

§ SPECIFICATION APPROVAL SHEET §

Fdt Tech Module No. : UC070WI~~x~~0P-00R

Description : 7" Digital TFT-LCD Module

SPEC No. : SAS-1702006

Version : 1.0

Issue Date : November 05, 2019

※ This approval sheet contains 21 pages including the cover and appendix.

Customer : Date : / / 19	Approved By :
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Approved By :

Checked By :

Designed By :





1. General Description

FDT Micro Controller-HMI is a 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 Micro Controller-HMI not only enhances your product values also saves your cost.

1.1 Features

- Variable-Oriented
- 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
- Projected Capacitive Touch
- Serial Communication: UART (RS232 Option)
- Low Power Consumption / High reliability

1.2 Application

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



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Preliminary

3. Specifications

LCD	
Panel Size	7"
Resolution (Pixels)	800x480
Luminance Without PCAP	400cd/m ²
Luminance (PCAP)	340 cd/m ²
Contrast Ratio	500
View Angle	70 / 70 / 70 / 50
LED Life Time	20K (Min.)
Touch Screen	
Resistive Type	Projected Capacitive Touch
Storage	
Micro SD Slot	Recommend SDHC
Flash Memory	256M Bytes (Note1)
RAM	16M Bytes (Note2)
Picture Format	
Type	BMP category

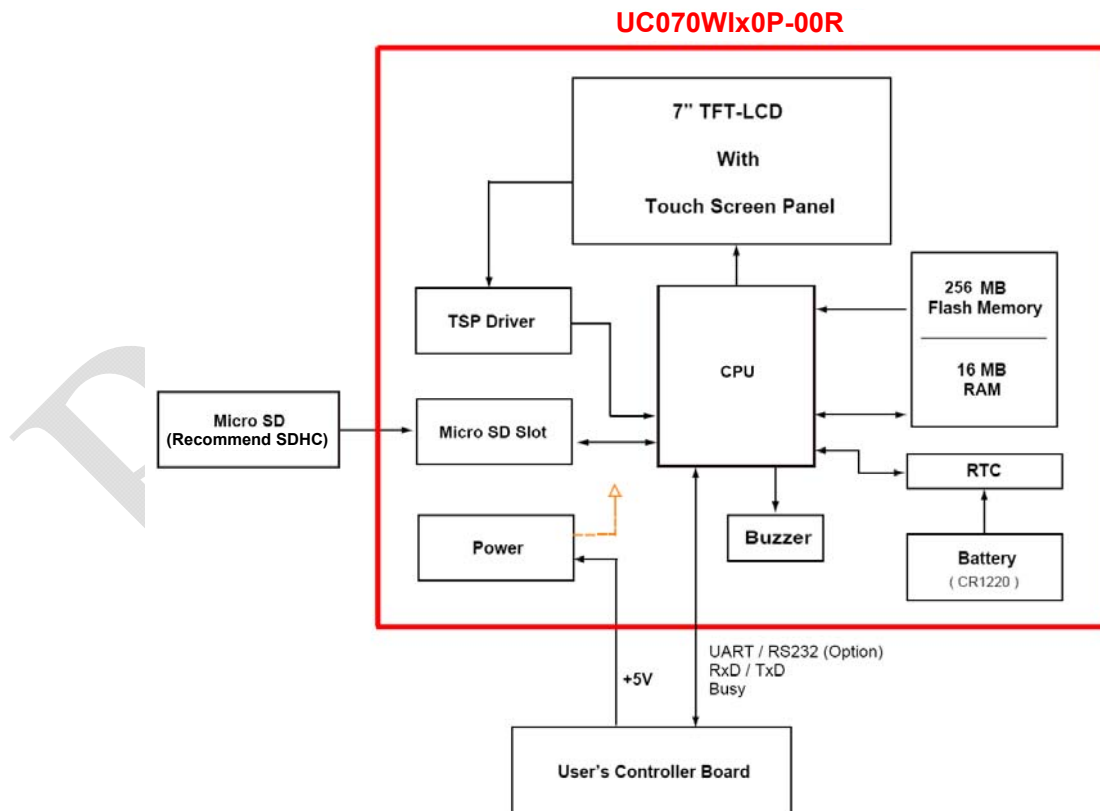
Power Requirement		
Power Input	+5V VDC	
Power Consumption@+5V	3.15 Watts (±15%)	
Controls		
Transmission Interface	UART / RS232 (Duplex Transmission)	
Communication Protocol		
UART Transmission Rate	115200 (max.921600bps) Bps	
Data Bit	8 Bits	
Parity Bit Check	None	
Stop Bit	1 Bit	
Environment		
Temperature Range	Operating	With PCAP -15~+70°C
	Storage	-20~+70°C
High Temperature & High Humidity (Non-condensing)	Operating	+60°C / 90%

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

Note 2: GUI cache memory

4. Block Diagram

4.1 Block Diagram

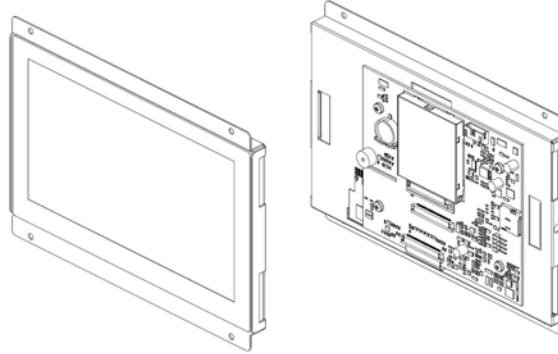




5. Order Information

5.1 Unit





Unit



Parameter	UC070WIA0P-00R	UC070WIB0P-00R	Unit	Remark
RTC	⊙	⊙		
Touch Screen Function	Projected Capacitive Touch	Projected Capacitive Touch		
Outline Dimension	181x133.6x22.02	181x133.6x22.02	mm	
Buzzer Function	⊙	⊙		
Transmission Interface	UART	RS232		
Weight	487	487	g	±10%
Condition	Standard	Non-Standard		

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.

