



§ SPECIFICATION APPROVAL SHEET §

Fdt Tech Module No. : FP070WIA0x-00R

Description : 7" Digital TFT-LCD Module

SPEC No. : SAS-1504001

Version : 0.0

Issue Date : July 3, 2015

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

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

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 16MB / Flash Memory 256MB
- 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

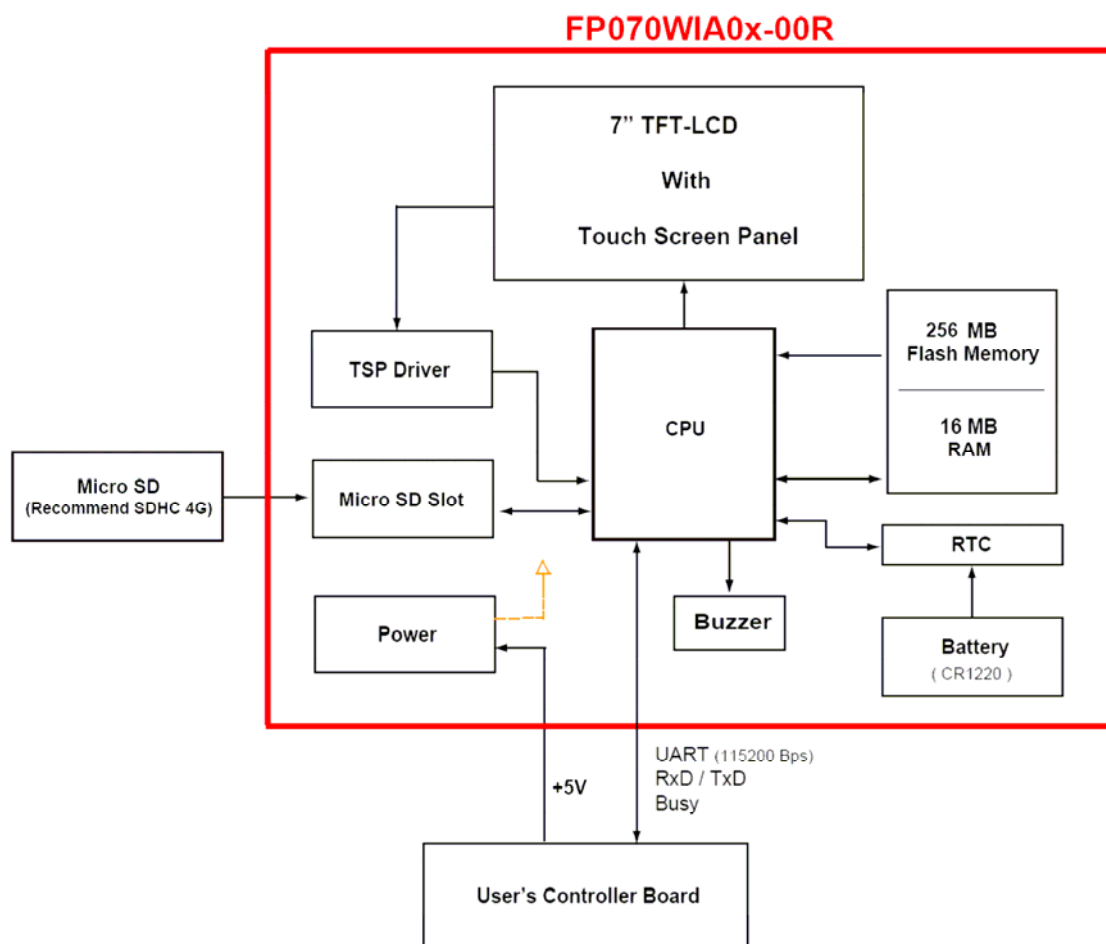
Contents	Page
1. General Description.....	1
1.1 Features	1
1.2 Application	1
2. Contents.....	2-3
3. Block Diagram.....	4
3.1 Block Diagram	4
4. Order Information.....	5
4.1 Unit	5
4.2 Power Cable (Option)	5
5. Specifications.....	6
6. Absolute Maximum Ratings.....	6
6.1 Absolute Maximum Ratings	6
7. Recommended operating conditions.....	7
7.1 Electrical Characteristics	7
8. TFT-LCD Information.....	7
8.1 TFT-LCD Mechanical Specifications	7
8.2 TFT-LCD Optical Characteristics	7
9. Pin Description.....	8-9
9.1 J107A Pin Assignment of Signal Input (Pitch 2.0mm 7Pin,Side Entry Type)	8
9.2 UART Timing Chart (Client side)	9
10. 4W Resistance Touch Panel Characteristics.....	10-12
10.1 Optical Performance	10
10.2 Mechanical Performance	10
10.3 Durability Performance	10
10.4 Touch Screen Integration Design Guide	11
10.5 Mechanical Design Notice For Touch Panel	12
11. Buzzer Notice.....	13
11.1 Remove Buzzer Label	13
12. Directions.....	14
12.1 Operation explaining	14
12.Dimension Information.....	15-18
12.1Unit(FP070WIA00-00R)	15
12.2Unit(FP070WIA00-00R -2)	16
12.3Unit(FP070WIA04-00R)	17
12.4Unit(FG070WIA04-00R-2)	18
13. Accessory.....	19

