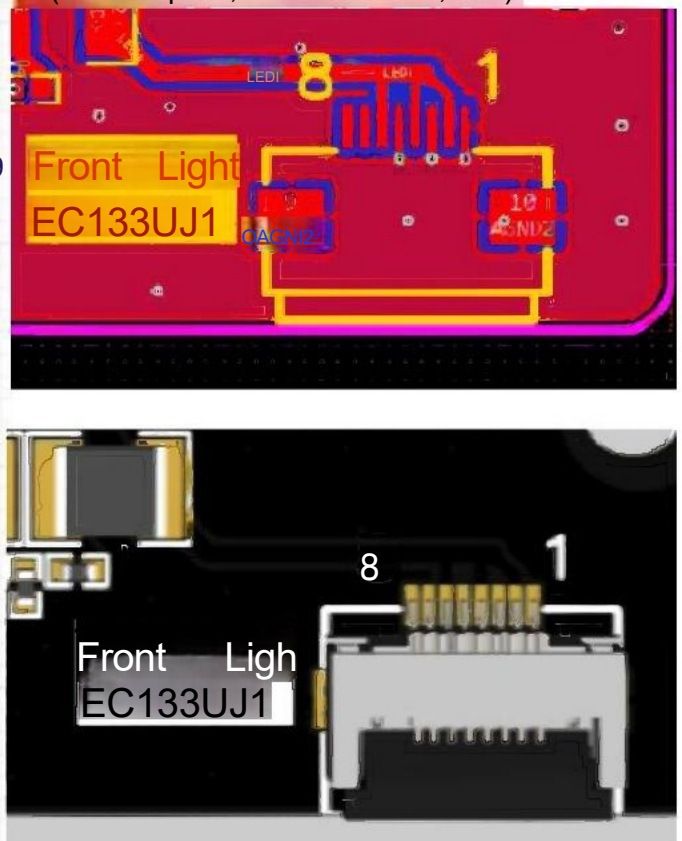
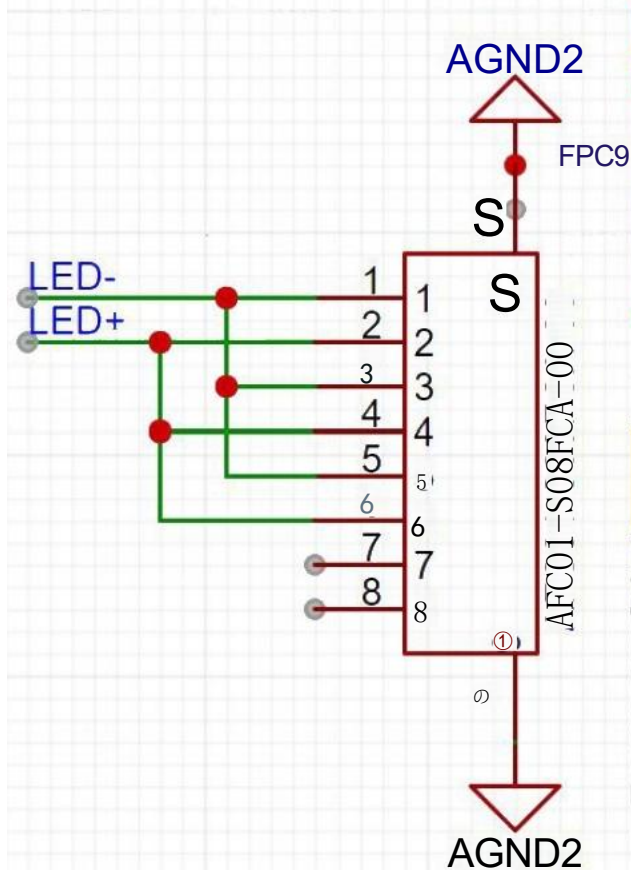
- Interface specifications are:14Pin,0.5mm pitch,bottom contact
- FL_CTRL_PWM is the front light control pin.Can support switching signal or PWM signal (PWM frequency 100~100KHz).You can also manually control the front light on and off through the onboard toggle switch.
- POWER_CTRL is the total power supply of the TCon board and can only be used when using the SPI interface.High level is on (default on),low level is off
 - *The 5V power supply must have full 5V/2A power supply capability,otherwise insufficient power supply may occur.When using the SPI interface,the USB interface can be used to assist in power supply.