5.2 Accessories (Option)

NO.	Item	Order P/N	Picture	Remark
1.	7P 2.0mm - 4P1.25mm - 5.5mm DC Jack 2.1 φ	LACABLE008-FDR		Only for UC070WIA0P-00R
2.	GCK-003 Signal Cable 7Pin 2.0mm to 7Pin 1.25mm (L:150mm)	LACABLE009-FDR		Only for UC070WIB0P-00R
3.	RS232 Board	LOPOWER014-FDR		
4.	Female/Female Null Modem type L:1800mm	LACABLE045-FDR		



6. Absolute Maximum Ratings

6.1 Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Remark
Input Voltage	Vin	+4.2	+5.7	V	
UART Mode	TXD / RXD / BUSY	+0.3	+3.6	V	
	RXD	+0.3	+5.5	V	
RS232 Mode	TXD / BUSY	-6	+6	V	
	RXD	-15	+15	V	
Operating Temperature With PCAP	-	-15	+70	°C	
Storage Temperature With PCAP	-	-20	+70	°C	
Operate With PCAP at High Temperature and Humidity (Non-condensing)	-	-	+60	°C	@90%RH

7. Recommended operating conditions

7.1 Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Note
Input Voltage	Vin	+4.5	+5	+5.5	V	
Total Current	Iin (+5V)	-	630	-	mA	±15%
Power Consumption		-	3.15	-	W	@5V
UART Mode	TXD / BUSY	+0.3	+3.3	-	V	
	RXD	+0.3	+3.3	+5.3	V	
RS232 Mode	TXD / BUSY	-5	-	+5	V	
	RXD	-12	-	+12	V	

8. Pin Description

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

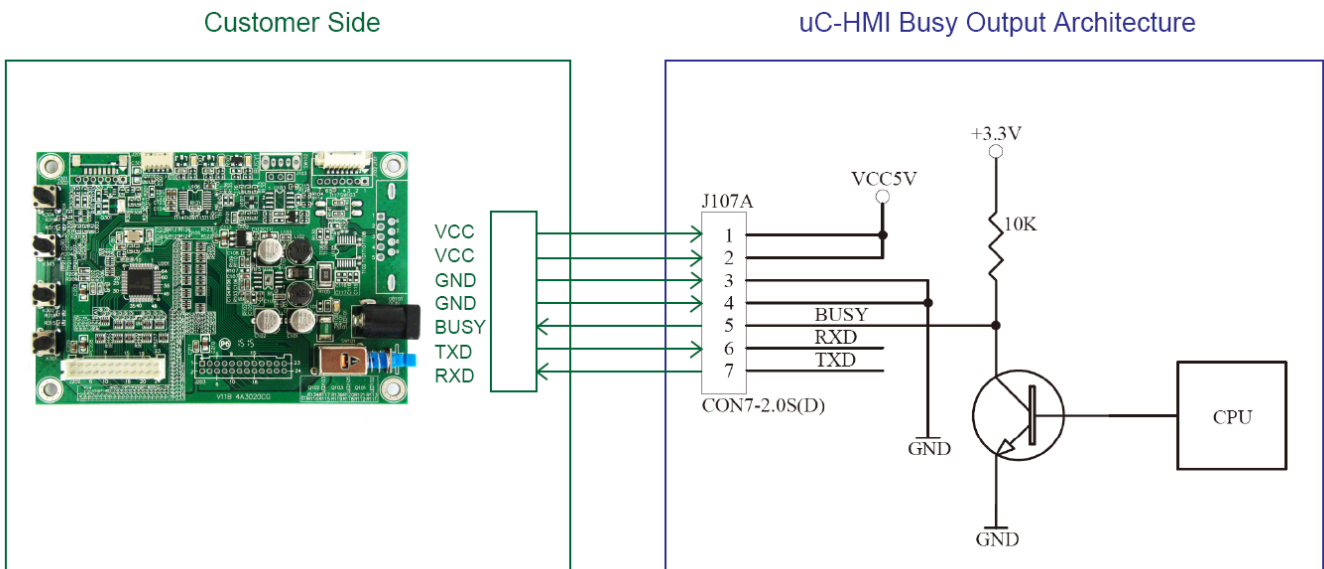
- ※ FDT Connector Part No.: S7B-PH-K-S (JST) or [Same as M24267R (STM)];
FDT Matching Connector Part No.: PHR-7 (JST) or [Same as P24267 (STM)]

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	(Note1,2)
6	RXD	I	Receive Data	
7	TXD	O	Transmit Data	

Note: 1.Your application circuit board must be connects with BUSY pin of uC-HMI.