Tentative



3. Block Diagram

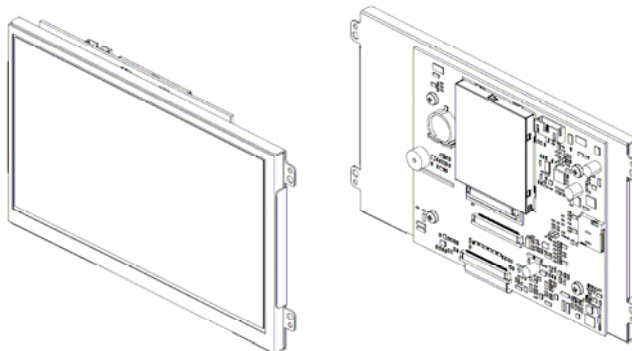
3.1 Block Diagram



4. Order Information

4.1 Unit

Unit



Parameter	FP070WIA00-00R	FP070WIA04-00R	Unit	Remark
RTC	⊙	⊙		
Touch Screen Function	-	4W Resistance		
Buzzer Function	⊙	⊙		
Weight	340	385	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	256M	Bytes	Note1
RAM	16M	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	+4.2	+5.7	V	
Digital Input Signal	TTL	+0.3	+3.6	V	
Operating Temperature Without TSP		-20	+70	°C	
Operating Temperature With TSP		-10	+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)	-	630	-	mA	±15%
Power Consumption		-	3.15	-	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	7" (Diagonal)	inch
Display Format	800 x (R.G.B) x 480	dot
Active Area	154.08(W) x 85.92(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	$\theta = 0^\circ / \phi = 0$	320	400	---	cd/m ²	
Brightness With TSP	L	$\theta = 0^\circ / \phi = 0$	256	320	---	cd/m ²	
LED Life Time	---	T _a =+25°C	20000	---	---	Hrs	I _L =180mA

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)
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)

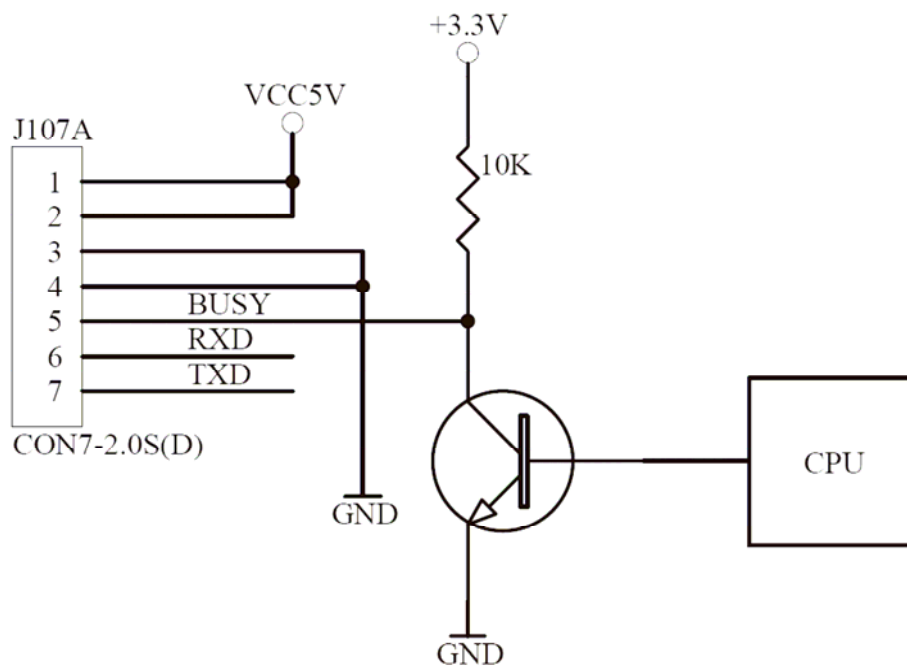
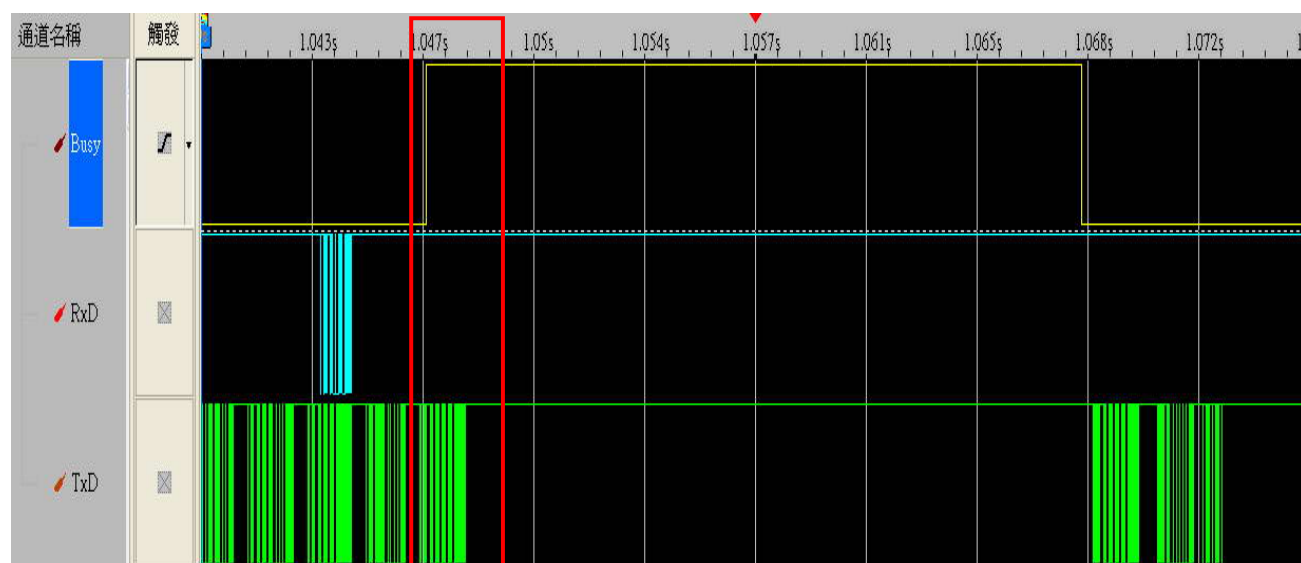


