



§ SPECIFICATION APPROVAL SHEET §

Fdt Tech Module No. : FP043YIA1x-00R

Description : 4.3" Digital TFT-LCD Module

SPEC No. : SAS-1506012

Version : 0.0

Issue Date : July 6, 2015

※ This approval sheet contains 20 pages including the cover and appendix.

Customer : Date : / / 15	Approved By :
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Approved By :

Checked By :

Designed By :



1. General Description

FDT Smart Graphic TFT Module Plus is an unique TFT LCD module which builds graphic and character inside. It provides user to present customized & full color graphics or characters without any SOC or IPC system. In addition, user can update or upload his graphics or characters via Micro SD slot by himself. FDT Smart Graphic TFT Module not only enhances your product values also saves your cost.

1.1 Features

- Friendly and Free Development Environment
- Multi-layer design
- Advanced GUI function
- Easy Touch Effects
- Multi-Language (Unicode)
- Easy and fast update image with Micro SD
- Single Operation Voltage +5V
- Built-in Real Time Clock / Buzzer
- LED Backlight Brightness Control
- RAM Support 8MB / Flash Memory 128MB
- 4Wires RTP Touch Support
- Serial Communication: UART/RS232
- Low Power Consumption / High reliability

1.2 Application

- Industrial controller
- Medical Equipment
- Security Equipment
- Simple Function Equipment

2. Contents

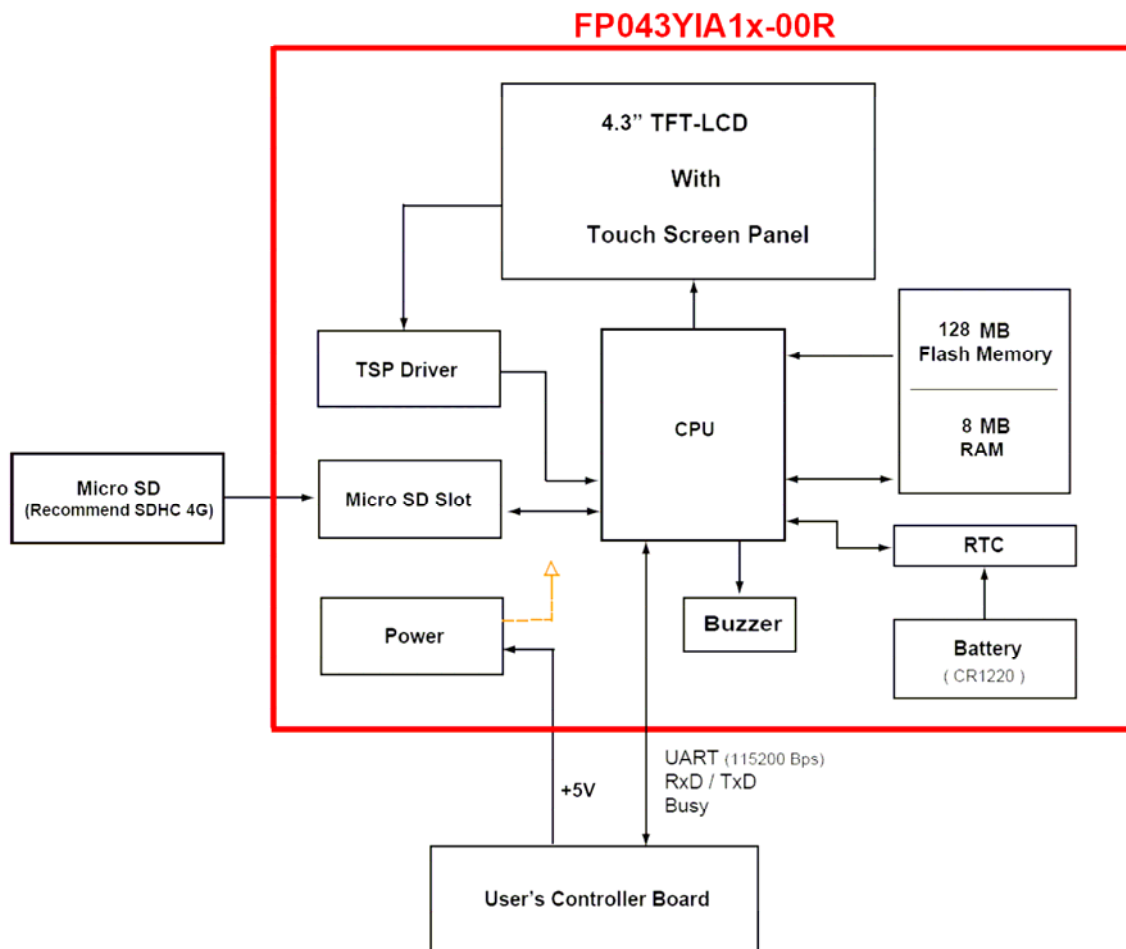
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Tentative