	BUSY Active	BUSY Inactive
UART Mode	+3.3V	0V
RS232 Mode	-5V	+5V

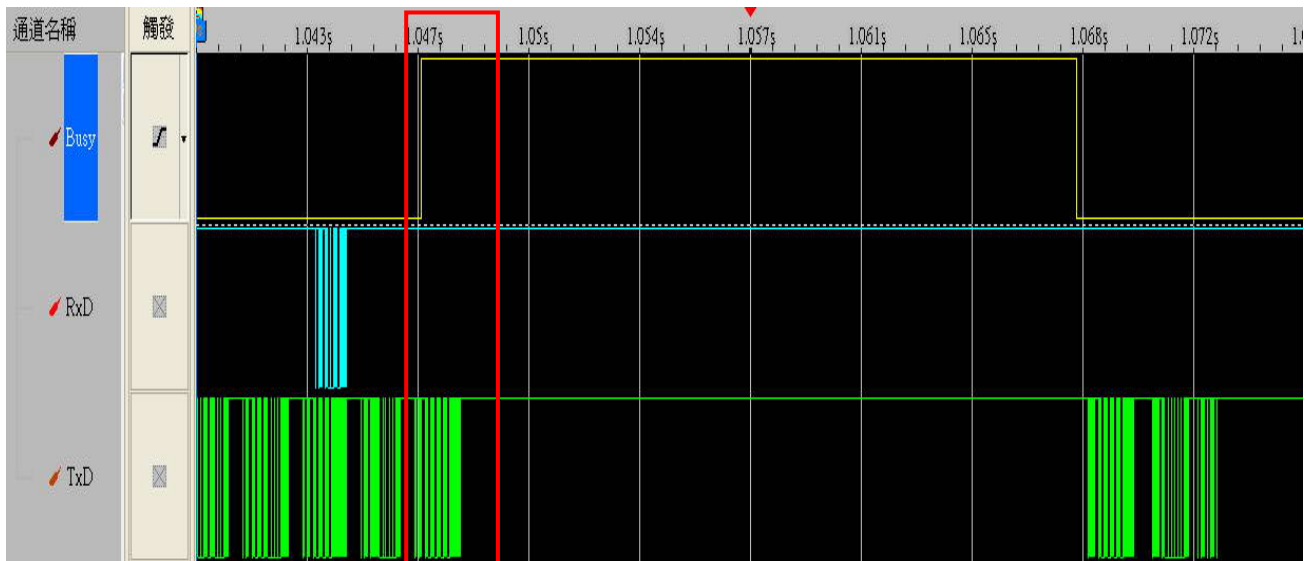
2. BUSY circuit of UART Mode



3. If the command is continuously sent while busy High, this command will be discarded and cannot be executed.

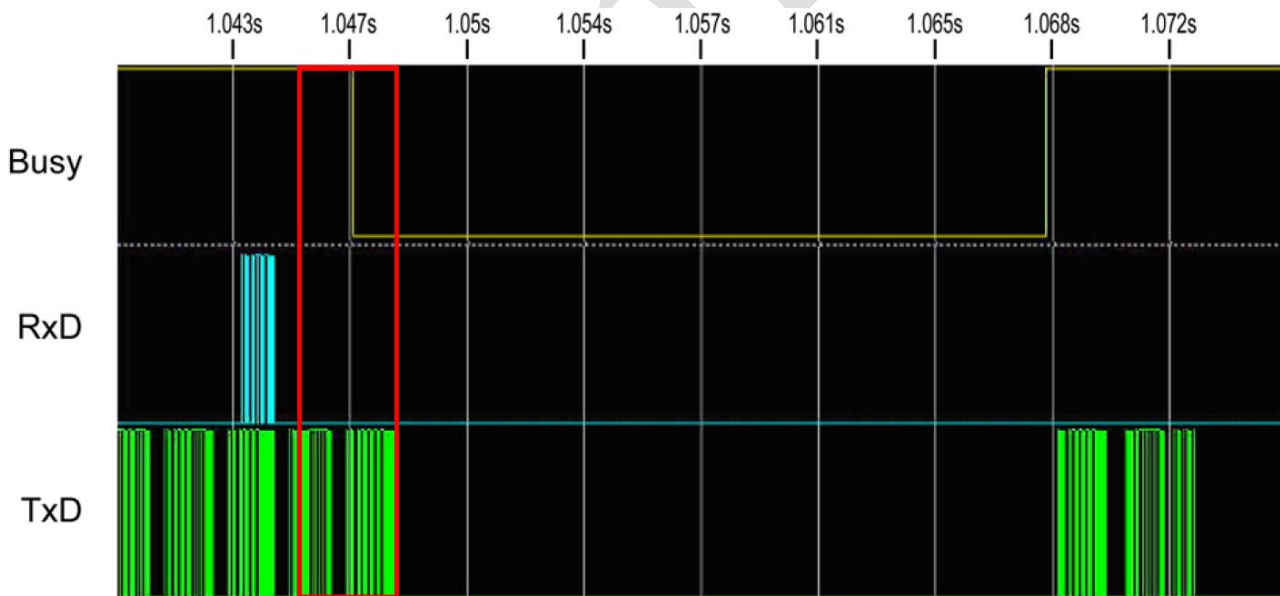


8.2 UART Timing Chart (Client Side)



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

8.3 RS232 Timing Chart (Client Side)



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



9. Projected Capacitive Touch Panel Characteristics

9.1 Electrical Performance

Parameter	Symbol	Min	Typ	Max	Unit	Note
Input Voltage		-	3.3V	-		
Response Time		-	-	16	ms	