Fig.9-1

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
Transmittance	$\geq 80\%$
Haze	$\leq 8\%$

10.2 Mechanical Performance

Parameter	Specifications
Input Method	Finger or stylus pen
Operating Force	Max: 110g
Surface Hardness	3H or more

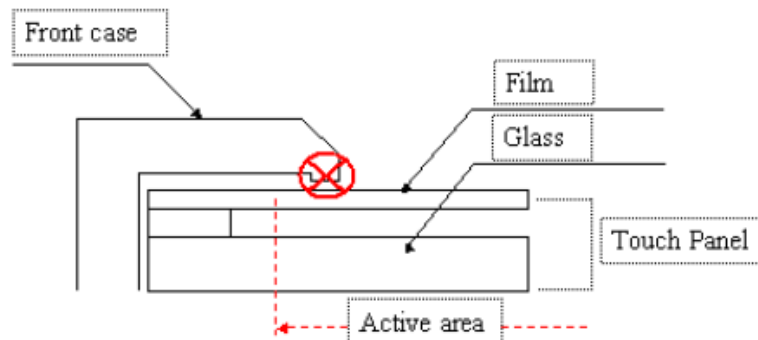
10.3 Durability Performance

Parameter	Specifications
Expected Life Performance	Operation tested to greater than 1 million touches in one location without failure, with a head of R6.5 and hardness Hs 60 stylus.

10.4 Touch Screen Integration Design Guide

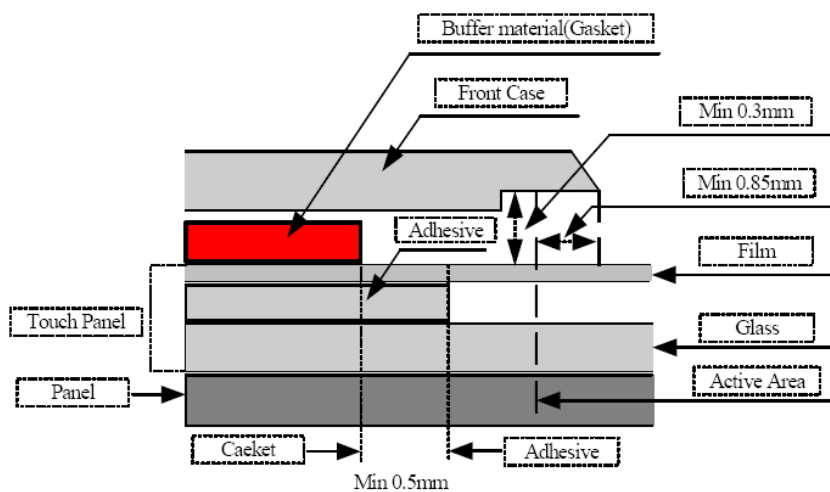
Avoid the design that Front-case overlap and press on the active area of the touch-panel.

