VICTRONIX	Add:	Room 1405A, Building 1B, Hua qiang Idea Park, Guang Ming District, ShenZhen,China		
	Tel:	+86-755-33265935	Fax:	+86-755-33265935

SPECIFICATION

VXT700WHA-02P

☐ Preliminary Specification

☐ Final Specification

CUSTOMER:

Made By: **Checked By:** **Approved By:** **Quality:** **Date:** **Note:**	**Approved By:** **Date:** **Note:**

2. Revision Record

Date	Rev.No.	Page	Revision Items	Prepared
2021-10-14	**V0**		**The first release**	**SolonZhang**

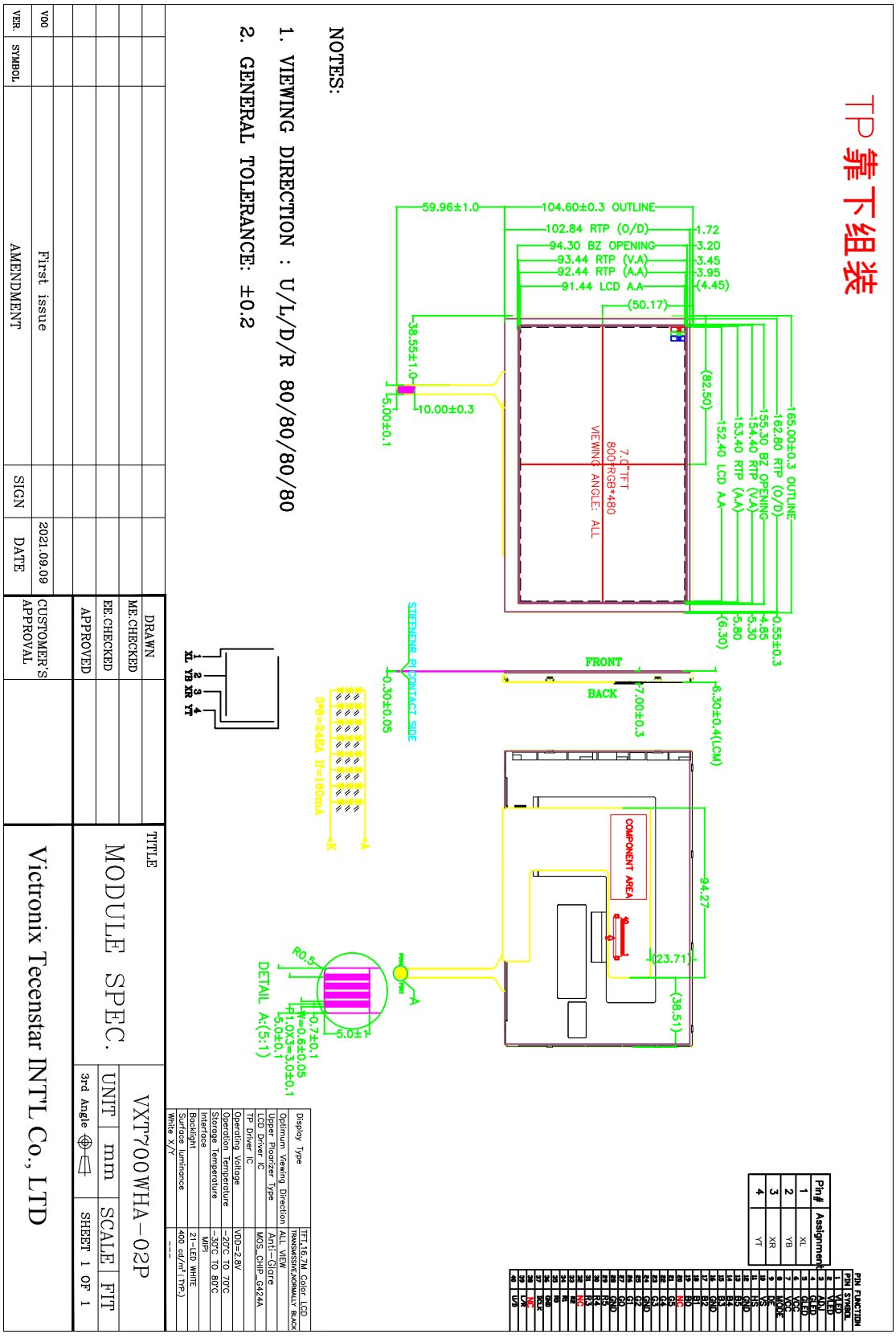
Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

3. General Specifications

VXT700WHA-02P is a TFT-LCD module. It is composed of a TFT-LCD panel, driver IC, FPC,TP,a back light unit. The 7.0'' display area contains 800 x 480 pixels and can display up to 16.7M colors. This product accords with RoHS environmental criterion.