9.2 Optical Performance

Parameter	Specifications
Light Transmittance	$\geq 85\%$

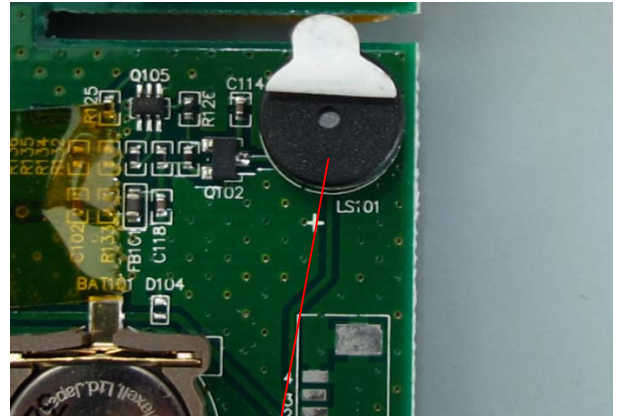
9.3 Mechanical Performance

Parameter	Specifications
Input Method	Styles for PCAP or Finger Available
Touch Function	1 Point
Interface	I2C
Surface Hardness	$\geq 6H$
Cover Spec.	Black Printing



10. Notice

10.1 Remove Buzzer Label



Remove

10.2 Micro SD Notice



If uC-HMI cannot detect SD card, try re-insert the SD card.



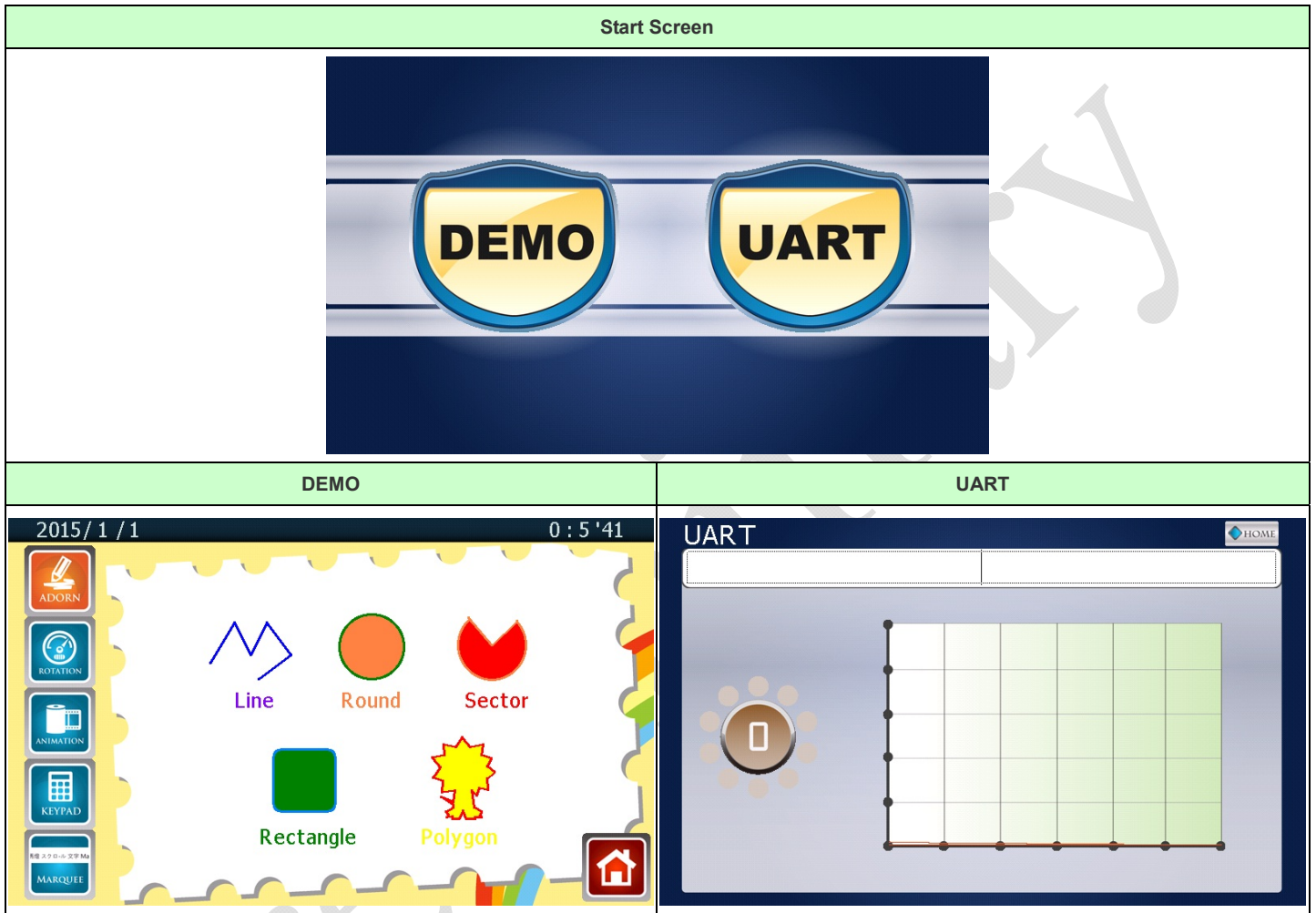
11. The Built-in Demo Project of the Module

11.1 Operation Explaining

The uC-HMI module delivery is included a project.