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



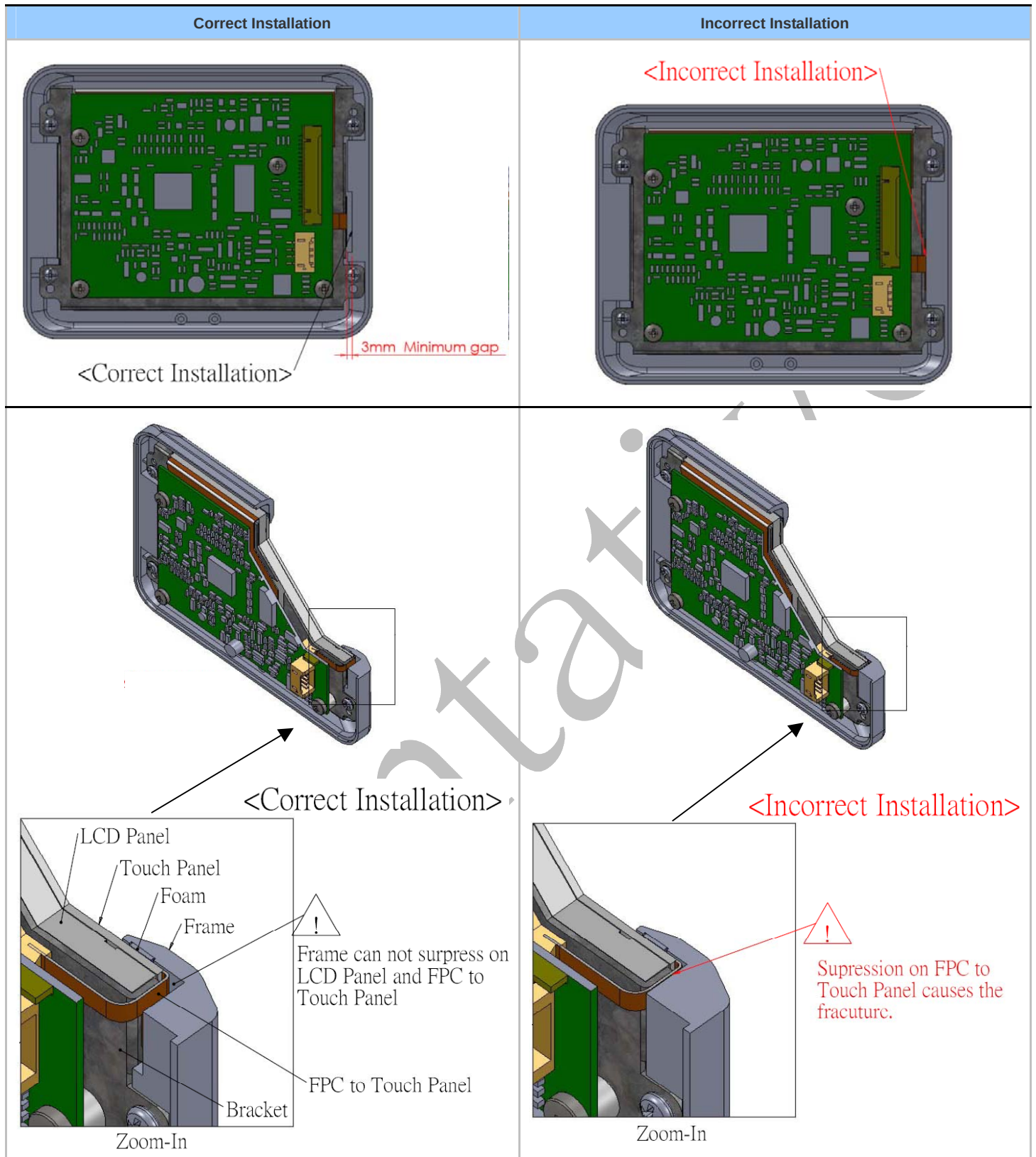
Use a buffer material (Gasket) between the touch-panel and front-case to protect damage and wrong operating.

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



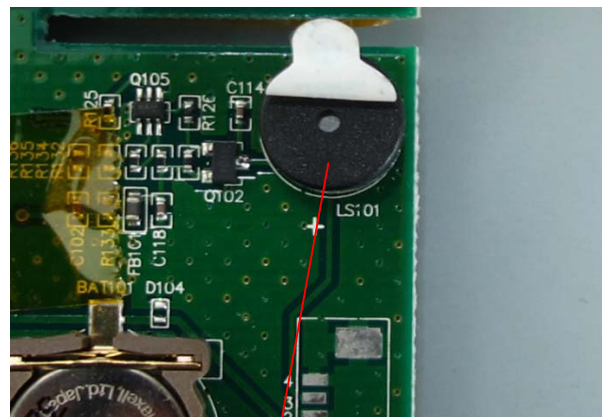
Note: We strongly suggest to follow above design guide to avoid the linear defect happened on the touch panel.