Item	Contents	Unit	Note
LCD Type	TFT	-	
Display color	16.7M		
Viewing Direction	FREE	O'Clock	
Gray scale inversion direction	6	O'Clock	
Operating temperature	-20~+70	℃	
Storage temperature	-30~+80	℃	
Module size	Refer to outline drawing	mm	
Active Area(W×H)	152.4X91.44	mm	
Number of Dots	800x480	dots	
Controller	MOS_CHIP_G424A	-	
Power Supply Voltage	3.3	V	
Outline Dimensions	Refer to outline drawing	-	
Backlight	3*8-LEDs (white)	pcs	
Weight	---	g	
Interface	RGB Interface	-	

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com


TP 靠下组装
NOTES:
1. VIEWING DIRECTION : U/L/D/R 80/80/80/80
2. GENERAL TOLERANCE: ±0.2
59.96±1.0
104.60±0.3 OUTLINE
102.84 RTP (O/D)
94.30 BZ OPENING
93.44 RTP (V.A)
92.44 RTP (A.A)
91.44 LCD A.A
(50.17)
1.72
3.20
3.45
3.95
(4.45)
38.55±1.0
5.00±0.1
10.00±0.3
(82.50)
165.00±0.3 OUTLINE
162.80 RTP (O/D)
155.30 BZ OPENING
154.40 RTP (V.A)
153.40 RTP (A.A)
152.40 LCD A.A
7.0"TFT
800RGB*480
VIEWING ANGLE: ALL
4.85
5.30
5.80
(6.30)
0.55±0.3
STIFFENER
CONTACT SIDE
FRONT
BACK
0.30±0.05
7.00±0.3
6.30±0.4(LCM)
3*8=24BA If=160mA
COMPONENT AREA
94.27
(23.71)
(38.51)
R0.5
DETAIL A:(5:1)
0.74±0.1
1.0±0.05
1.03±0.1
3.0±0.1
5.0±0.1
6.0±
Pin# Assignment
1 XL
2 YB
3 XR
4 YT
PIN FUNCTION
PIN SYMBOL
1 VLED
2 VLED
3 GND
4 GND
5 VCC
6 VCC
7 MODE
8 RESET
9 SCL
10 SDA
11 GND
12 R0
13 R1
14 R2
15 GND
16 G0
17 G1
18 G2
19 GND
20 B0
21 B1
22 B2
23 GND
24 G0
25 G1
26 G2
27 GND
28 B0
29 B1
30 B2
31 R3
32 R4
33 R5
34 R
35 G
36 B
37 XSCK
38 NC
39 LR
40 UD
Display Type TFT,16.7M Color LCD
Optimum Viewing Direction ALL VIEW
Upper Floorizer Type TRANSMISSIVE,NORMALLY BLACK
LCD Driver IC MOS_CHIP_G424A
TP Driver IC Anti-Glare
Operating Voltage VDD=2.8V
Operation Temperature -20℃ TO 70℃
Storage Temperature -30℃ TO 80℃
Interface MIPI
Backlight 21-LED WHITE
Surface Luminance 400 cd/m² (TYP.)
White X/Y ---
TITLE
MODULE SPEC.
VXT700WHA-02P
UNIT mm
SCALE FIT
3rd Angle
SHEET 1 OF 1
DRAWN
ME.CHECKED
EE.CHECKED
APPROVED
CUSTOMER'S APPROVAL
DATE 2021.09.09
SIGN
AMENDMENT
First issue
VER. V00
SYMBOL
Victronix Tecenstar INT'L Co., LTD

5. Absolute Maximum Ratings(Ta=25℃)

5.1 Electrical Absolute Maximum Ratings.(Vss=0V ,Ta=25℃)

Item	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{DD}	-0.3	3.6	V	1, 2

Notes:

1. If the module is above these absolute maximum ratings. It may become permanently damaged. Using the module within the following electrical characteristic conditions are also exceeded, the module will malfunction and cause poor reliability.
2. V_{CC} >V_{SS} must be maintained.