3. Block Diagram

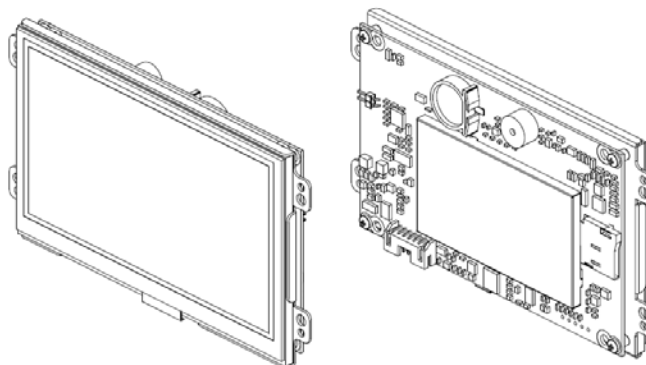
3.1 Block Diagram



4. Order Information

4.1 Unit

Unit



Parameter	FP043YIA10-00R	FP043YIA14-00R	Unit	Remark
RTC	⊙	⊙		
Touch Screen Function	-	4W Resistance		
Buzzer Function	⊙	⊙		
Weight	106	120	g	±10%

Note: The assembling of panel and bracket is aimed for delivery, packaging and experiment. If the demand of shockproof and long-term fix, pls have it into consideration of mechanism design.

4.2 Power Cable (Option)

Power Cable



Order Part Number	Pin Description	Remark
LACABLE008-FDR	7P 2.0mm - 4P1.25mm - 5.5mm-DC Jack	

5. Specifications

Parameter	Specifications	Unit	Remark
Communication Protocol	Duplex Transmission (UART)		
	UART Transmission Rate	115200 (max.921600bps)	Bps
	Data Bit	8	Bits
	Parity Bit Check	NO	
	Stop Bit	1	Bit
Micro SD Slot	Recommend SDHC 4G		
Flash Memory	128M	Bytes	Note1
RAM	8M	Bytes	Note2
Picture Format	BMP Category		

Note 1: Storage memory for Icons, Pictures, Fonts and configure.

Note 2: GUI cache memory

6. Absolute Maximum Ratings

6.1 Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Remark
Input Voltage	Vin	+4	+6	V	
Digital Input Signal	TTL	+0.3	+3.6	V	
Operating Temperature Without TSP		-20	+70	°C	
Operating Temperature With TSP		-20	+60	°C	
Storage Temperature Without TSP		-30	+80	°C	
Storage Temperature With TSP		-30	+80	°C	

7. Recommended operating conditions

7.1 Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Input Voltage	V _{in}	+4.5	+5	+5.5	V	
Total Current	I _{in} (+5V)	-	290	-	mA	±15%
Power Consumption		-	1.45	-	W	@5V
I/O	TTL	+0.1	-	+3.3	V	

8. TFT-LCD Information

8.1 TFT-LCD Mechanical Specifications

Parameter	Specifications	Unit
Screen Size	4.3" (Diagonal)	inch
Display Format	480 x (R.G.B) x 272	dot
Active Area	95.04(W) x 53.856(H)	mm
Surface Treatment	Anti-Glare	

