FLAT DISPLAY TECHNOLOGY CORPORATION

This product is RoHS compliant

ReadMe First

Version：1.1

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Contents

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Chapter 1 Introduction to SGM (Smart Graphic Module Plus) Start Kit

1.1 Preface

Users will have understanding of below per ReadMe First.

1. Accessories in Start Kit, operation manuals, application and guidance to examples.
2. Briefing of Start Kit enables instant experience of SGM PLUS.
3. Development process demonstrates required tools and manual in development.
4. Users can refer to relevant Operation Manuals and Introductions as recommended in chapter 4.
5. Multiple demo examples are also enclosure for users' emulation and inspiration.

1.2 P/N of Start Kit

Size (Res.)	Start Kit P/N	Standard Module P/N	
3.5"(320x234)	FPEP035QA4-00R	FP035QIA14-00R	
4.3"(480*272)	FPEP043YA4-00R	FP043YIA14-00R	
5.6" (640x480)	FPEP056VA4-00R	FP056VIA04-00R	
7" (800x480)	FPEP070WA4-00R	FP070WIA04-00R	
10.4"(800x600)	FPEP104SA4-00R	FP104SIA24-00R	

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Please refer to for specification

Path	File Name
CD:\Specifications\ FP035QIA1x-00R\	FP035QIA1x-00R.pdf
CD:\Specifications\ FP043YIA1x-00R\	FP043YIA1x-00R.pdf
CD:\Specifications\ FP056VIA0x-00R\	FP056VIA0x-00R.pdf
CD:\Specifications\ FP070WIA0x-00R\	FP070WIA0x-00R.pdf
CD:\Specifications\ FP104SIA2x-00R\	FP104SIA2x-00R.pdf

1.3 Packaging List

NO	Item	Order P/N	Picture	Note
1	Graphic Control Kit (GCK-003)	LOMCU0003B- FDR		
2	SGM Plus 5V Input + RS232 to UART	LOPOWER011-FDR		
3	USB To UART Converter Board	LOUSB00001-FDR		
4	Power Cord for Europe (L:1800mm) (shipping depend on Area)	LACABLE047-FDR		
5	Power Cord for USA (L:1800mm) (shipping depend on Area)	LAAC818000-FDR		

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6	L:1500mm,100-240VAC 47-63Hz to +5VDC @ 3A, φ 2.5	LASTD05030-FDR	
7	USB Extended Cable (A-Type Plug _A-Type Receptacle L:1800mm)	LAUSB18001-FDR	
8	RS232 Cable Female/Female Null Modem type L:1800mm (white)	LACABLE045-FDR	
9	Power & UART Cable 7Pin 2.0mm to DC Jack+4Pin 1.25mm (L:150mm)	LACABLE008- FDR	for 4.3"~10.4"
10	Power & UART Cable 5Pin 1.25mm to DC Jack+4Pin 1.25mm (L:150mm)	LACABLE012-FDR	for 3.5" only
11	GCK-003 Signal Cable 7Pin 2.0mm to 7Pin 1.25mm (L:150mm)	LACABLE009- FDR	for 4.3"~10.4"
12	CK-003 Signal Cable 5Pin 1.25mm to 7Pin 1.25mm (L:150mm)	LACABLE016-FDR	for 3.5" only
13	Cable 5Pin 1.25mm to 4Pin 1.25mm(L:120mm)	LACABLE010-FDR	
14	Micro SDHC 4GB	LASDCD0001-FDR	
15	PIN HEADER 2.0mm 2P Jumper (Black)	LACONN0016-FDR	

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16	Micro SD to USB adapter	LASDCD0003-FDR		P.5
17	CR1220 Li-ion Battery(3V)	LABATT0001-FDR		
18	DVD-ROM Disk	LADVD00003- FDR		

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1.4 Index in CD of SGM Plus

Smart Graphic Module Plus

SGM Plus-00000000

- Application Note
  - Arranger Plus Note
    - Chinese
    - English
    - Japanese
  - Command_pilot2 Note
    - Chinese
    - English
    - Japanese
  - SGM Plus Note
    - Chinese
    - English
    - Japanese
  - USB To Uart Converter Note
    - Chinese
    - English
    - Japanese
- Project of Standard Module
  - Documents
  - FP056VIA0x-00R
    - Project
    - UART Example
  - FP070WIA0x-00
    - Project
    - UART Example
- Specifications
  - FP056VIA0x-00R
  - FP070WIA0x-00

- Start Kit
  - Documents
  - FP056VIA0x-00R
    - Project
  - FP070WIA0x-00
    - Project
  - GCK-003 Tools
    - GCK-003 Circuit
    - GCK-003 FW
      - Source Code
        - Demo
        - Demo Compact
        - Library
        - Template
    - UartISP
    - WT61P9 Datasheet
  - UART Example
    - Demo
    - Demo Compact
- Tools(software)
  - Arranger Plus
    - Chinese
    - English
    - Japanese
  - FDT-Command_pilot2
  - NET_Framework_4.5.2
  - Picture_Library
    - 800x480
      - Background
      - Keyboard
      - Other
      - Series Lib
  - USB to UART Converter Driver
    - CDM v2.08.30 WHQL Certified
      - amd64
      - i386
      - Static