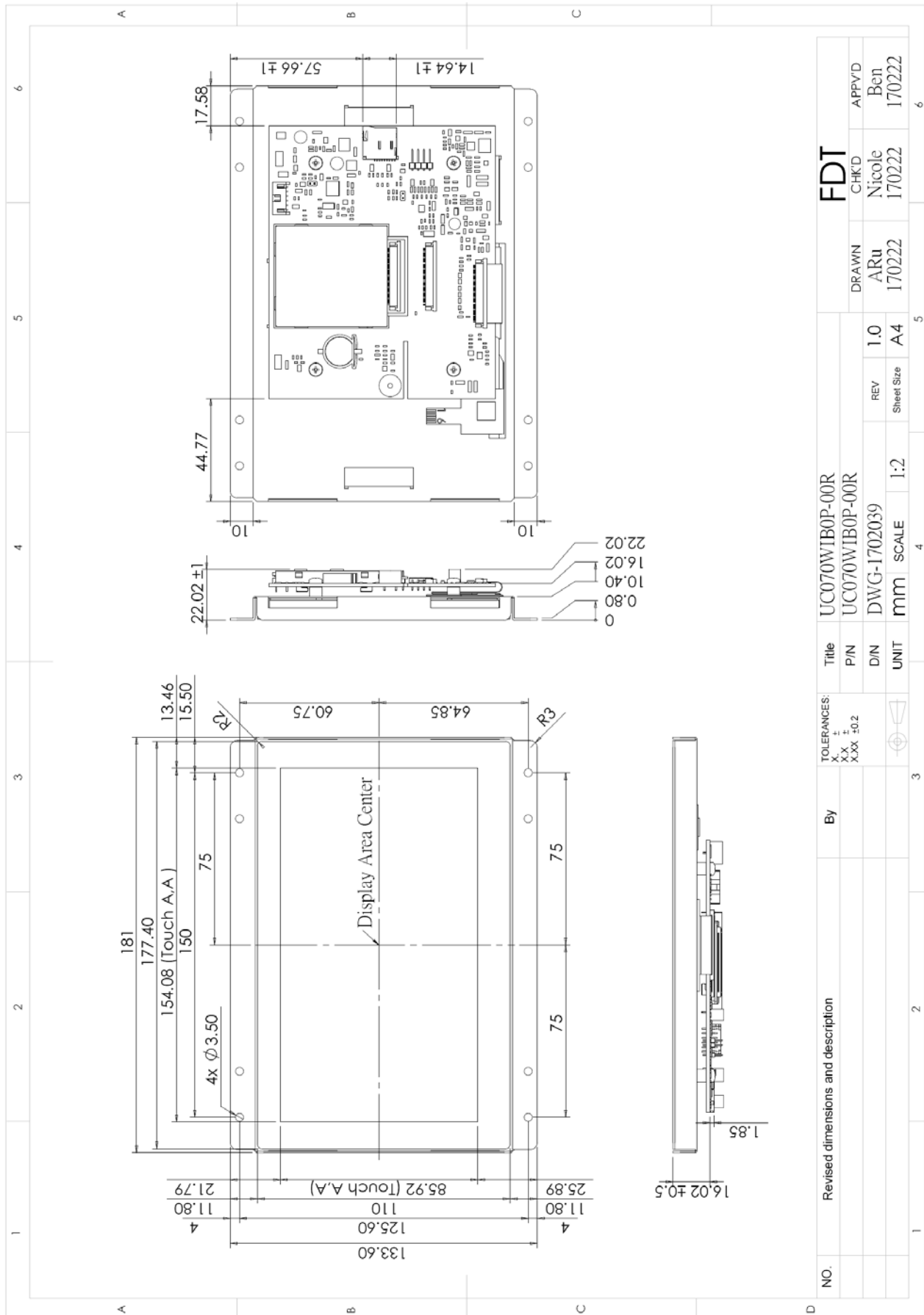
How to use that please refer to the document as “uC-HMI_Module_Demo_User_Guide.pdf”