5.2 Environmental Absolute Maximum Ratings.

Item	Storage		Operating		Note
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature	-30℃	80℃	-20℃	70℃	1,2
Humidity	-	-	-	-	3

1. The response time will become lower when operated at low temperature.
2. Background color changes slightly depending on ambient temperature.

   The phenomenon is reversible.

3. Ta<=40 ℃:85%RH MAX.

   Ta>=40 ℃:Absolute humidity must be lower than the humidity of 85%RH at 40 ℃.

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

6. Electrical Specifications and Instruction Code

6.1 Electrical characteristics(Vss=0V ,Ta=25℃)

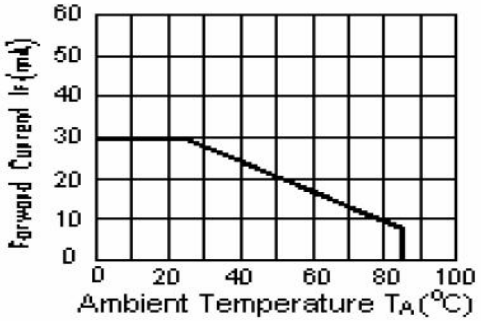
Parameter		Symbol	Condition	Min	Typ	Max	Unit	Note
Power supply		VDD	Ta=25℃	3.0	3.3	3.6	V	
Input voltage	'H'	V_{IH}	VDD=3.3V	0.7VDD	-	VDD+0.3	V	
	'L'	V_{IL}	VDD=3.3V	0	-	0.3VDD	V	
Current Consumption		I_{DD1}	Normal mode	-	-	-	mA	1
		I_{DD2}	Sleep mode	-	-	-	mA	1
Clock Frequency		f_{CLK}	-	-	30	50	MHz	

Note:

1: Tested in 1×1 chessboard pattern.

6.2 LED backlight specification(VSS=0V ,Ta=25℃)

Item	Symbol	Condition	Min	Typ	Max	Unit	Note
Supply voltage	Vf	If=160mA	-	5.0	5.5	V	
Uniformity	ΔBp	If=160mA	75			%	
Luminance for LCD(w/o TP)	Lv	If=160mA	-	450		Cd/m2	



6.3 Interface signals

Pin No.	Symbol	I/O	Function
1	VLED	P	LED back light(Anode)
2			
3	ADJ	I	PWM Signal,1 for high luminance, 0 for low luminance
4	GLED	P	LED back light(Cathode)
5			
6	VCC	P	Power supply
7			
8	MODE	I	DE/YSNC mode select
9	DE	I	Data enable pin
10	VS	I	Frame sync signal
11	HS	I	Line sync signal
12	GND	P	Ground
13	B5	I	Blue data bus
14	B4		
15	B3		
16	GND	P	Ground
17	B2	I	Blue data bus
18	B1		
19	B0		
20	NC	-	No connection
21	G5	I	Green data bus
22	G4		
23	G3		
24	GND	P	Ground
25	G2	I	Green data bus
26	G1		
27	G0		
28	GND	P	Ground
29	R5	I	Red data bus
30	R4		
31	R3		