Front light interface pin definition

·ED133UT3 EPD Front light interface pin definition(0.5mm pitch,bottom contact,6Pin):



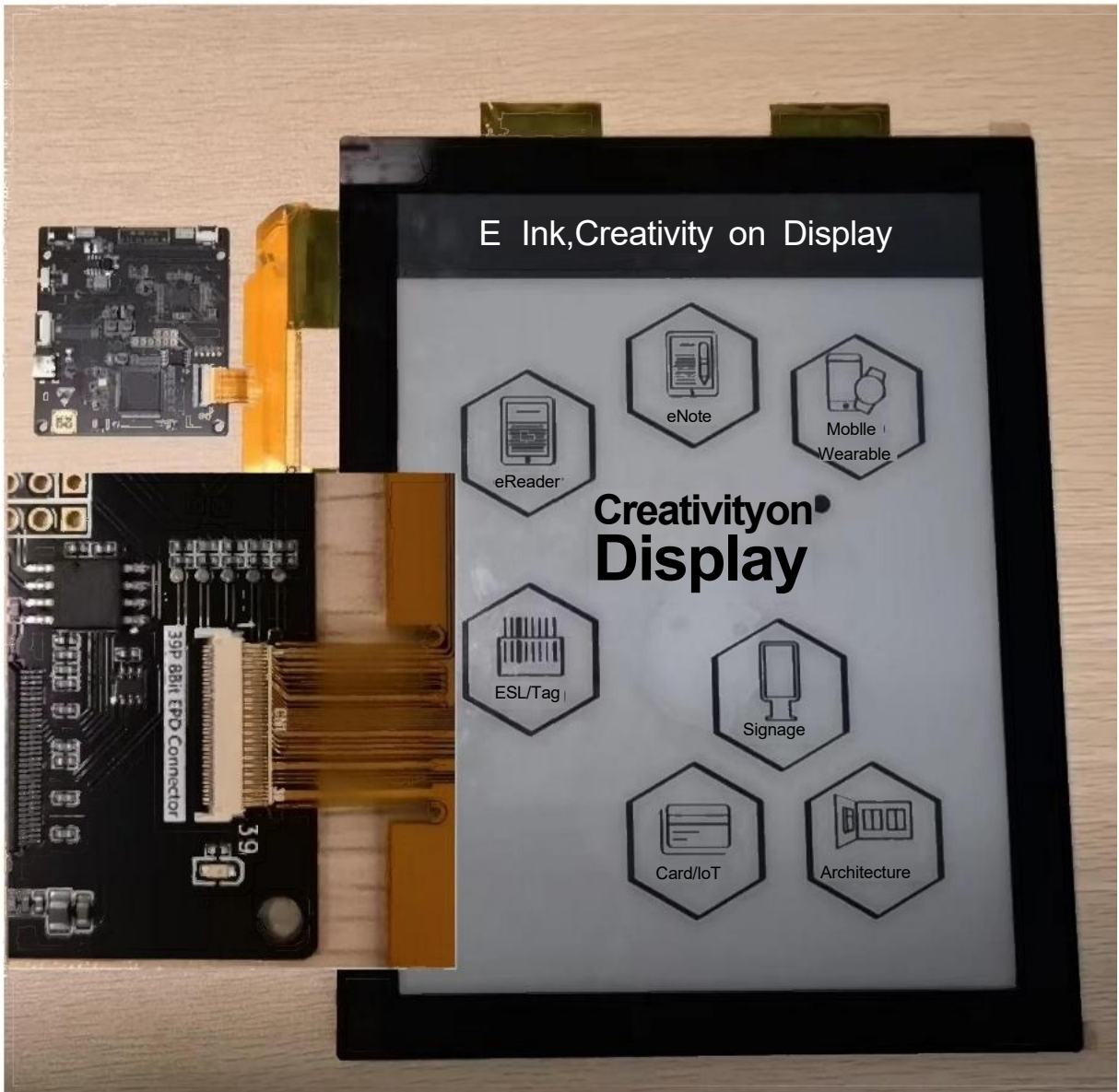
·EC133UJ1 EPD Front light interface pin definition(0.5mm pitch,bottom contact,8Pin):



Usage steps on PC

·Step 1.Connect the EPD and OK-TC02A Tcon board as shown below.