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Chapter 2 Evaluate Start Kit

Introduction to default demonstration mode in Start Kit which are Auto, UART and MCU mode.
Please refer to for details "CD: \Start Kit\Documents\Start_Kit_Demo_User_Guide.pdf"
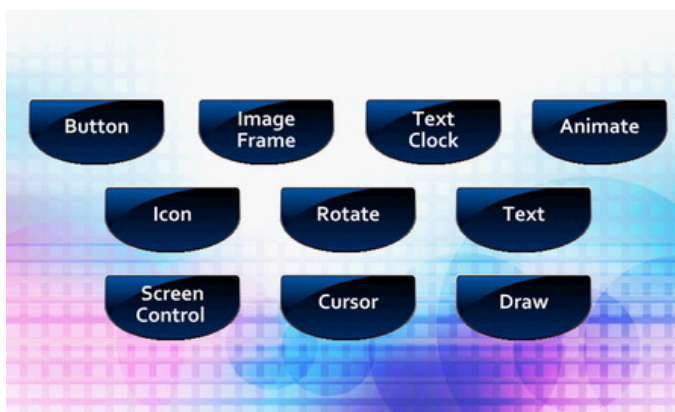
2.1 Auto Mode

Entering Auto Mode enables feature demonstration with ICONs.

Step1：Please refer to 'CD:\ SGM_Plus_Quick_Start.pdf' for assembling details.
Boot Screen is as below.

Step2：Click "Auto" to enter AUTO MODE.

Step3：Click icons to demonstrate given features.

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2.2 UART Mode.

Using preinstalled "StartKit_Demo_xxx.txt" to demonstrate given features via connection between USB- to-UART-Converter-Board and PC along with CommandPilot2.
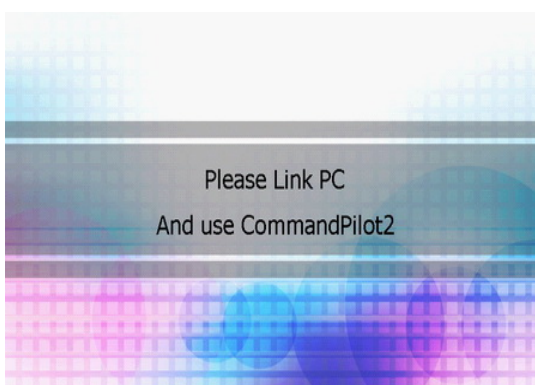
Please refer to "CD: \Start Kit\Documents\Start_Kit_Demo_User_Guide.pdf" for details.

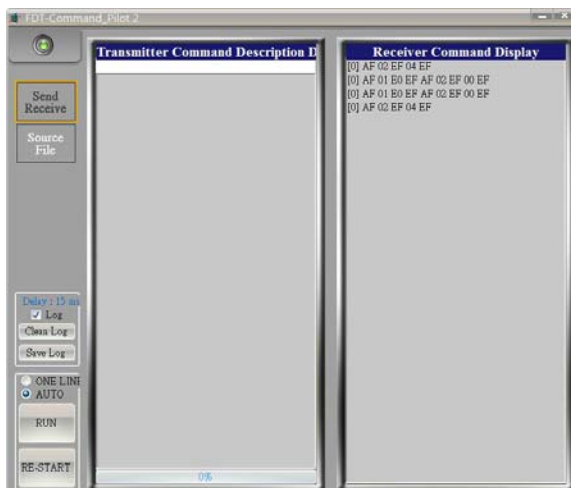Step1：Refer to 'CD:\ SGM_Plus_Quick_Start.pdf' for assembling details.
Boot Screen is as below.

Step2：Click UART to enter the page below.

Step3：Import "StartKit_Demo_xxx.txt" in Command_Pilot2 to run preinstalled demo examples.

Relevant tools 2-2-1

| Items	Path	File Name	Remarks
Command Pilot2 Operation Guid	CD:\ Tools(software) \FDT-Command_pilot2	Command_Pilot2_Operation_Guide.pdf	Read this first.
SGM Plus UART Command Manual	CD:\ Tools(software) \ FDT-Command_pilot2\	SGM_Plus_UART_Command_Manual.pdf	
USB to UART Converter Installation Guide	CD: \ Tools(software)\ USB to Uart Converter Driver\	USB_to_UART_Converter_Installation _Guide.pdf	
USB to UART Converter Driver	CD: \ Tools(software) \ USB to UART Converter Driver \CDM v2.08.30 WHQL Certified\	-	
Command_Pilot2	CD:\ Tools(software) \ FDT-Command_pilot2\	FDT-Command_pilot2(2.6.10.1)	
Command_Pilot2 demo examples	CD:\Start Kit \UART Example\Demo	StartKit_Demo_xxx.txt	15 items in total