8.2 TFT-LCD Optical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit	Remark
Viewing Angle	Horizontal	Left	60	70	---	deg	
		Right	60	70	---	deg	
	Vertical	Top	40	50	---	deg	
		Bottom	60	70	---	deg	
Contrast Ratio	CR	At optimized Viewing angle	400	500	---	---	
Brightness Without TSP	L	$\theta = 0^\circ / \phi = 0$	400	500	---	cd/m ²	
Brightness With TSP	L	$\theta = 0^\circ / \phi = 0$	350	400	---	cd/m ²	
LED Life Time	---	T _a =+25°C	20000	---	---	Hrs	

9. Pin Description

9.1 J107A Pin Assignment of Signal Input (Pitch 2.0mm 7Pin, Side Entry Type)

※ FDT Connector Part No.: S7B-PH-K-S (JST) or [Same as M24267R (STM)];

FDT Matching Connector Part No.: PHR-7 (JST) or [Same as P24267 (STM)]

Pin No	Symbol	I/O	Description	Remark
1	VCC5V	-	+5V Input Voltage	DC
2	VCC5V	-	+5V Input Voltage	DC
3	GND	-	Ground	
4	GND	-	Ground	
5	BUSY	O	Busy status	High (3.3V): Busy Low (0V): Normal (Note1,2,3)
6	RXD	I	Receive Data (UART)	TTL Level RS-232 (3.3V)
7	TXD	O	Transmit Data (UART)	TTL Level RS-232 (3.3V)

Note: 1.Your application circuit board must be connects with busy pin of SGM.

2.Busy circuit of the SGM (Fig.9-1)