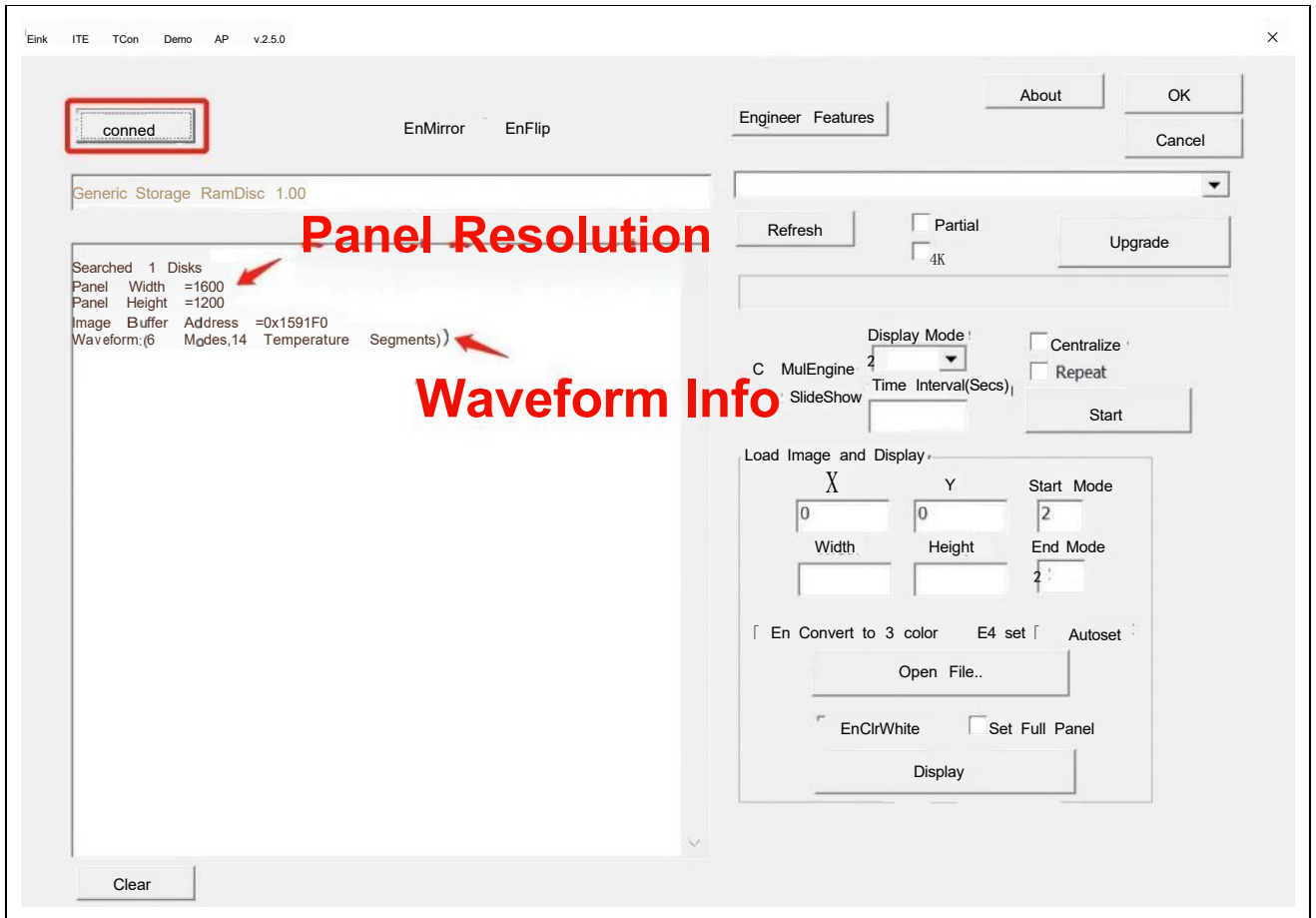
o ED133UT3 Connection method:



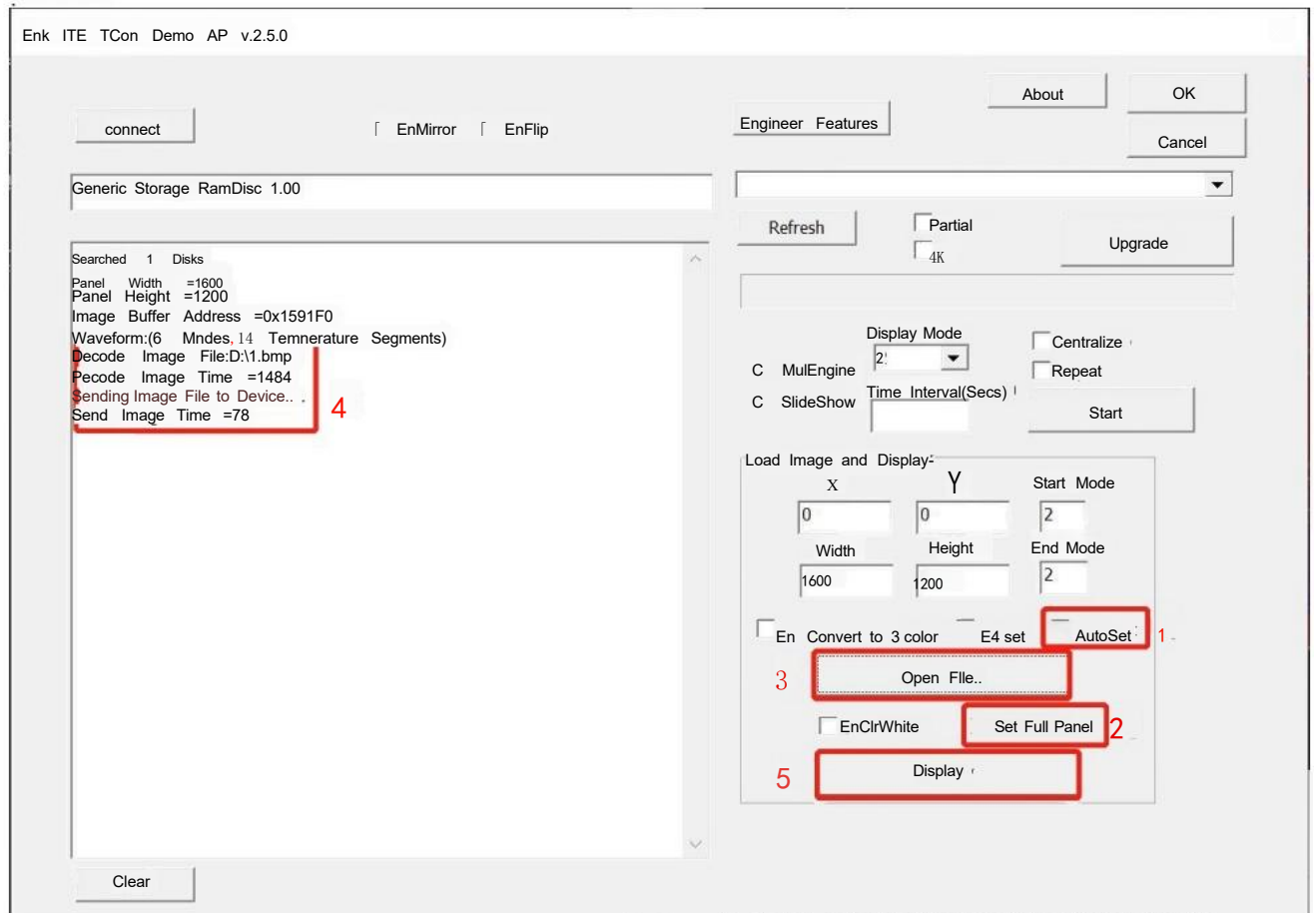
·Step 2.Connect the USB interface of the TCon board to the USB port of the PC.(If an unformatted disk pops up,please click Cancel)

·Step 3.Open [DemoAP test program](#).