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2.3 MCU Mode

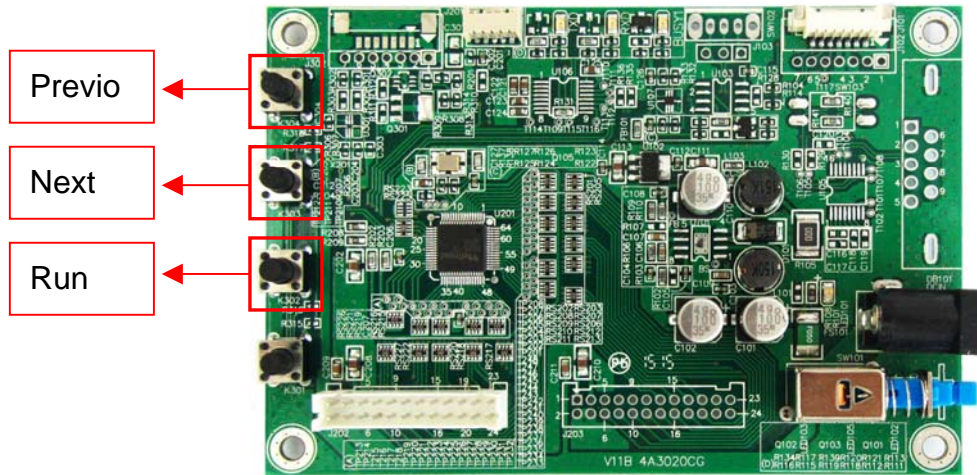Demonstrate preinstalled examples via MCU controller board (GCK-003.)

Please refer to "CD: \Start Kit\Documents\Start_Kit_Demo_User_Guide.pdf" for details.

Step1：Refer to'CD:\ SGM_Plus_Quick_Start.pdf' for assembling details.
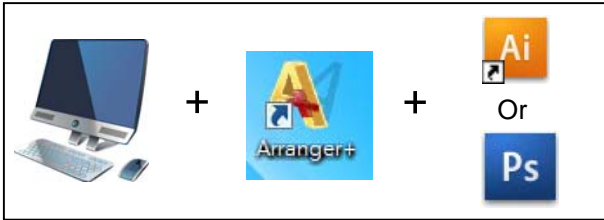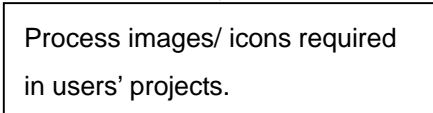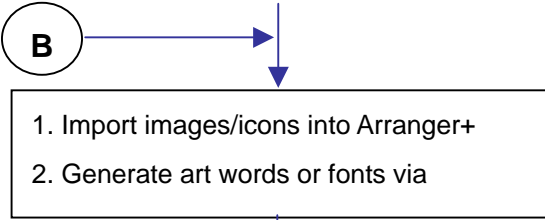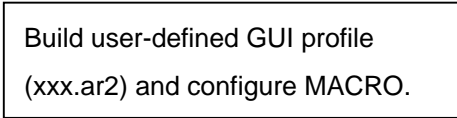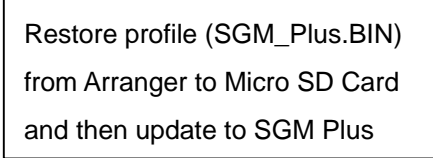
Boot Screen is as below.
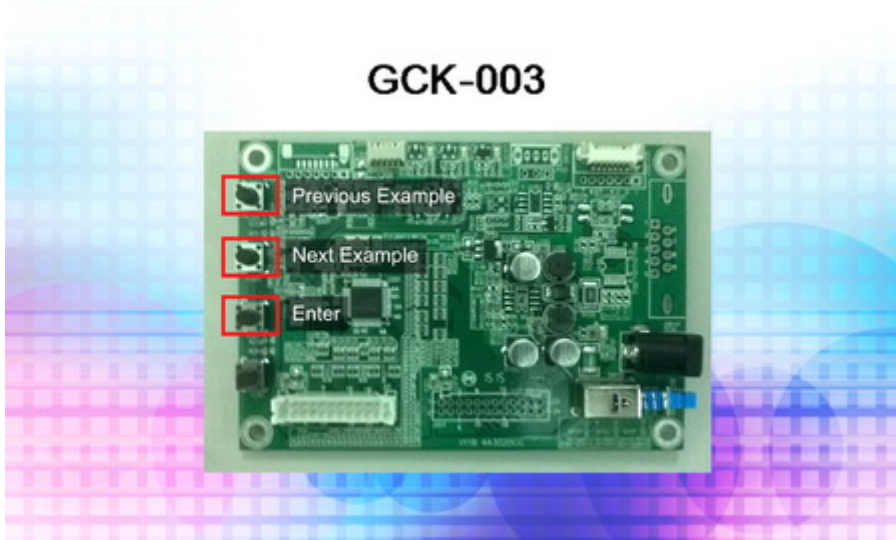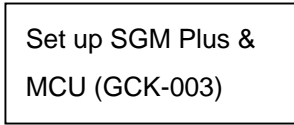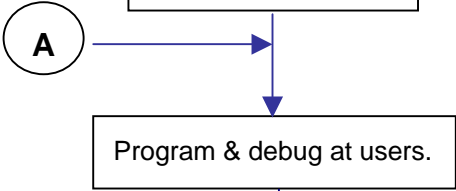
Step2：Press buttons on GCK-003 to run demo examples.

