

Cap Touch Display Factory Test Routine

Versions

There are two versions of the firmware and SD card files which are meant for the different products and different stages of development. This table is a work in progress and as we update the various firmware in the products we may change everything to the newer version.

Firmware Version	SD Card Files
Firmware EM v2.1	Files for SD Card – Electrical Machines
Firmware EB v3.0	Files for SD Card – EB3

Here is a list of the products and their associated version

Firmware Version	Product
Firmware EM v2.1	EM4404 Electrical Machines Digital Drive EM0843 Battery Simulator EM5431 Three Phase Generator AV5289-2 Wind Tunnel TH0440 Sterling Engine TH4090 Heat Transfer TH8352 Heat Exchanger
Firmware EB v3.0	BL0082 E-Blocks 3 PIC BL0040 E-Blocks 3 Ard-Mega BL0070 E-Blocks 3 ESP32 MH7615 PA Hilton Data Acquisition Box

Place files onto SD card

Using a USB to micro SD card adapter connect the SD card to your computer.

Copy the files from the “Files for SD Card” folder onto the root of the SD card

Once the files have been copied use the Windows -> Safely Remove Hardware

Remove SD card and insert into the socket on the Cap Touch Display board

Program ESP32 Firmware

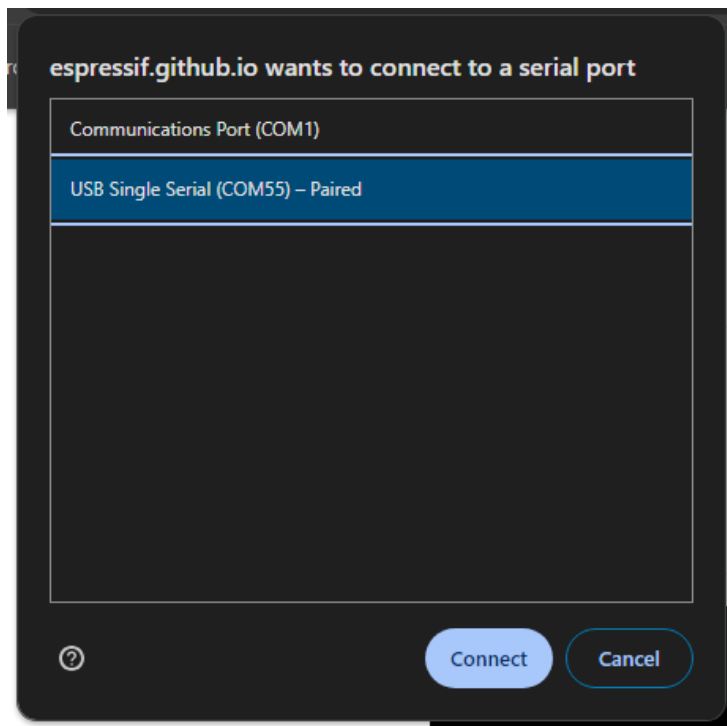
Using a USB C cable connect the ESP module to your computer, using the USB socket on the ESP module closest to the CE mark on the display PCB board.

Open Google chrome and go to this URL

<https://espressif.github.io/esptool-js/#>

Click Connect

Select the USB Single Serial and click Connect



Setup the files as shown here.

Click Add File twice to add two new rows

Copy Trace	Disconnect	Erase Flash
Flash Address	File	
0x0	Choose file bootloader.bin	
0x10000	Choose file esp-project.bin	
0x8000	Choose file partition-table.bin	
Add File	Program	

note: esp-project.bin will have a name like Firmware v2.2 251115 XXX.bin

XXX – TFT = TFT display, STD = Standard Display – If colours are inverted then use the other firmware.

Click Program to transfer the firmware onto the ESP module.

Check the transfer completes correctly.

Click Disconnect.

Factory Test

Press the reset button on the ESP32 module.

Check that the Matrix logo appears on the screen.

(logo will likely be portrait on a new screen and landscape on a used screen)

Check that the build version appears on the screen.

Please note, IPS versions of the screen will exhibit inverted colours, the background will be white and the Matrix logo will appear black. For these screens you will need to replace the esp-project.bin file with esp-project_inverted.bin and reprogram.