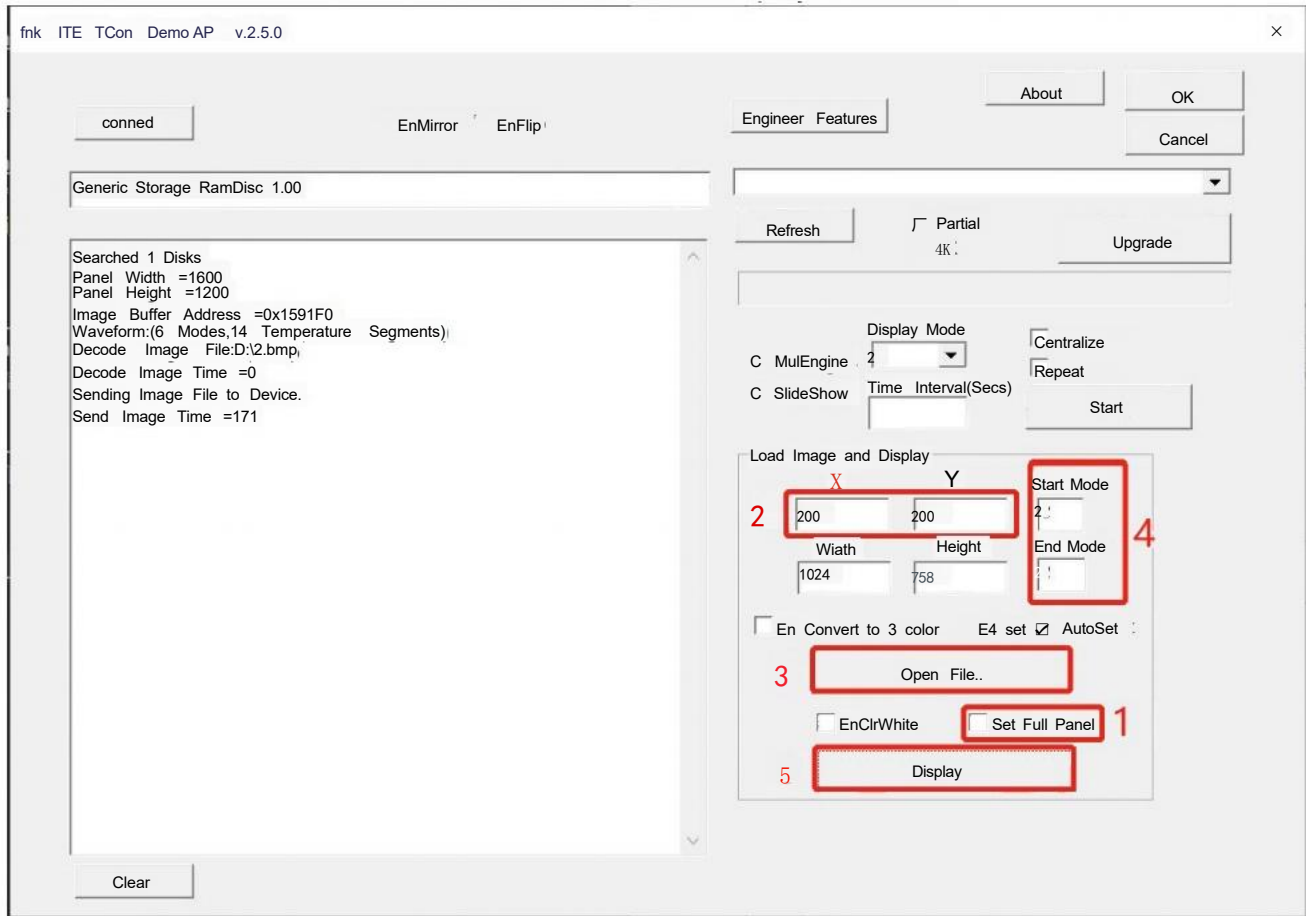
·Step 4.Click Connect.The normal display is as shown below.



Step 5. Select AutoSet, Set Full Panel, and click Open File to select the picture corresponding to the EPD resolution. The Log window will output corresponding information, prompting that the image has been sent to TCon. Click Display at this time, and EPD will display the corresponding picture.