Chapter 3 SGM Plus Development Process

3.1 SGM Plus Development Process

Item	Tools	Flow Chart	Note
1	1.PC + Windows 7/8 2.FDT Arranger Plus 3.Photo Shop/Illustrator	**+** Arranger+ **+** Ai Or Ps	Remarks 3-1
2	1.Windows 7/8 PC 2.Photo Shop/Illustrator	Process images/ icons required in users' projects.	PNG format is recommended.
3	1.Windows 7/8 PC 2.FDT Arranger Plus 3.BMP/PNG images 4.Build Font	**B** → 1. Import images/icons into Arranger+ 2. Generate art words or fonts via	Remarks 3-1
4	1.Windows 7/8 PC 2.FDT Arranger Plus	Build user-defined GUI profile (xxx.ar2) and configure MACRO.	Remarks 3-1 Note1
5	1. Windows 7/8 PC 2. FDT Arranger Plus 3. SGM Plus TFT Module 4. Micro SD Card	Restore profile (SGM_Plus.BIN) from Arranger to Micro SD Card and then update to SGM Plus	Remarks 3-1 Appendix A How to update profile
6	1. SGM Plus Module 2. 2.GCK-003	Set up SGM Plus & MCU (GCK-003)	Remarks 3-2 How to connect each part in SGM PLUS.
7	Program Compiler 1.KEIL C FOR GCK-003 3. User-Defined	**A** → Program & debug at users.	MCU Board can be FDT's GCK-003 Board or users' device.

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Item	Tools	Flow Chart	Note
8	1.Windows 7/8 PC 2.GCK-003 3. USB to UART Converter 4.GCK-003 update program 5.UartISP_v3.0.0.exe	Update programs in FDT'S GCK-003 board or Users' MCU Board.	Remarks 3-3 GCK-003 Reference
9	1.SGM Plus Module 2.GCK-003	**No** ← **A** Verify if MCU works? **Yes**	
10	1.SGM Plus 7' Module 2.GCK-003 3.PC Windows 7/8 4.FDT Arranger Plus	**B** ← Verify if the profile from Arranger+ works fine? **No** **Yes**	
11		Finish	

Remarks 3-1 Reference

Item	Path	File name	Note
Arranger Plus Installation Guide	CD:\ \Tools(software)\Arranger Plus\English\	Arranger_Plus_Installation_Guide.pdf	
Arranger Plus Simple Operation Guide	CD:\ \Tools(software)\Arranger Plus\English\	Arranger_Plus_Simple_Operation_Guide.pdf	Pls refer this firstly.
Arranger Plus User Manual	CD:\ \Tools(software)\Arranger Plus\English\	Arranger_Plus_User_Manual.pdf	

Note1. "xxx.AR2" is the file names created by Arranger+ for different GUI projects.

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Remarks 3-2:GCK-003 How to connect parts in SGM PLUS.

1. Connection between 7" SGM PLUS and GCK-003 (same in 4.3"/5.6"/10.4" SGM PLUS)

Power ON/OFF

GCK-003

5V Adapter Plug

GCK-003 Signal Cable

7Pin 1.25mm   **UART Transmission**

7Pin 2.0mm

Refer to command list
CD:\ Tools(software)\
FDT-Command_pilot2\
SGM_Plus_UART_Command_Manual.pdf
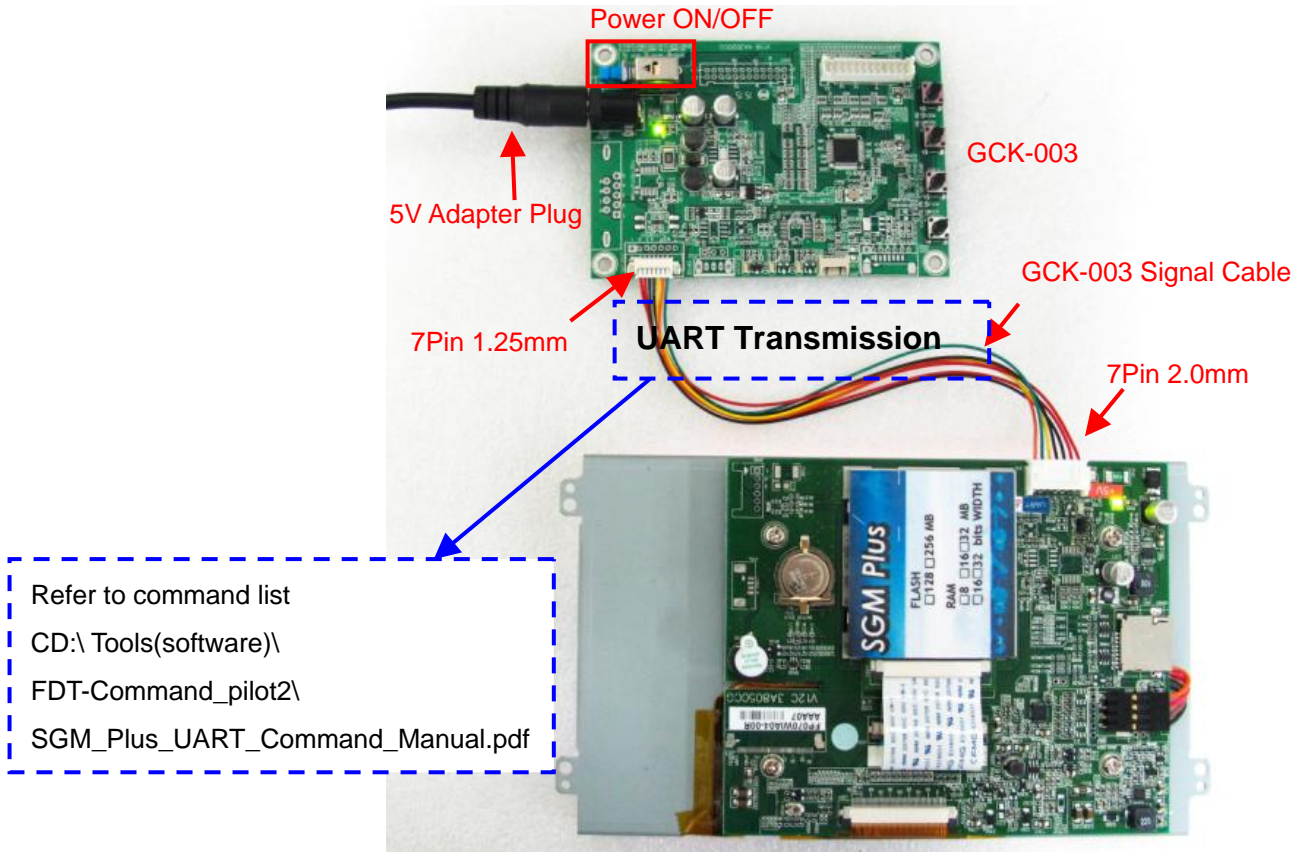
2. Connection between3.5" SGM PLUS and GCK-003