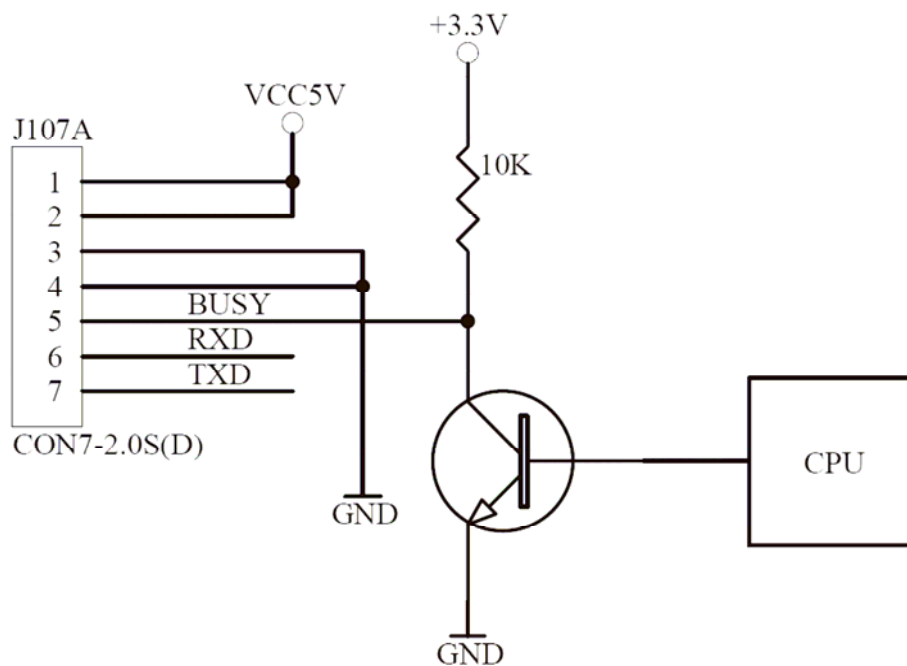
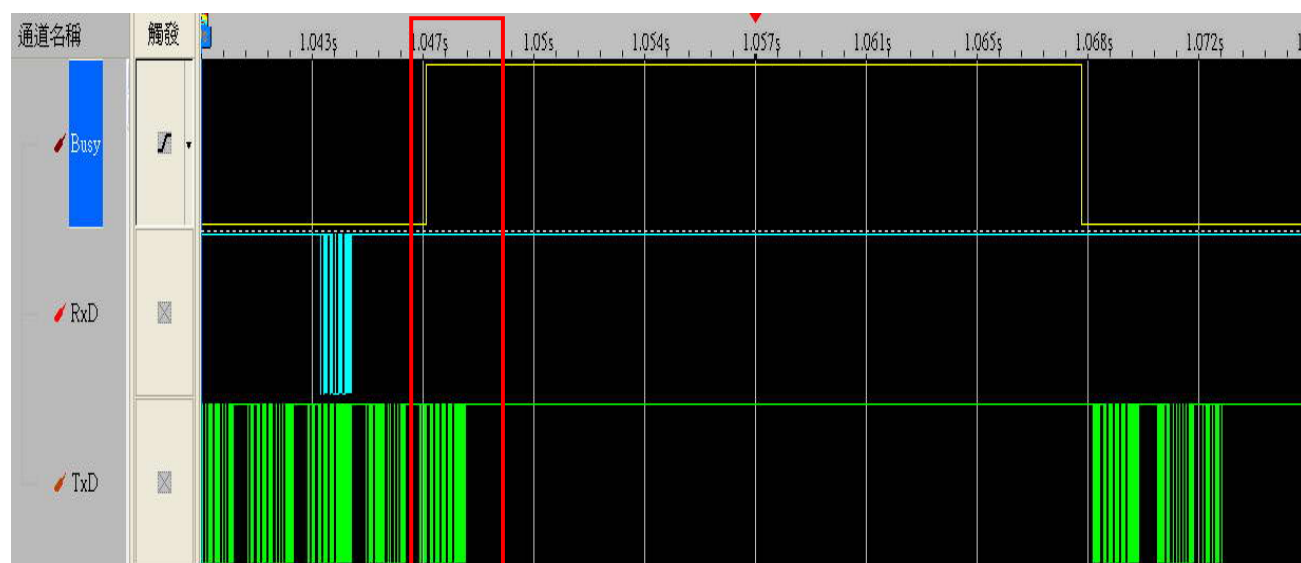


Fig.9-1

9.2 UART Timing Chart (Client side)

※ If busy signal of SGM appears on the duration of client processor transmission command.
Please don't worry this situation and goes on last command procedure.

10. 4W Resistance Touch Panel Characteristics

10.1 Optical Performance

Parameter	Specifications
Transparency	$\geq 80\%$ Min.

10.2 Mechanical Performance

Parameter	Specifications
Input Method	Finger or stylus pen
Operating Force	Min: 80gf
Surface Hardness	3H

10.3 Durability Performance

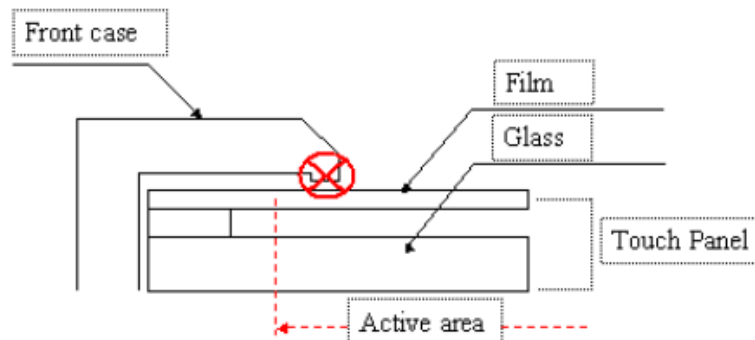
Parameter	Specifications
Pen Sliding Durability	≥ 100000 words, with R0.8 mm polyacetal stylus, 250gf, 60 mm / sec
Finger knocking Durability	≥ 1000000 times, with R8.0 mm silicon rubber, 250gf, 2times/sec