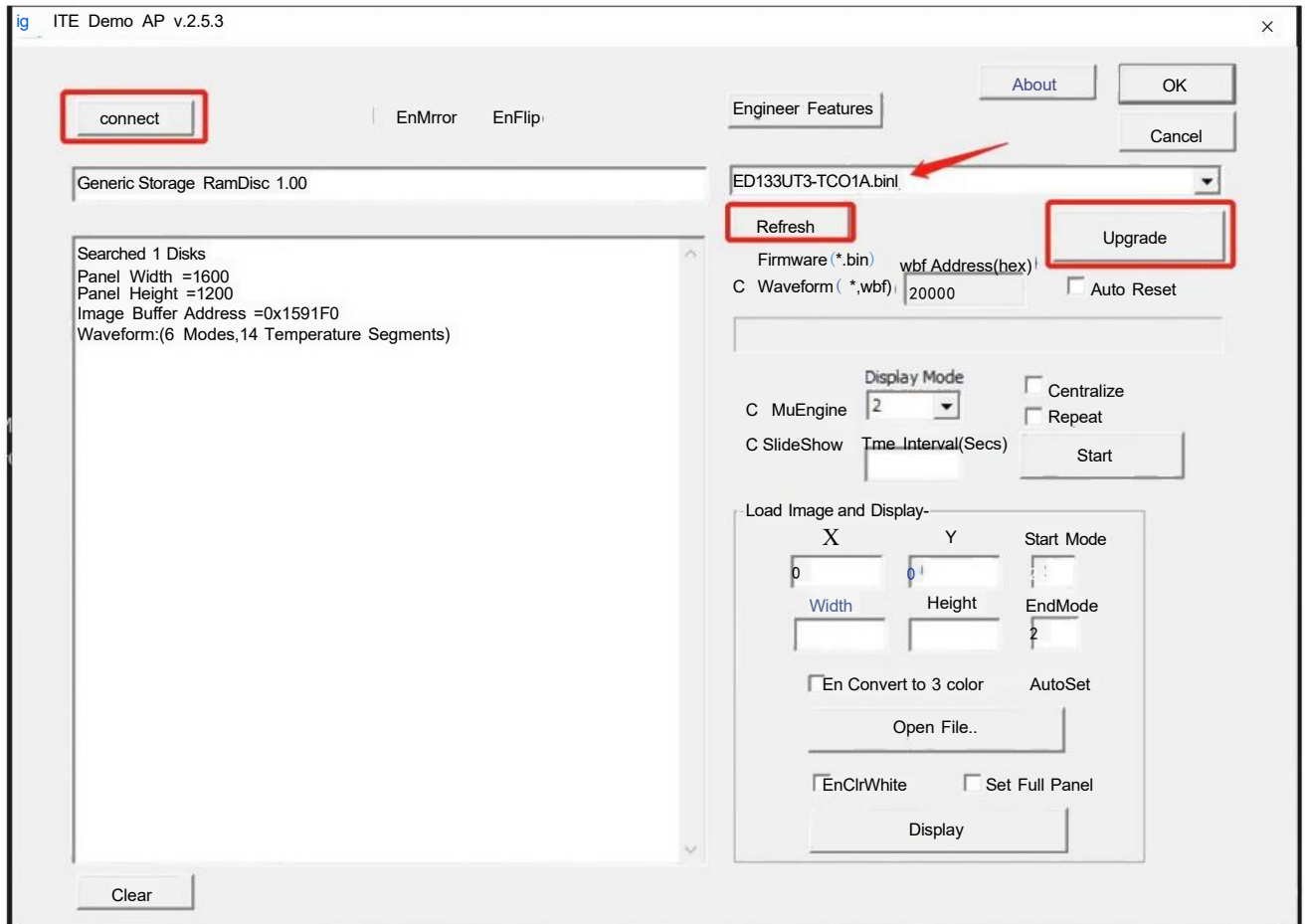


Step 6. **Partial refresh method:** Deselect Set Full Panel. Set the display position of the bureau brush image as shown in the figure below. Click Open File to select the picture you want to brush (pay attention to the resolution and display coordinates of the picture, do not exceed the screen resolution). Select the refresh mode and click Display to refresh.