10.5 Mechanical Design Notice For Touch Panel



11. Buzzer Notice

11.1 Remove Buzzer Label



Remove

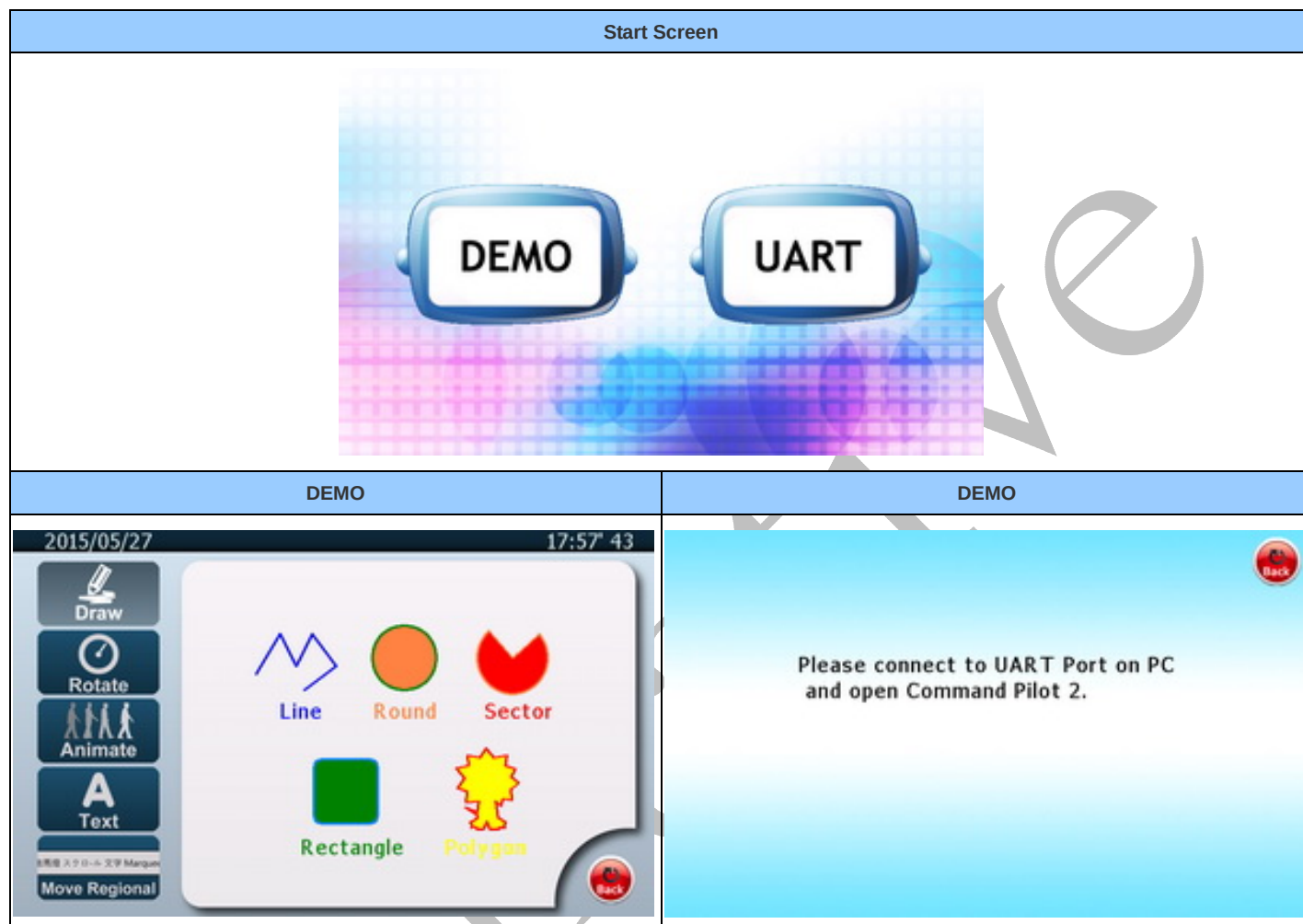
12. Built-in Project Directions

12.1 Operation explaining

The SGM Plus module delivery is included a project.