10.4 Touch Screen Integration Design Guide

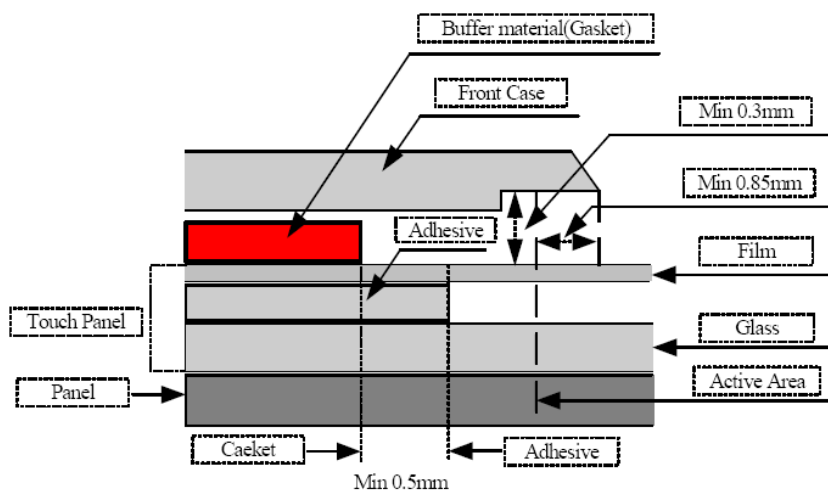
Avoid the design that Front-case overlap and press on the active area of the touch-panel.

Give enough gap (over 0.5mm at compressed) between the front case and touch-panel to protect wrong operating.