GCK-003 Signal Cable

5Pin 1.25mm   UART Transmission

7Pin 1.25mm

GCK-003

Power SW

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P.13
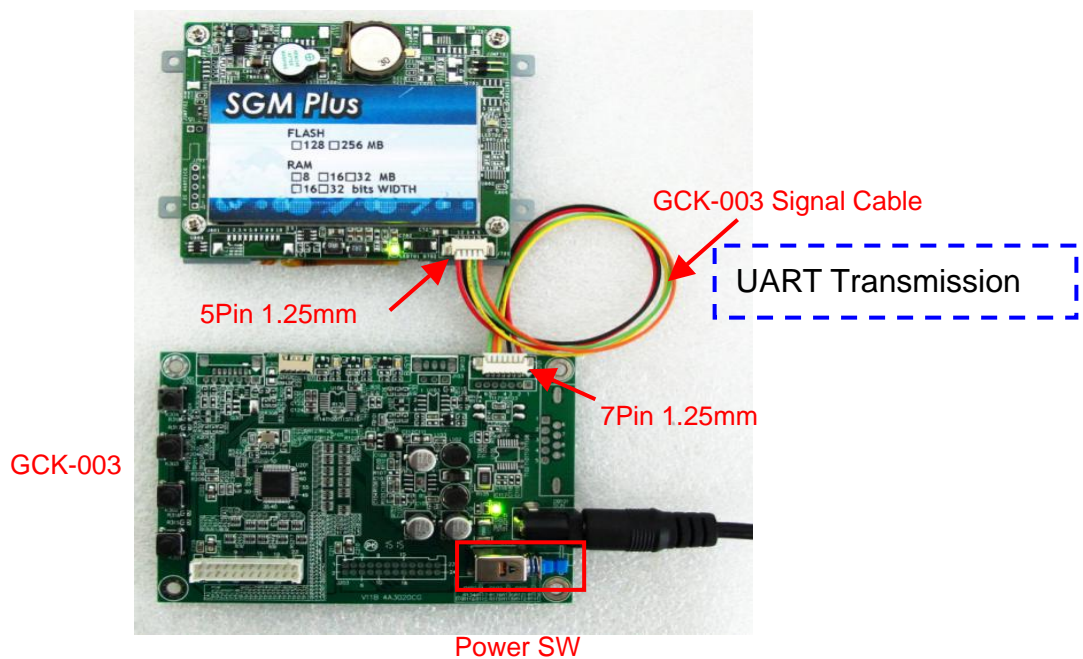
Remarks 3-3：GCK-003 Reference

Item	Path	File Name	Note
GCK-003 Programming Operation Guide.	CD:\Start Kit\GCK-003 Tools\GCK-003 FW	GCK-003_Programming_Operation_Guide.pdf	
Graphic Control Kit (GCK-003) Diagram	CD: \Start Kit\GCK-003 Tools\GCK-003 Circuit	GCK-003_Circuit_v1.2C.pdf	
MCU data of Graphic Control Kit (GCK-003)	CD:\ StartKit\ GCK-003_Tools\ WT61P9 Datasheet\	WT61P9.pdf	
GCK-003 Example Source codes	CD: \Start Kit\GCK-003 Tools\GCK-003 FW\Source Code\Demo	-	16 items.
Update Tools (Execution files)	CD: \Start Kit\GCK-003 Tools\UartISP	UartISP_v3.0.0.exe	