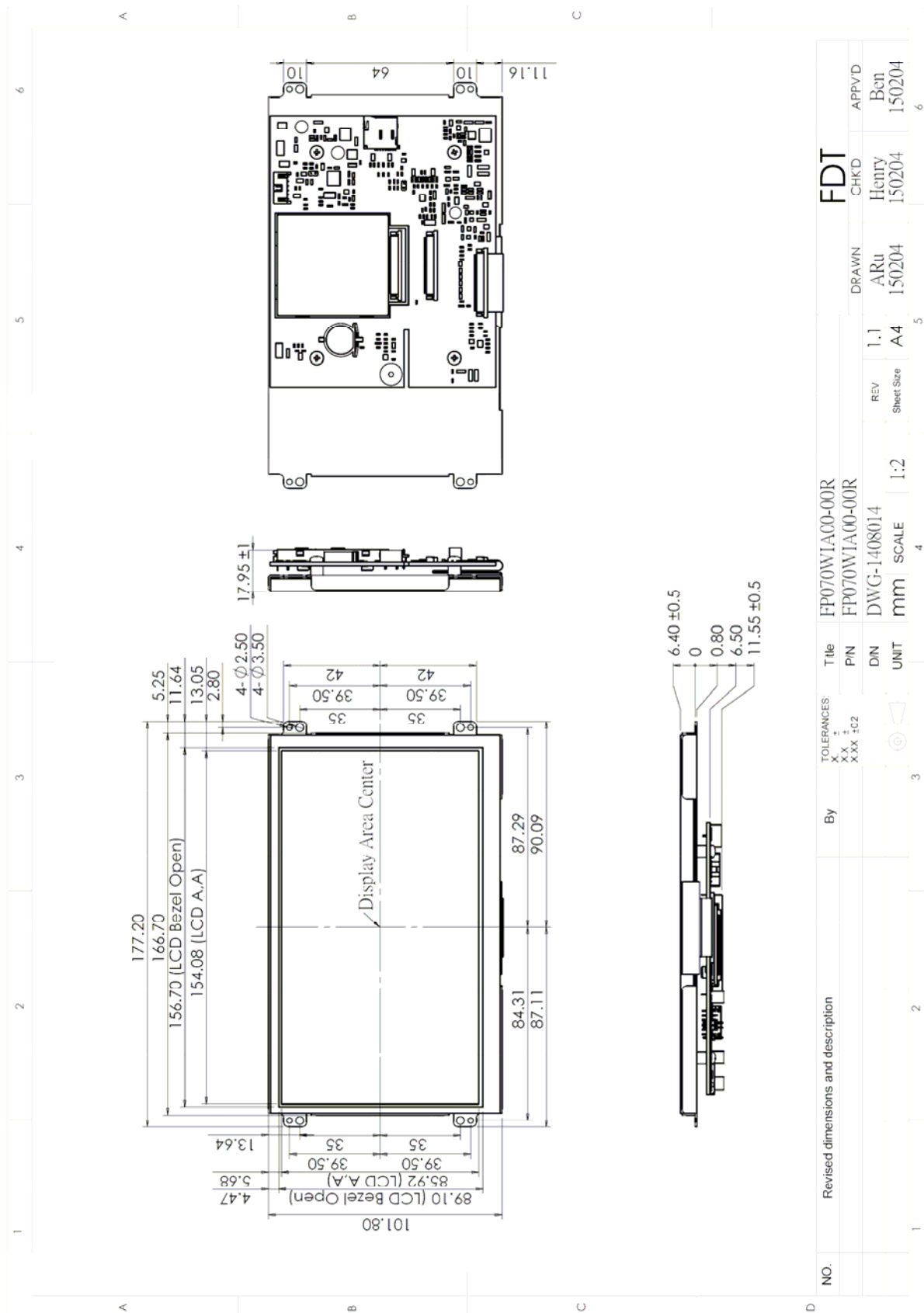
How to use that please refer to the document as "Module_Demo_User_Guide.pdf"