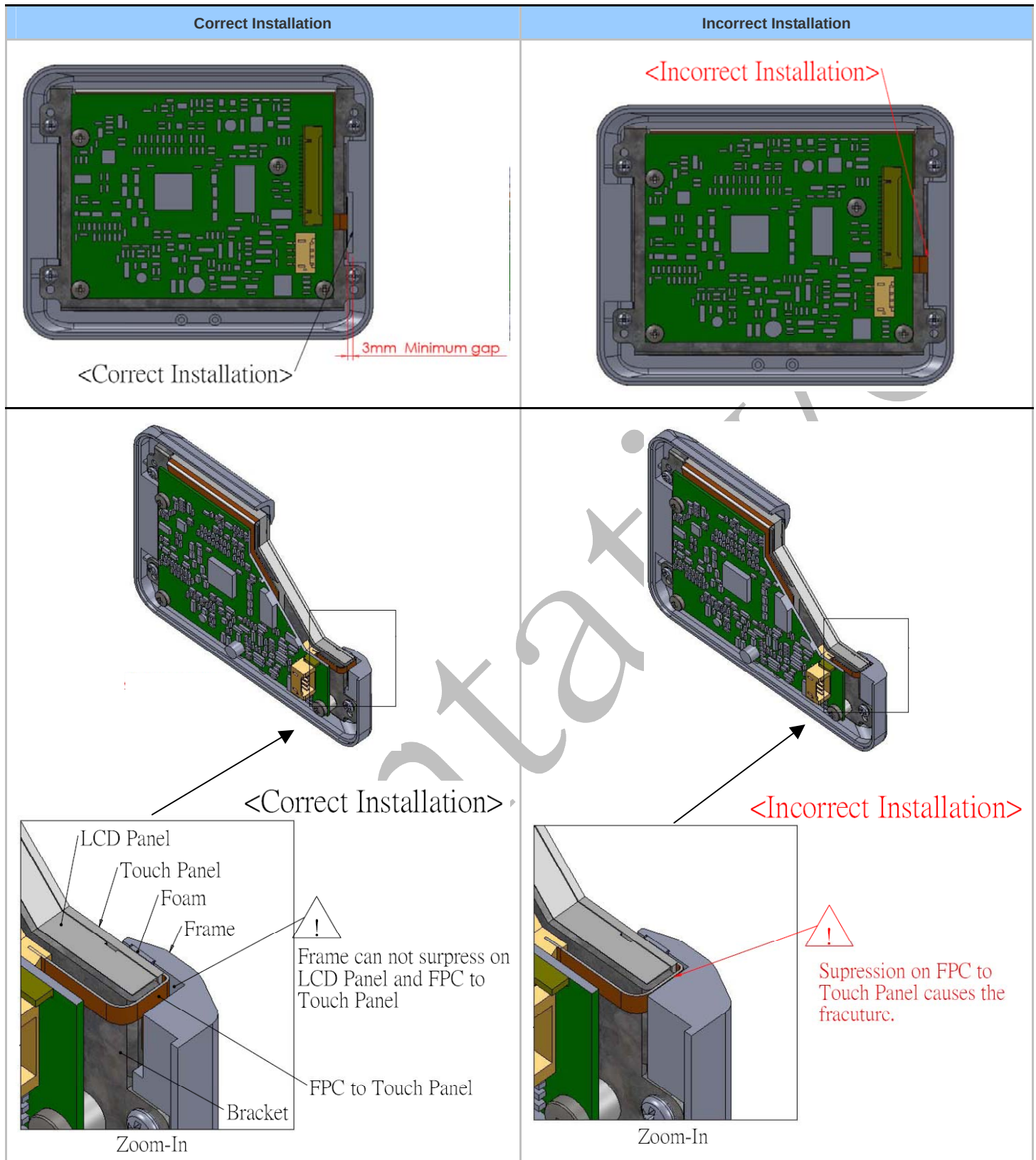


Use a buffer material (Gasket) between the touch-panel and front-case to protect damage and wrong operating.

Avoid the design that buffer material overlap and press on the inside of touch-panel viewing area.

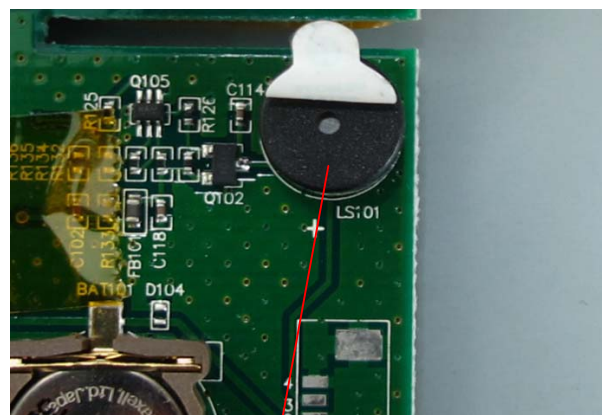


Note: We strongly suggest to follow above design guide to avoid the linear defect happened on the touch panel.

