TFT DISPLAY SPECIFICATION



WINSTAR Display Co.,Ltd.
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SPECIFICATION

CUSTOMER : _____

MODULE NO.: WF39-480128DH#003-FC

APPROVED BY: **(FOR CUSTOMER USE ONLY)**	**PCB VERSION:** **DATA:**

SALES BY	APPROVED BY	CHECKED BY	PREPARED BY
first FC components			
ISSUED DATE: 2023/05/25			

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MODLE NO：

RECORDS OF REVISION

DOC. FIRST ISSUE

VERSION	DATE	REVISED PAGE NO.	**SUMMARY**
0	2022/07/27		First issue
A	2022/09/22		Modify Interface
B	2022/12/30		Modify Optical Characteristics
C	2023/05/25		Modify interface (HDMI (only for DVI)→DVI)

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2.Summary

TFT 3.9” is a TN transmissive type color active matrix TFT liquid crystal display that use amorphous silicon TFT as switching devices. This module is a composed of a TFT_LCD module, It is usually designed for industrial application and this module follows RoHs.

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3.General Specifications

Item	Dimension	Unit
Size	3.9	inch
Dot Matrix	480x128 x RGB	dots
Module dimension	125.0 x 66.5 x 13.95 (Max)	mm
Active area	95.04 x 25.34	mm
Pixel pitch	0.198(H) x 0.198(V) mm	mm
LCD type	TFT, Normally White, Transmissive	
View Direction	6 o'clock	
Gray Scale Inversion Direction	12 o'clock	
Aspect Ratio	Bar Type	
Backlight Type	LED, Normally White	
Controller IC	TFP401	
Interface	HDMI(only for DVI)	
CTP IC	GT911 or equivalent	
CTP FW Version	0X99	
CTP Interface	USB	
CTP Resolution	480*128	
With /Without TP	With CTP	
Surface	Glare	

*Color tone slight changed by temperature and driving voltage.

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4.Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	TOP	-20	—	+70	℃
Storage Temperature	TST	-30	—	+80	℃

Note: Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above

1. Temp. ≦60℃, 90% RH MAX. Temp.＞60℃, Absolute humidity shall be less than 90% RH at 60℃

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5.Electrical Characteristics

5.1. Operating conditions:

Item	Symbol	Condition	Min	Typ	Max	Unit	Remark
Supply Voltage For LCM	VDD	—	—	5	—	V	—
Supply Current For LCM	IDD	—	—	300	450	mA	Note 2
LED life time	—	—	—	50,000	—	Hr	Note 3

Note 1 : This value is test for VDD =5.0V , Ta=25℃ only

Note 2 : Display with Raspberry pi the driver power is over USB , first make sure you have a 2A power supply, with a good quality USB cable, a thin wire power cable is no good. Make sure its 24AWG or smaller, shorter USB cables are better too.

Note3: The “LED life time” is defined as the module brightness decrease to 50% original brightness at Ta=25℃ and IL =40mA. The LED lifetime could be decreased if operating IL is lager than 40mA

Note4 : CTP driver is base on the mouse driver program and through USB port connect to PC or embedded board.Can only support the single touch.

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7.Optical Characteristics

Item		Symbol	Condition.	Min	Typ.	Max.	Unit	Remark
Response time		Tr+Tf	θ=0°、Φ=0°	-	25	40	ms	Note 3
Contrast ratio		CR	At optimized viewing angle	300	500	-	-	Note 4
Color Chromaticity	White	Wx	θ=0°、Φ=0	0.264	0.314	0.364	-	Note 2,6,7
		Wy		0.269	0.319	0.369	-	
Viewing angle (Gray Scale Inversion Direction)	Hor.	ΘR	CR≧10	-	65	-	Deg.	Note 1
		ΘL		-	65	-		
	Ver.	ΦT		-	65	-		
		ΦB		-	50	-		
Brightness		-	-	300	400	-	cd/m^2	Center of display
Uniformity		(U)	-	75	-	-	%	Note 5

Ta=25±2℃, ILED=40mA

Note 1: Definition of viewing angle range

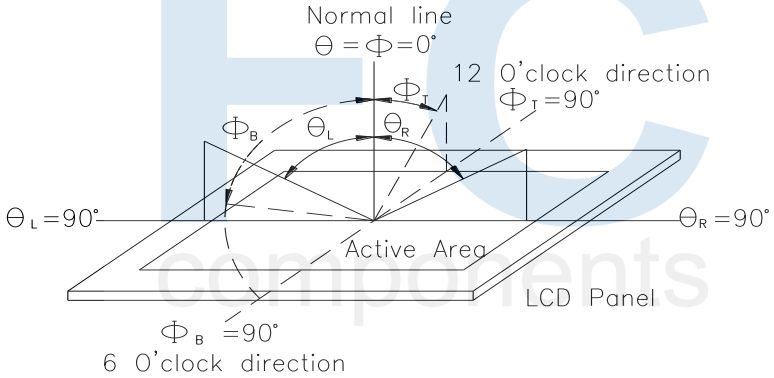


Fig. 7.1. Definition of viewing angle

Note 2: Test equipment setup:

After stabilizing and leaving the panel alone at a driven temperature for 10 minutes, the measurement should be executed. Measurement should be executed in a stable, windless, and dark room. Optical specifications are measured by Topcon BM-7orBM-5 luminance meter 1.0° field of view at a distance of 50cm and normal direction.

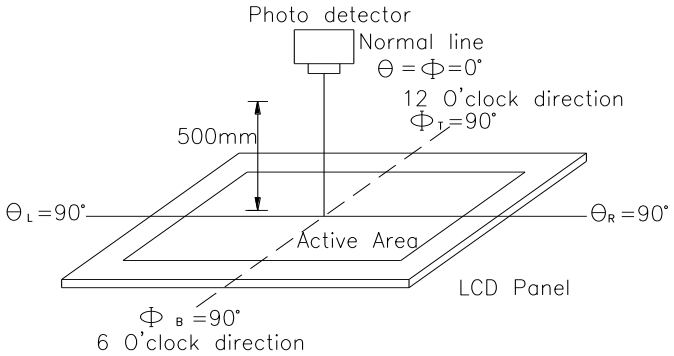


Fig. 7.2. Optical measurement system setup

8.Interface

8.1. LCM PIN Definition

DVI

Pin No.	Symbol	I/O	Function	Remark
1	Rx2+	I	Channel-2 positive receiver input; low-voltage signal differential- input pair.	
2	GND	P	Ground	
3	Rx2-	I	Channel-2 negative receiver input; low-voltage signal differential- input pair.	
4	Rx1+	I	Channel-1 positive receiver input; low-voltage signal differential- input pair.	
5	GND	P	Ground	
6	Rx1-	I	Channel-1 negative receiver input; low-voltage signal differential- input pair.	
7	Rx0+	I	Channel-0 positive receiver input; low-voltage signal differential- input pair.	
8	GND	P	Ground	
9	Rx0-	I	Channel-0 negative receiver input; low-voltage signal differential- input pair.	
10	RxC+	I	Clock positive receiver input; low-voltage signal differential- input pair.	
11	GND	P	Ground	
12	RxC-	I	Clock negative receiver input; low-voltage signal differential- input pair.	
13-16	NC	-	No connection	
17	GND	P	Ground	
18	5V	-	Power Supply	
19	Detect	-	Hot plug detect	

I: input, O: output, P: Power

Note 1: Only supports Raspberry Pi series

8.2. PW (Micro USB type B)

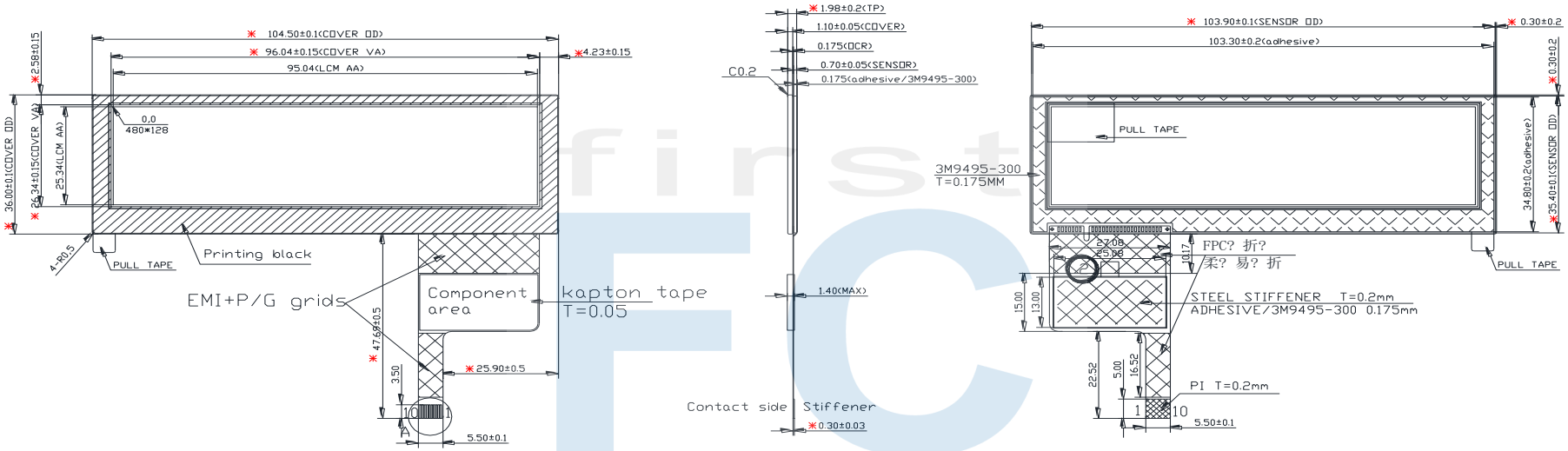
Pin No.	Symbol	I/O	Function	Remark
1	5V	P	Power Supply	
2	NC	-	No connection	
3	NC	-	No connection	
4	NC	-	No connection	
5	GND	P	Ground	