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

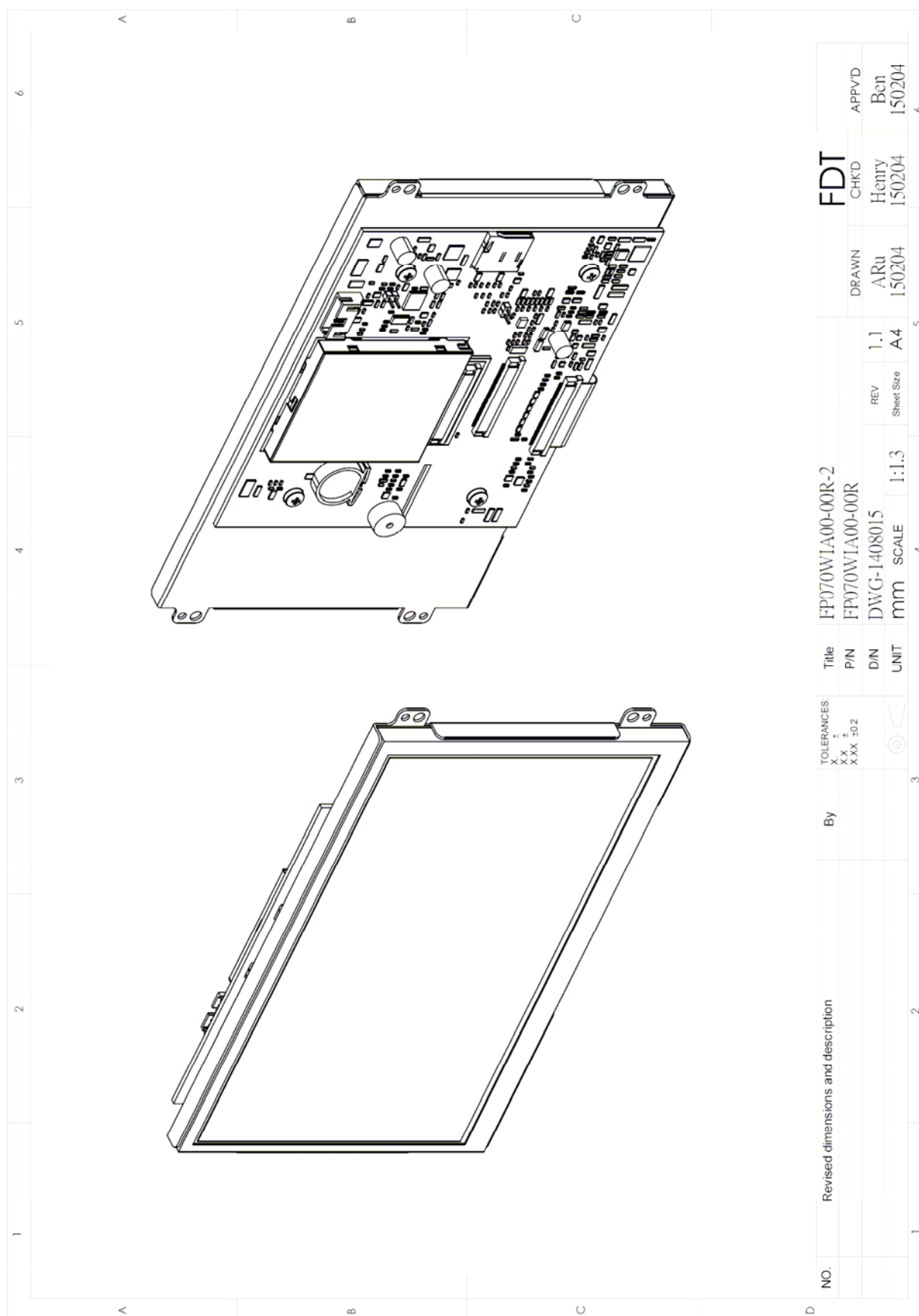


13. Dimension Information

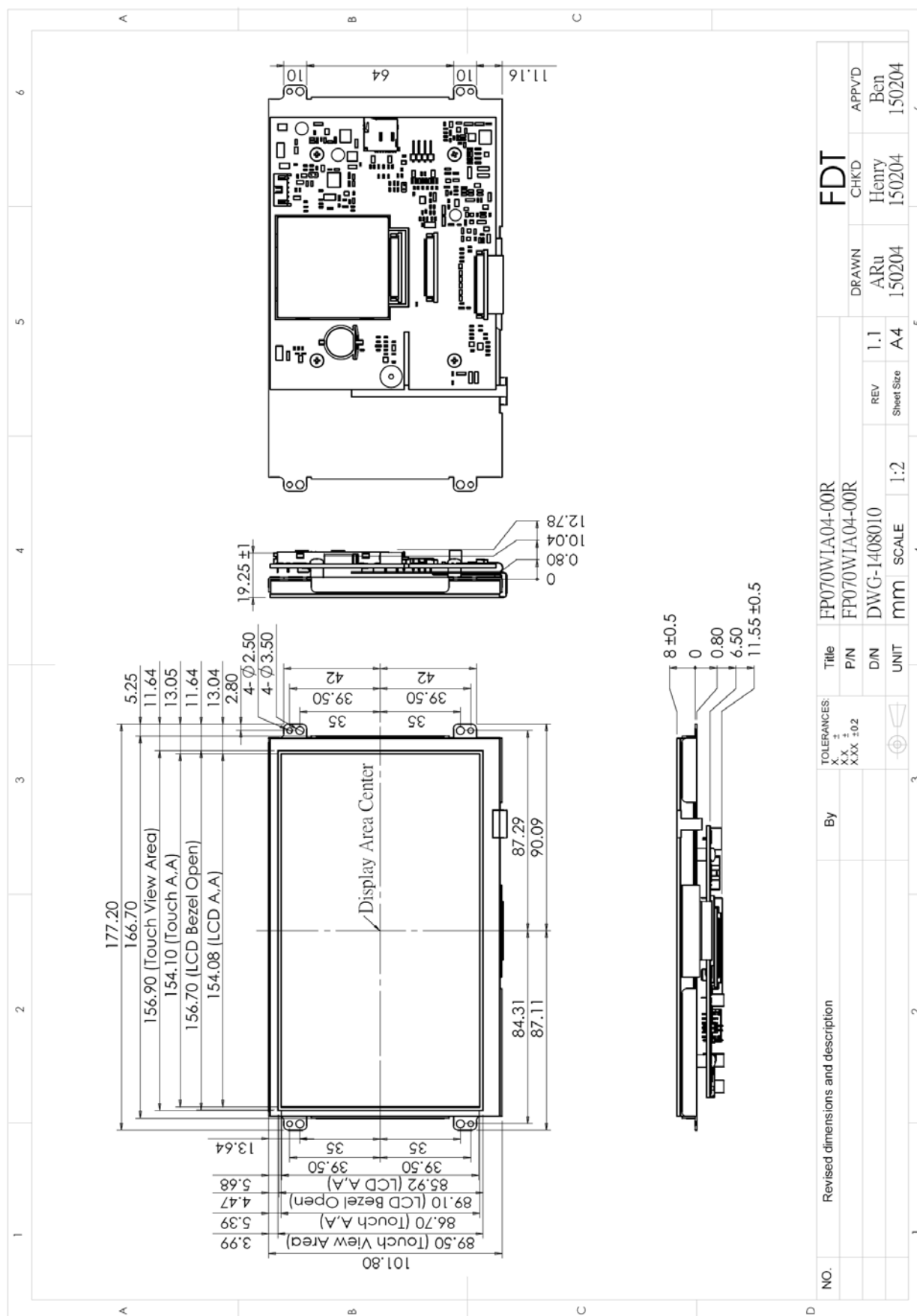
13.1 Unit (FP070WIA00-00R)