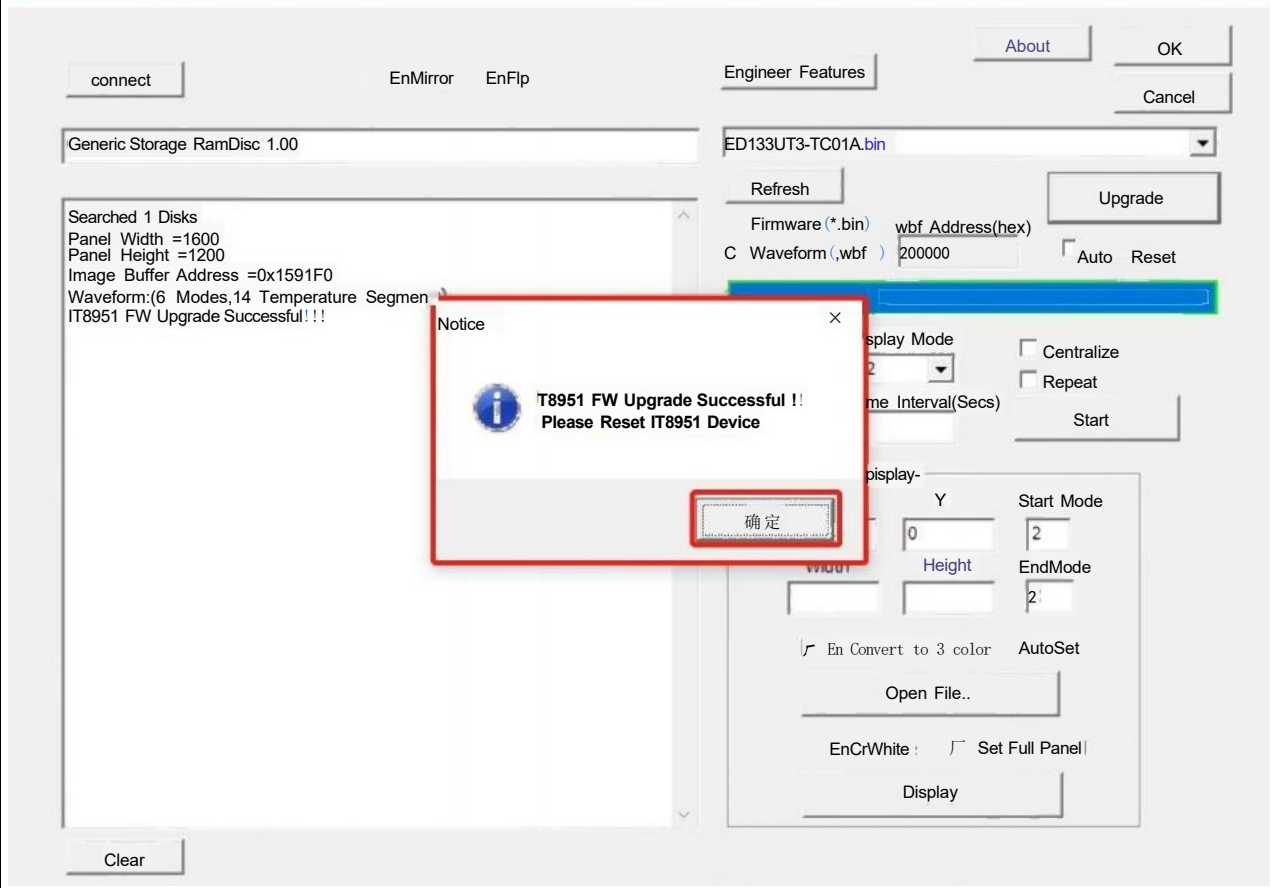


Steps to update OK-TC02A firmware on PC

- Step 1.Copy the firmware that needs to be updated to the same directory as DemoAP.(Please contact OKRA for firmware)
- Step 2.Connect the USB interface of OK-TC02A to the computer without connecting the EPD.
- Step 3.Click Connect,click Refresh,you can see the firmware file in the drop-down menu,select the firmware that needs to be updated,and click Upgrade.



- Step 4.When the upgrade is completed,a prompt will pop up.After clicking OK,press the reset button of TC02A to complete the upgrade.



SPI interface insructions

To be added