8.3. CTP USB (Micro USB type B)

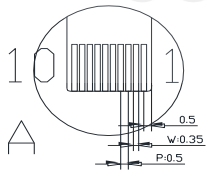
Pin No.	Symbol	I/O	Function	Remark
1	5V	P	Power Supply	
2	D-	-	Data line -	
3	D+	-	Data line +	
4	NC	-	No connection	
5	GND	P	Ground	

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10.Touch Panel Information



A SCALE:3/1



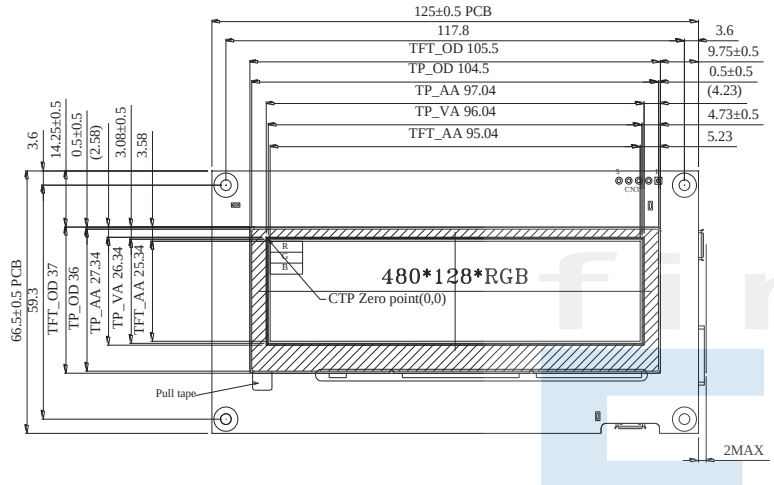
Sensor:Atouch

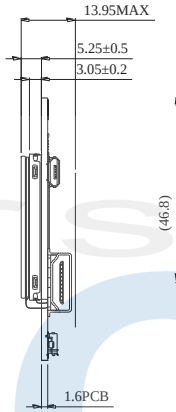
PIN DEFINITION	
Pin NO.	Definition
1	VSS
2	VDD2.8V
3	SCL2.8V
4	NC
5	SDA2.8V
6	NC
7	RST2.8V
8	NC
9	INT2.8V
10	VSS

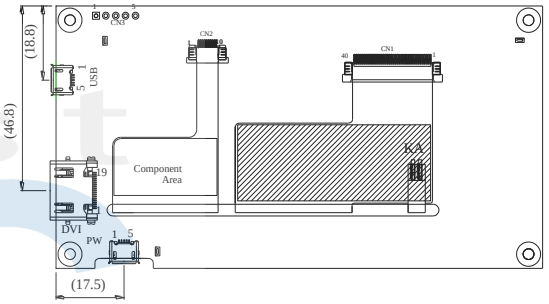
NOTES:
*:Important dimensions
TOLERANCE UNLESS: x.x ±0.3
OTHERWISE SPECIFIED: x.xx ±0.2
DIMENSIONS IN MM: ANGULAR:±1°

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11.Contour Drawing







DVI

Pin	Symbol
1	RX2+
2	GND
3	RX2-
4	RX1+
5	GND
6	RX1-
7	RX0+
8	GND
9	RX0-
10	RXC+
11	GND
12	RXC-
13	NC
14	NC
15	NC
16	NC
17	GND
18	5V
19	Detect

USB

PIN NO.	SYMBOL
1	5V
2	D-
3	D+
4	NC
5	GND

PW

PIN NO.	SYMBOL
1	5V
2	NC
3	NC
4	NC
5	GND

The non-specified tolerance of dimension is ±0.3 mm .

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