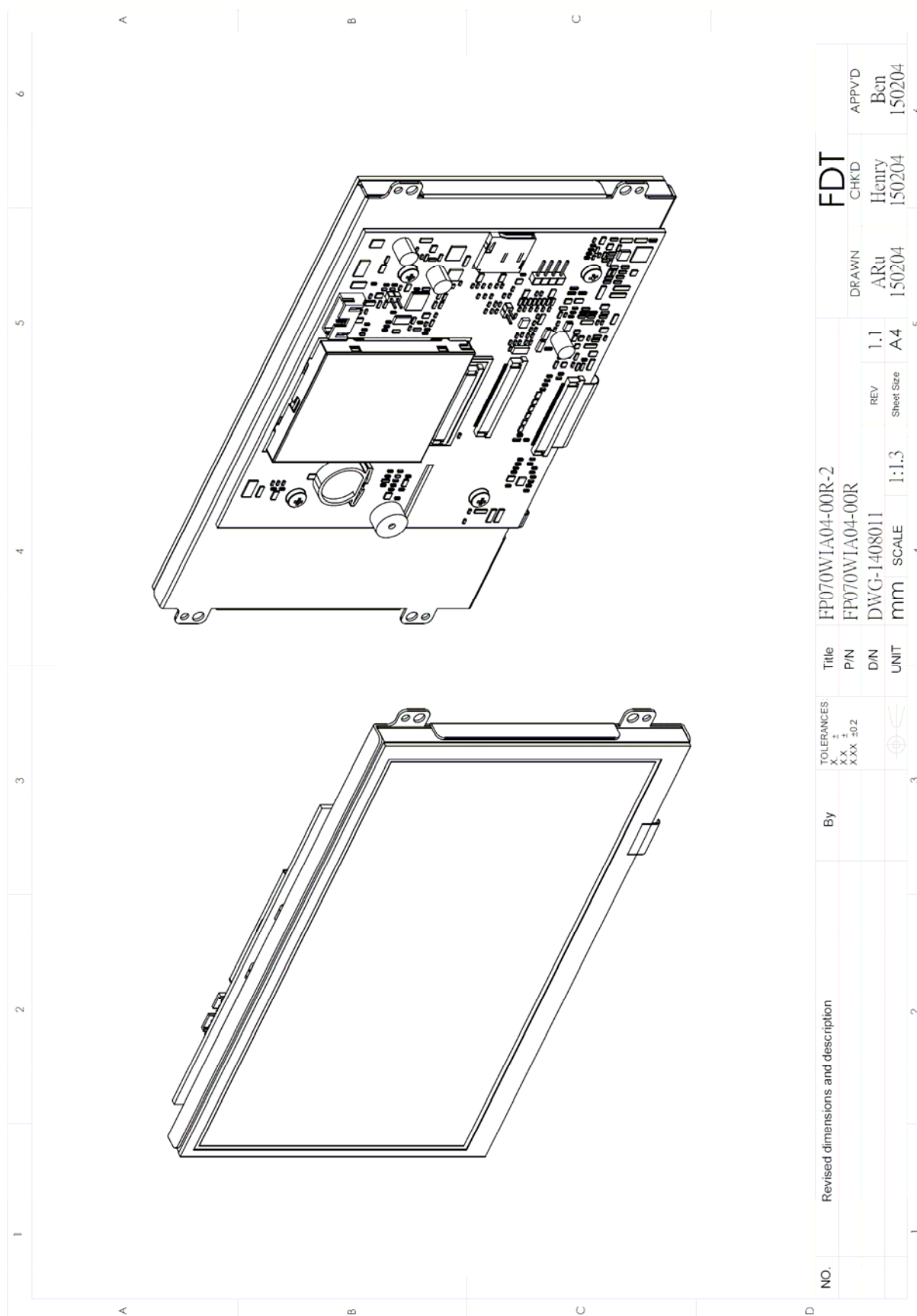
13.2 Unit (FP070WIA00-00R -2)



13.3 Unit (FP070WIA04-00R)



13.4 Unit (FP070WIA00-00R -2)



14. Accessory

14.1 LACABLE008-FDR (Option)