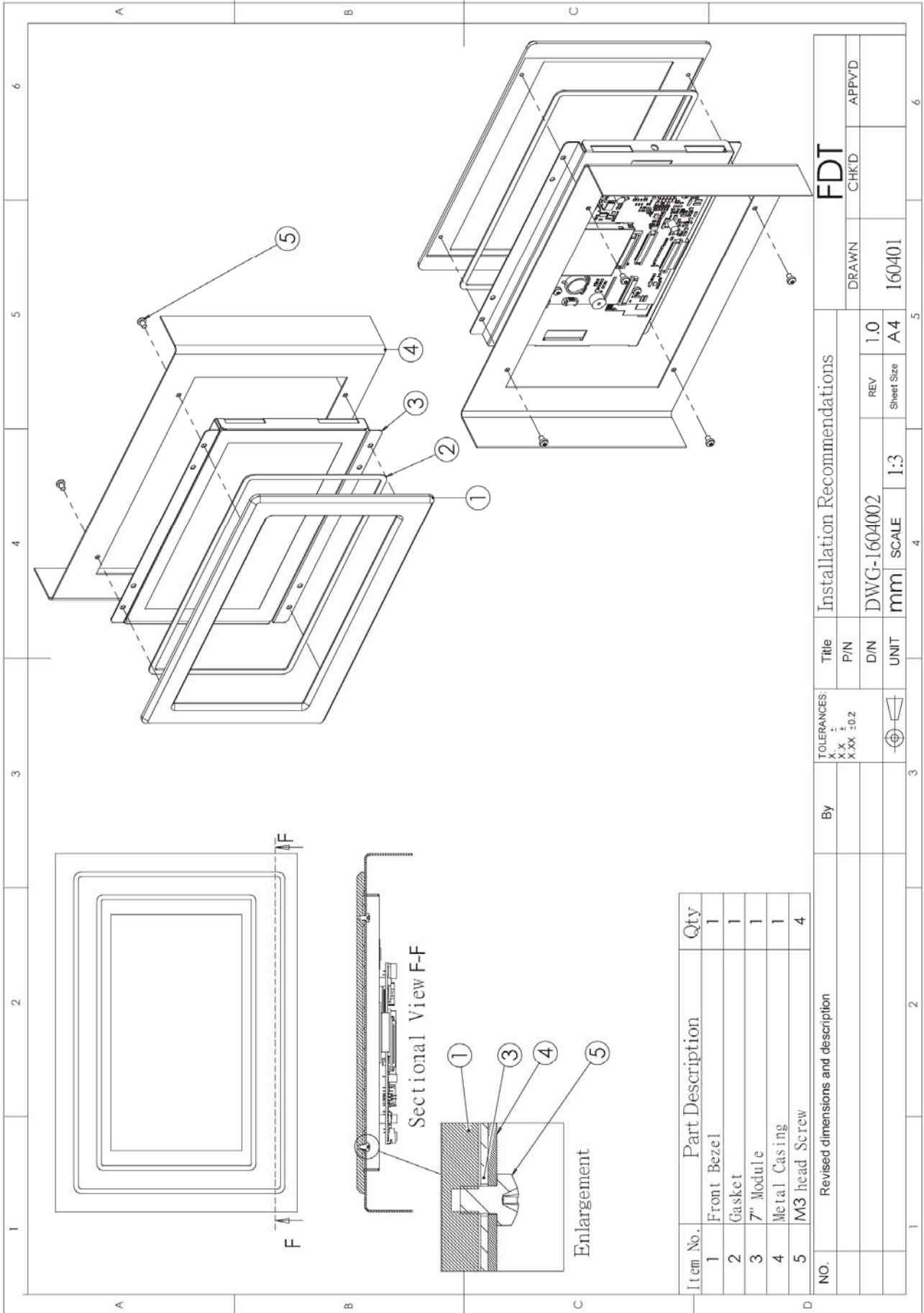
File located : <Disc:\Project of Standard Module\Documents>





I2.2 Unit (UC070WIB0P-00R)





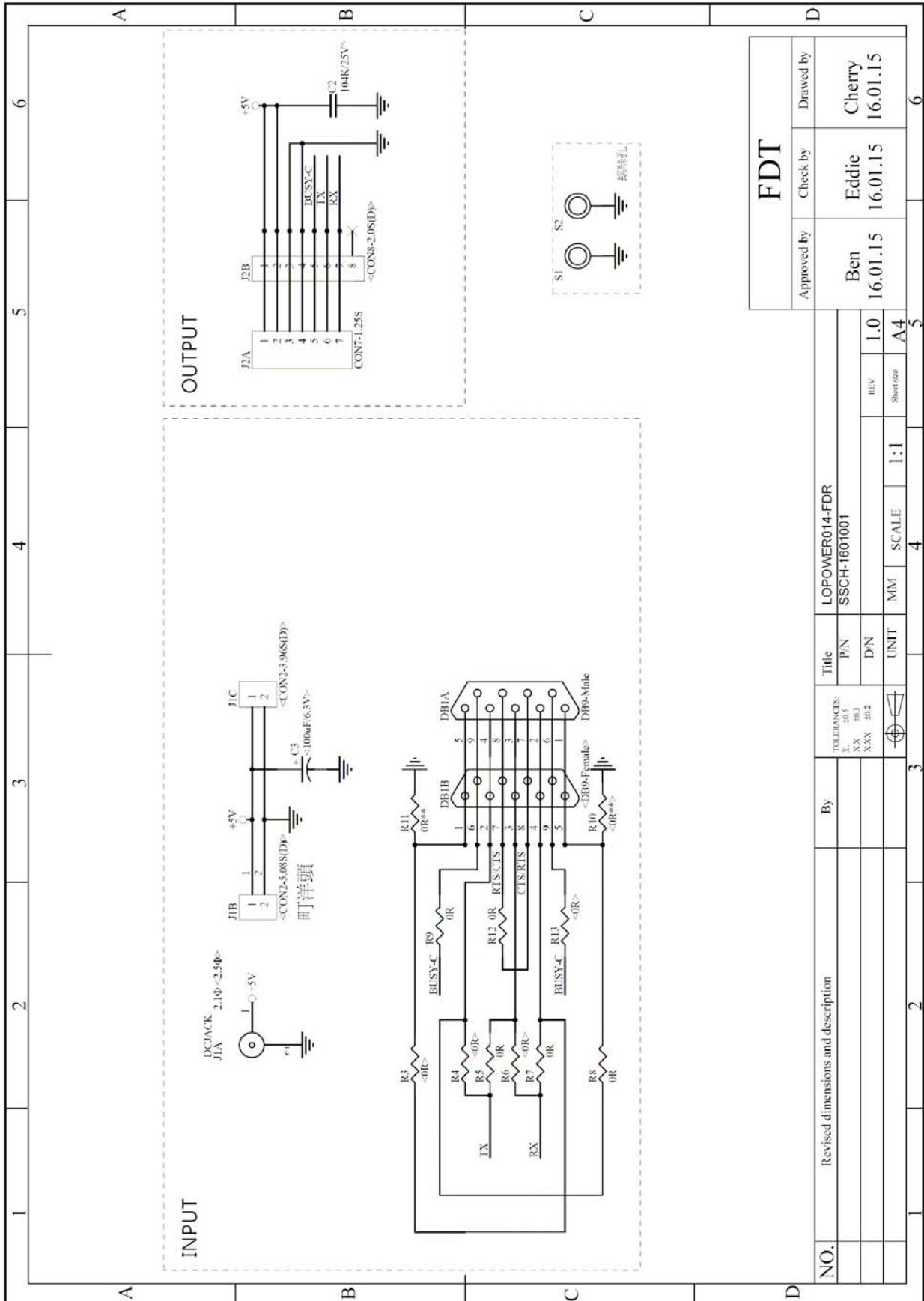
Item No.	Part Description	Qty
1	Front Bezel	1
2	Gasket	1
3	7" Module	1
4	Metal Casing	1
5	M3 head Screw	4