Chapter 4 Basic/ Advanced Development Documentation

4.1 Basic Development Items

Flowchart of Basic Development	Description	Document/ Tools	Path (CD:\)
Quick Access to SGM Plus	Quick access to SGM Plus.	Readme First.pdf	
	Hardware Installation	SGM_Plus_Quick_Start.pdf	
	Datasheet.	FP070WIA0x-00R.pdf	\Specifications\FP070WIA0x-00\
Installation and Operations of Arranger Plus.	Installation Guide to Arranger +.	Arranger_Plus_Installation_Guide.pdf	\Tools(software)\Arranger Plus\English\
	Execution File	Arrange_Plus_v1.1.0.exe	\Tools(software) \Arranger Plus\ \Tools(software)\ .NET_Framework_4.5.2\
	Simple Operation Guide to Arranger +.	Arranger_Plus_Simple_Operation_Guide.pdf	\Tools(software)\Arranger Plus\English\
Installation and Operations of Command Pilot 2	Operation Guide to Command_Pilot2.	Command_Pilot2_Operation_Guide.pdf	\Tools(software)\
	Execution File	FDT-Command pilot2(2.6.10.1)	FDT-Command_pilot2\
	Installation Manual of USB_to_UART_Converter.	USB_to_UART_Converter_Installation_Guide.pdf	\Tools(software)\USB t o UART Converter Driver\
	USB_to_UART_Converter driver		
	SGM Plus UART Command Manual.	SGM_Plus_UART_Command_Manual.pdf	\Tools(software)\ FDT-Command_pilot2\
Instructions of DEMO examples in Start Kit	Instructions of DEMO examples in Start Kit	Start_Kit_Demo_User_Guide.pdf	\Start Kit\Documents\
Introduction and Manual of GCK-003.	Operation Guide to GCK-003.	GCK-003_Programming_Operation_Guide.pdf	\Start Kit \GCK-003 Tools\GCK-003 FW\
	Execution File (Firmware Update)	UartISP_v3.0.0.exe	\Start Kit \GCK-003 Tools\UartISP\
	Circuit Diagram	GCK-003_Circuit_v1.2C.pdf	\StartKit\ GCK-003_Tools\GCK-003 Circuit\

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4.2 Advanced Development Items

Advanced Development	Description	Document/ Tools	Path (CD:\)
Advanced instructions of Arranger Plus and introduction to examples.	Details of Arranger+ 1.Introduction to environment. 2. Font/Art Work 3. Intro to elements 4. Macro Operations 5.Output & Update GUI Profile	Arranger_Plus_User_Manual.pdf	\Tools(software)\Arranger Plus\English\
	Arranger + demo examples	Module_Demo_800x480 AR2	\Start Kit\FP070WIA0x-00\Project\
	GUI Profile of demo examples.	SGM_PLUS.BIN	
	Advanced example guide in Arranger +	Arranger_Plus_Examples_Operation_Guide.pdf	\Tools(software)\Arranger Plus\English\
Command Manual and project examples in Command_Pilot2.	SGM Plus UART Command Manual	SGM_Plus_UART_Command_Manual.pdf	\Tools(software)\ FDT-Command_pilot2\
	Example codes of Hardware Control by UART	Example.txt	\Tools(software) \FDT-Command_pilot2\
	Built-in UART examples	Start_Kit_Demo_xxx.txt (15 items)	\Start Kit\UART Example\Demo\
MCU project examples and Example codes in GCK-003.	Example Code in GCK-003		\Start Kit\GCK-003 Tools \GCK-003 FW\Source Code\
	MCU compiler	KEIL C compiler	None
	MCU Data Sheet	MCU IC Data Sheet: WT61P9.pdf	\Start Kit\GCK-003 Tools \WT61P9 Datasheet\
Library	Default image library	Library	\Tools(software)\Picture_Library\

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Appendix A: How to update profile. (SGM_Plus.BIN) Take 7" module as reference

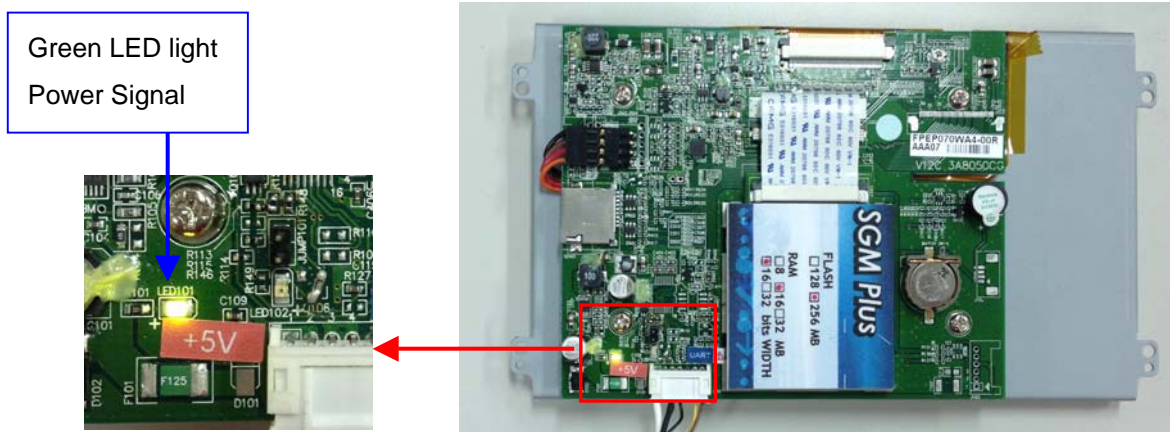Step1：Restore SGM_Plus.BIN into Micro SD Card
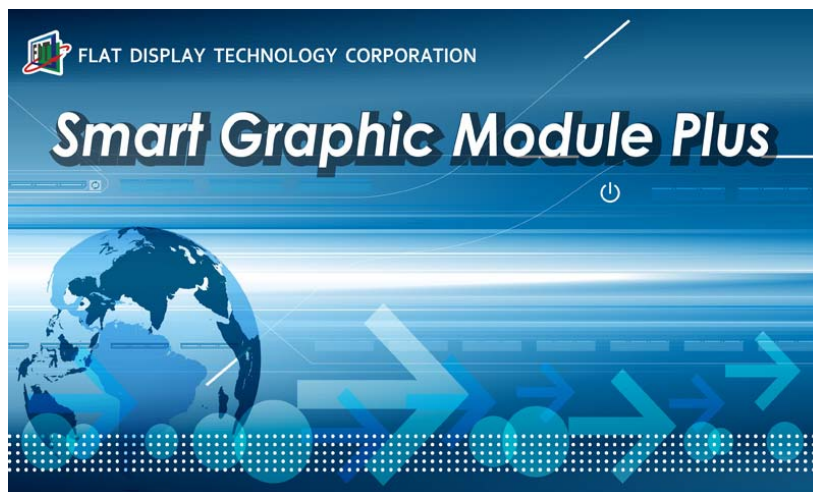
SGM_Plus.BIN