10.5 Mechanical Design Notice For Touch Panel

11. Buzzer Notice

11.1 Remove Buzzer Label



Remove

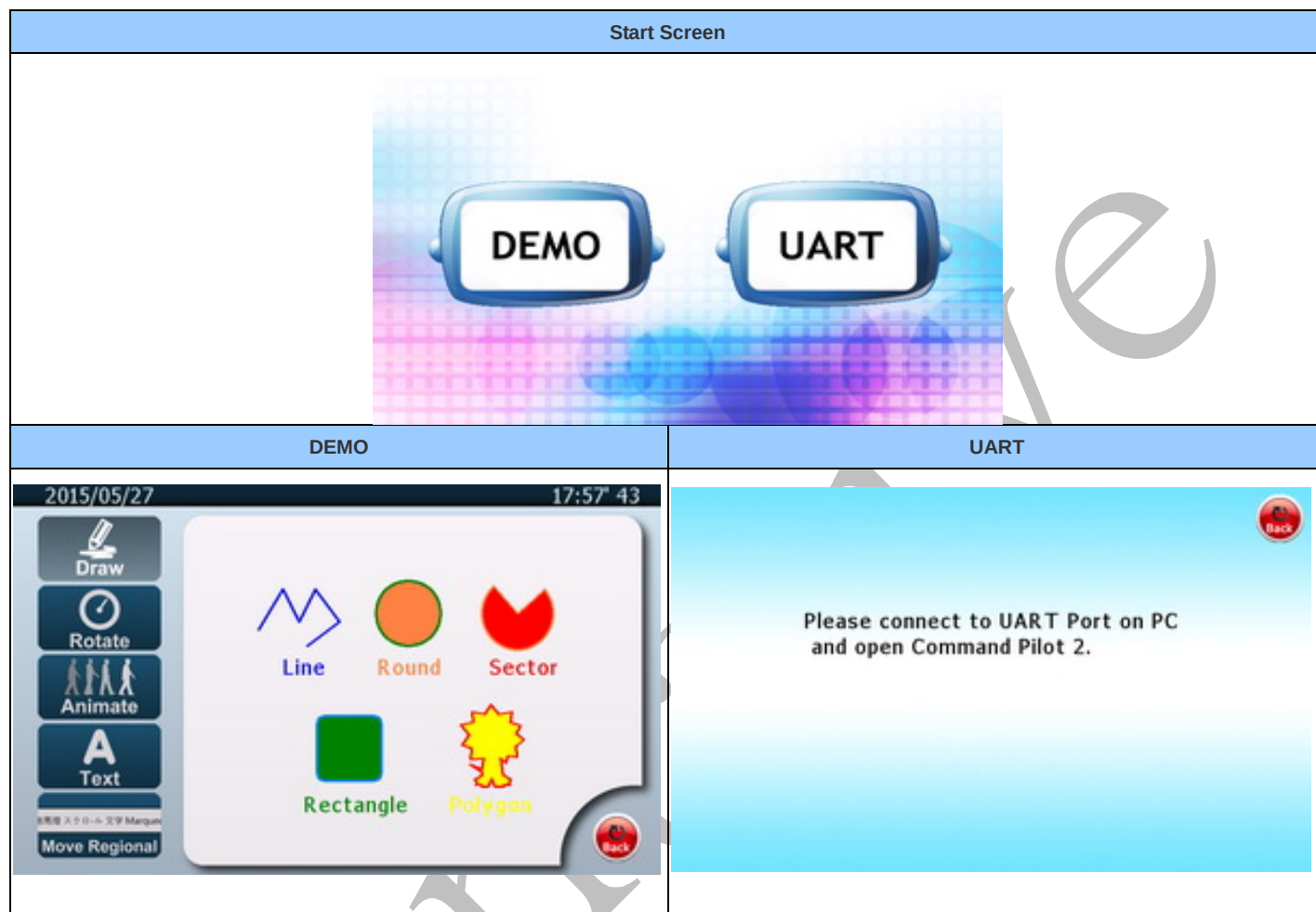
12. Built-in Project Directions

12.1 Operation explaining

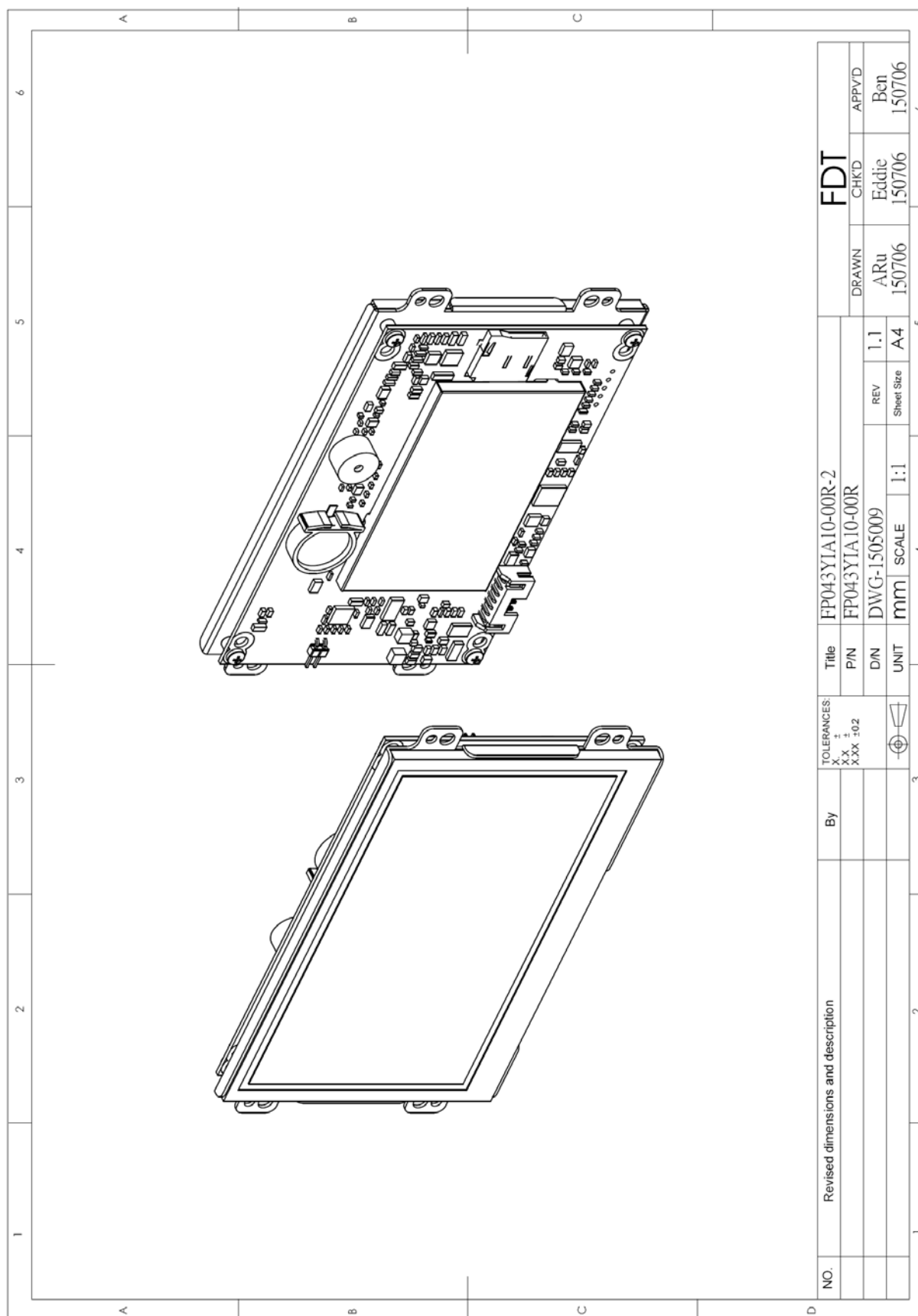
The SGM Plus module delivery is included a Taiwan introduction project.

How to use that please refer to the document as "Module_Demo_User_Guide_Compact.pdf"

File located : <Disc:\Project of Standard Module\Documents>



13.2 Unit (FP043YIA10-00R -2)



NO.	Revised dimensions and description	By	TOLERANCES: XX ± XXX ±0.2		UNIT	SCALE	1:1.3	REV	Sheet Size	FDT						
										DRAWN	CHK'D	APP'VD				
														ARu	Eddie	Ben
										1.1	A4					
										DWG-1505010	1:1.3					
										EP043YTA14-00R						
										EP043YTA14-00R						
										EP043YTA14-00R						

NO.	Revised dimensions and description	By	TOLERANCES: X XX XXX	± ± ±0.2	Title	FP043YIA14-00R-2	FDT		
					P/N	FP043YIA14-00R	DRAWN	CHK'D	APPVD
					D/N	DWG-1505011	ARu	Eddie	Ben
					UNIT	mm	SCALE	1:1	150706
							REV	1.1	150706
							Sheet Size	A4	150706

14. Accessory

14.1 LACABLE008-FDR (Option)