NO.		Revised dimensions and description		By		TOLERANCES		Title		Installation Recommendations		FDT	
								P/N		DRAWN	CHK'D	APPV'D	
								D/N		DWG-1604002			
								UNIT		mm	SCALE	1:3	
										REV	1.0		
										Sheet Size	A4		



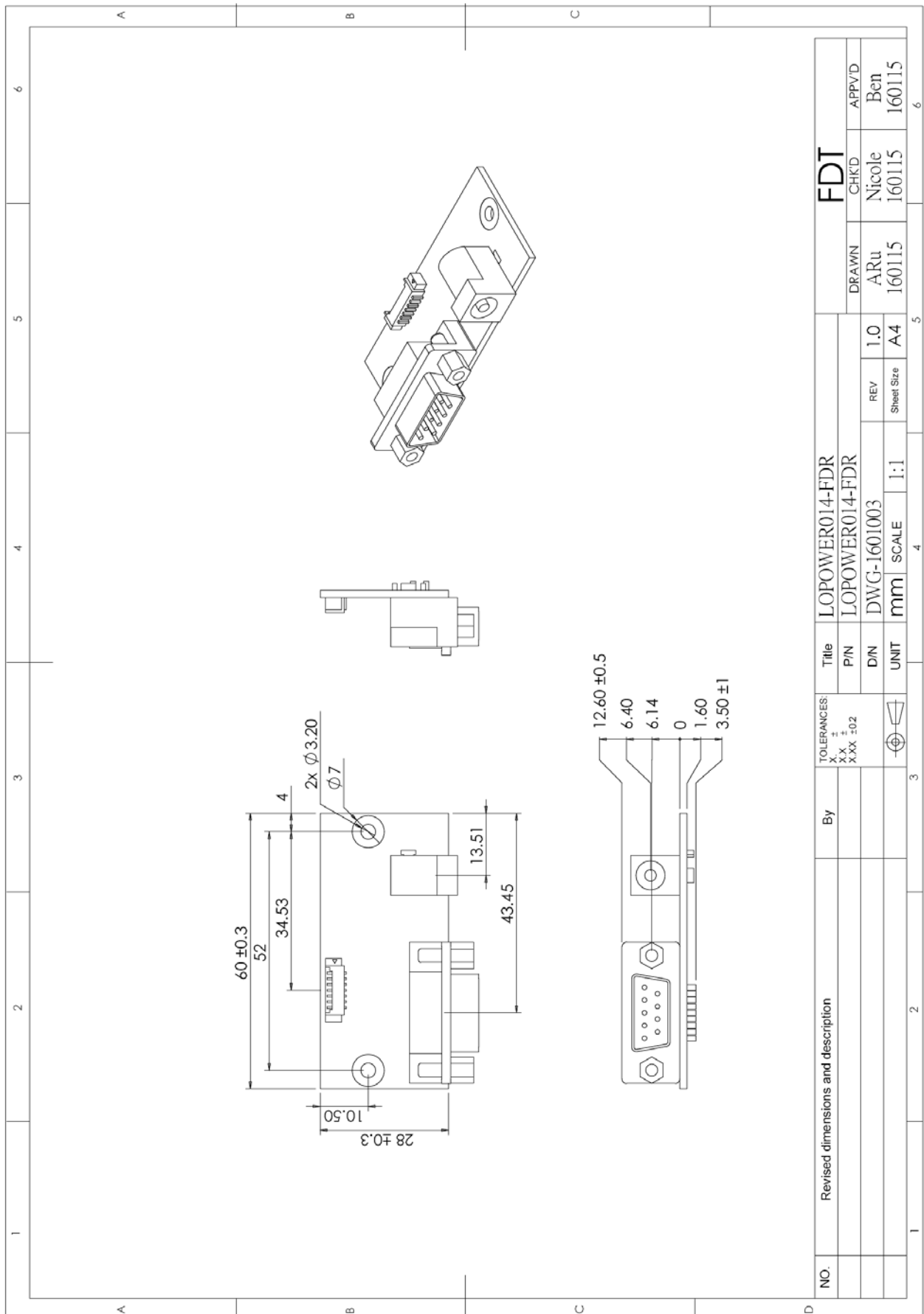
14. Accessory (Drawing)