Use PC to restore into SD card

Note1: Turn on Arranger+ →Tools→Output→ Export GUI profile "SGM_Plus.BIN."

Step2：Update GUI Profile
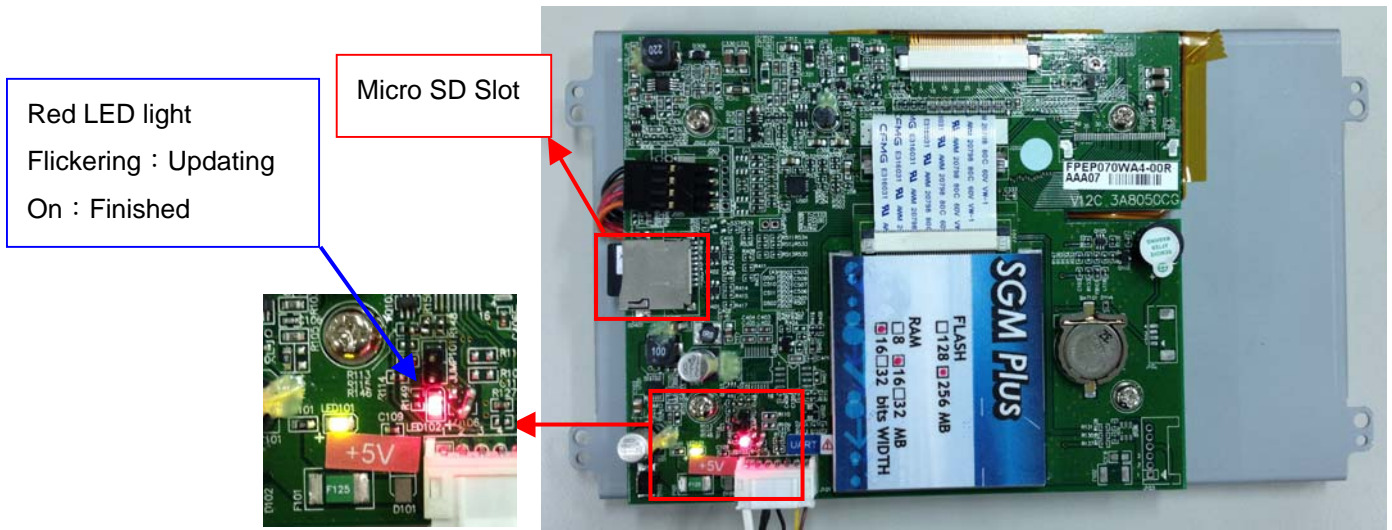
     A. Green LED light is on when module is powered up.

Green LED light
Power Signal

Make sure Modules boot up normally. Boot screens are as below.

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Smart Graphic Module Plus

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C. Insert Micro SD Card into SD slot and the update will be processing immediately.

Micro SD Slot

Red LED light
Flickering：Updating
On：Finished

Step3： "Update finished" will show after update is done.