14.1 Application Circuit (Option)



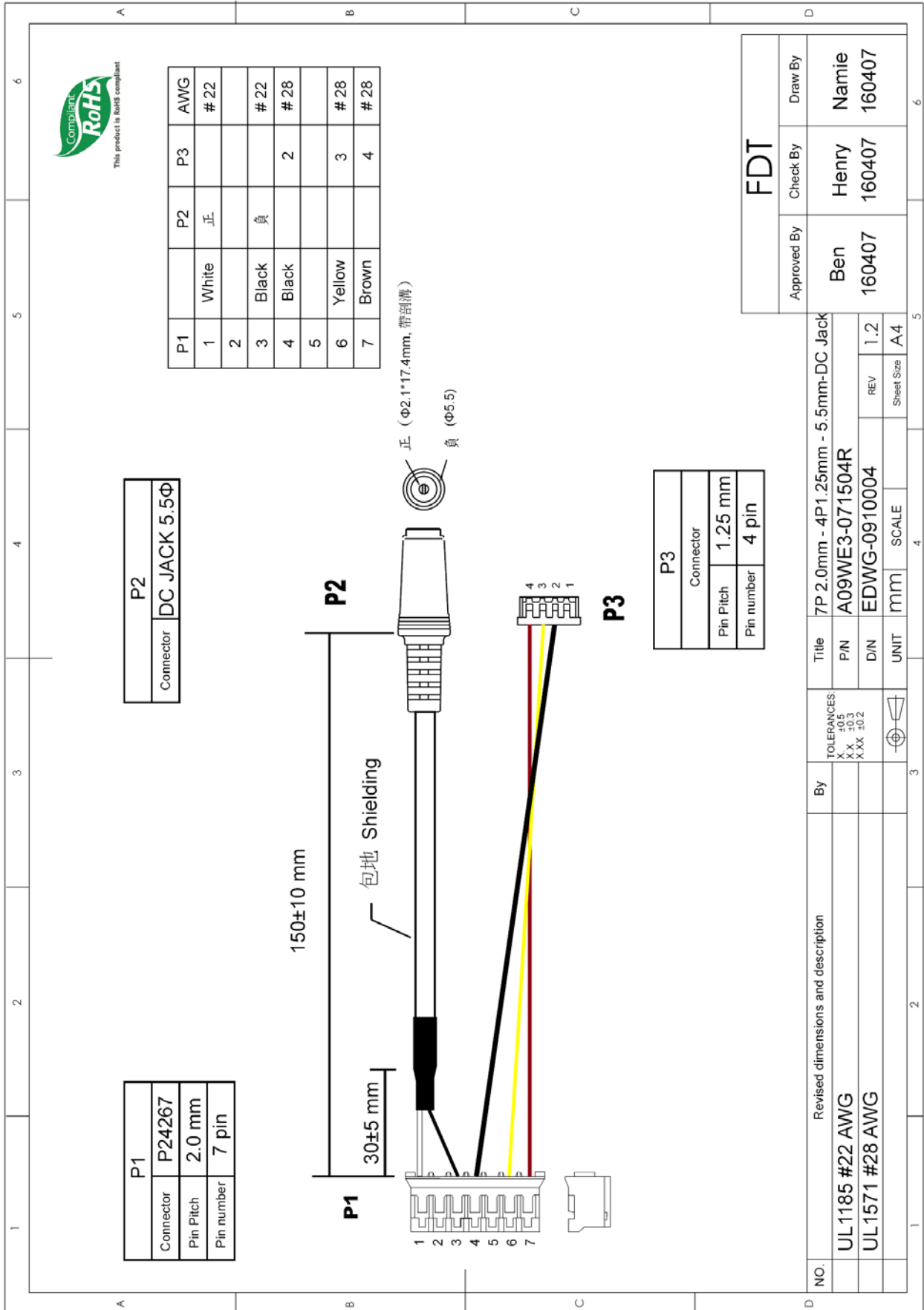


14.2 Application Board Dimension (Option)





14.3 LACABLE008-FDR (Option)





15. Appendix

15.1 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	

15.2 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 PCAP	L	$\theta = 0^\circ / \phi = 0$	320	400	---	cd/m ²	
Brightness With PCAP	L	$\theta = 0^\circ / \phi = 0$	272	340	---	cd/m ²	
LED Life Time	---	T _a =+25°C	20000	---	---	Hrs	I _L =180mA Note

Note: The "LED Life Time" is defined as the module brightness decrease to 50% original.