Update WIN ... (1/1)
Update MAC ... (1/1)
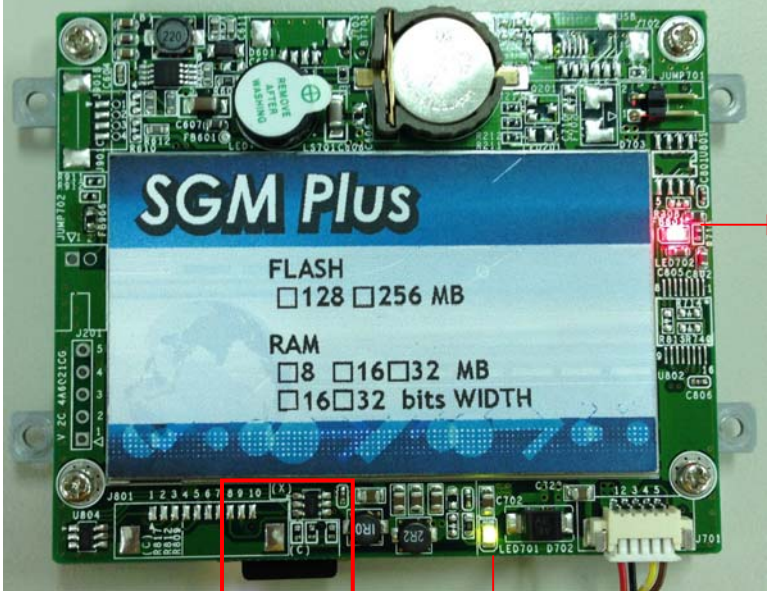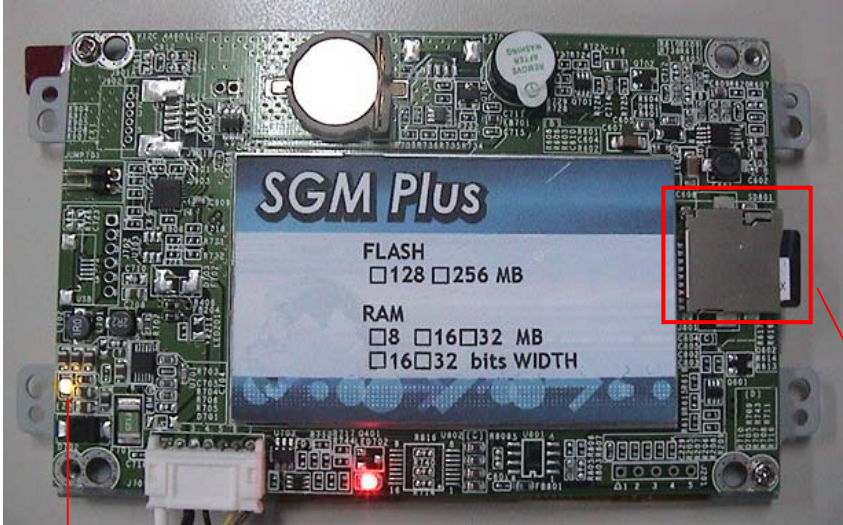Update ICO ... (1/1)
Update CFG ... (1/1)
Update finished.

Step4：Remove Micro SD Card and power up SGM+ again. GUI profile should show on screen.
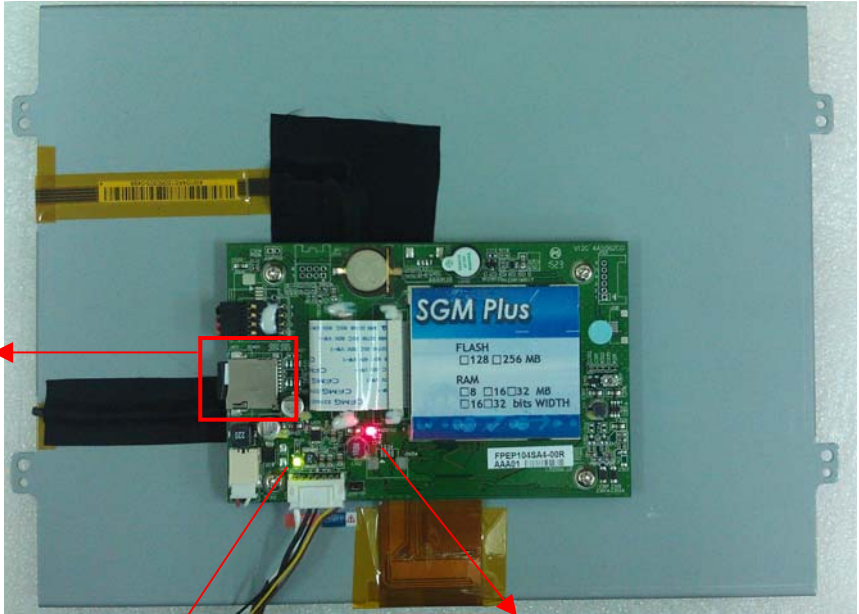Below is only for reference.

Note: If Micro SD Card isn't removed, compulsory GUI profile update will occur when reinserting SD card or re-powering module

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Other sizes

P/N	Description
FPEP035QA4-00R FP035QIA14-00R	Red LED light Flickering：Updating On：Finished Micro SD Slot Green LED light Power Signal
FPEP043YA4-00R FP043YIA14-00R	Micro SD Slot Green LED light Power Signal Red LED light Flickering：Updating On：Finished

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P/N	Description
PEP056VA4-00R FP056VIA04-00R	Red LED light Flickering：Updating On：Finished Green LED light Power Signal Micro SD Slot
FPEP104SA4-00R FP104SIA24-00R	Micro SD Slot Green LED light Power Signal Red LED light Flickering：Updating On：Finished

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Chapter 5 Revision History

5.1 Record of Revision

NO.	Date	Description	Page	Note
1.0	July 13, 2015	· First draft	19	
1.1	August 12, 2015	· Additional parts	5~6	

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