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

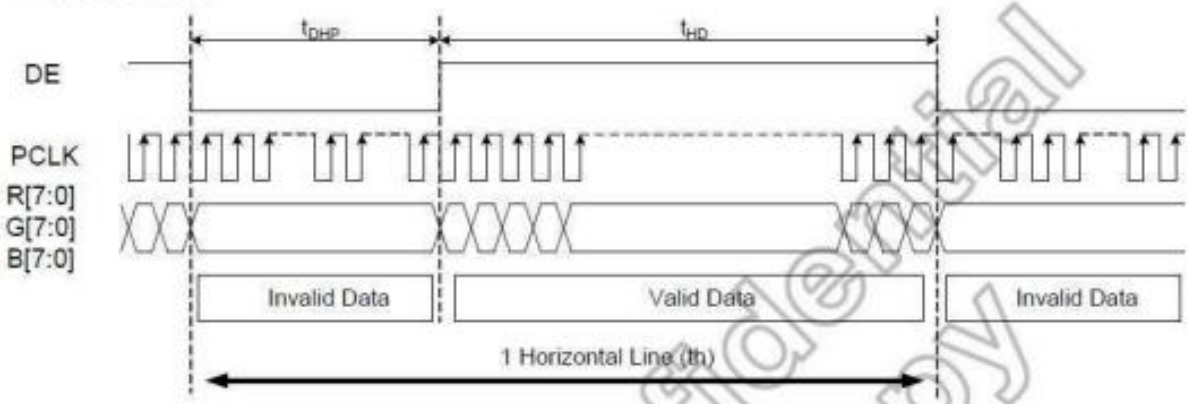
Pin No.	Symbol	I/O	Function
32	NC	-	No connection
33	R2	I	Red data bus
34	R1		
35	R0		
36			
37	DCLK	I	Clock signal
38	NC	-	No connection.
39	L/R	I	Right/Left sequence control of source driver
40	U/D	I	Gate driver Up/Down scan control of gate driver

REF connector FH19-40S-0.5SH or EQU, face down

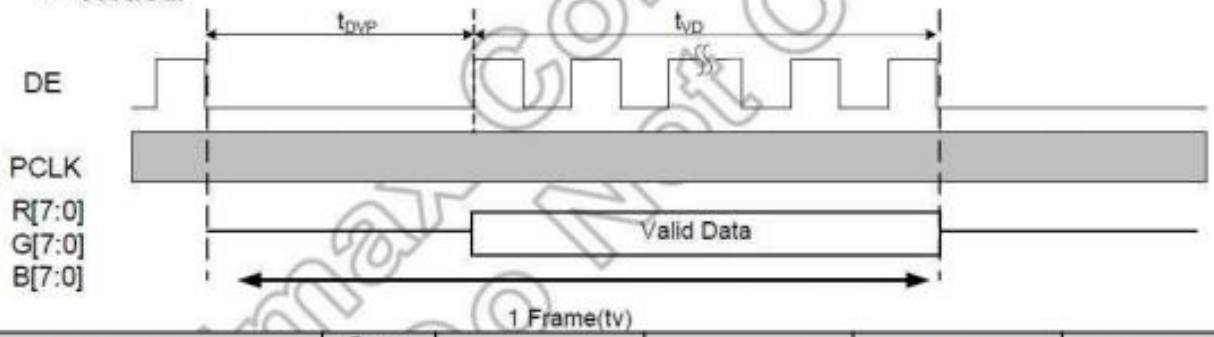
Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

6.4 Parallel RGB AC Characteristics

- **Horizontal**



- **Vertical**



Parameter	Sym bol	Min.	Typ.	Max.	Unit
Clock Frequency	fdck	25.2	27.2	34.6	MHz
Horizontal valid data	Thd	800	800	800	clocks
1 horizontal line	Th	856	860	1100	clocks
Vertical valid data	Tvd	480	480	480	Th
1 vertical field	Tv	490	528	528	Th
V Frequency	fv	-	60	-	Hz

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

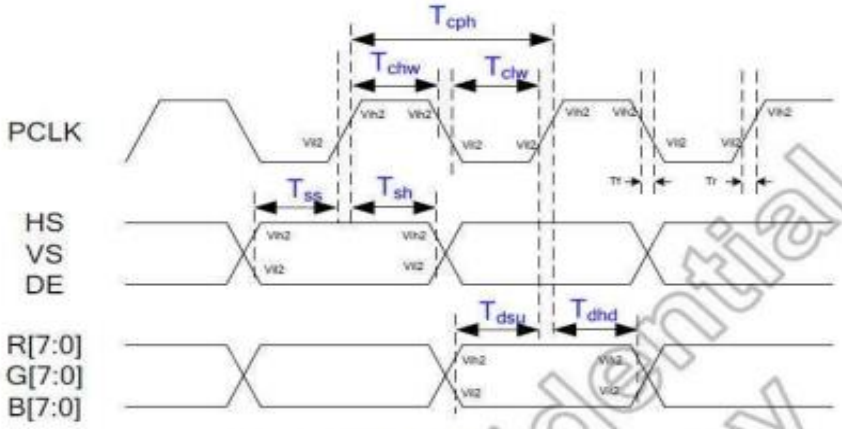


Figure 6.11: RGB input timing

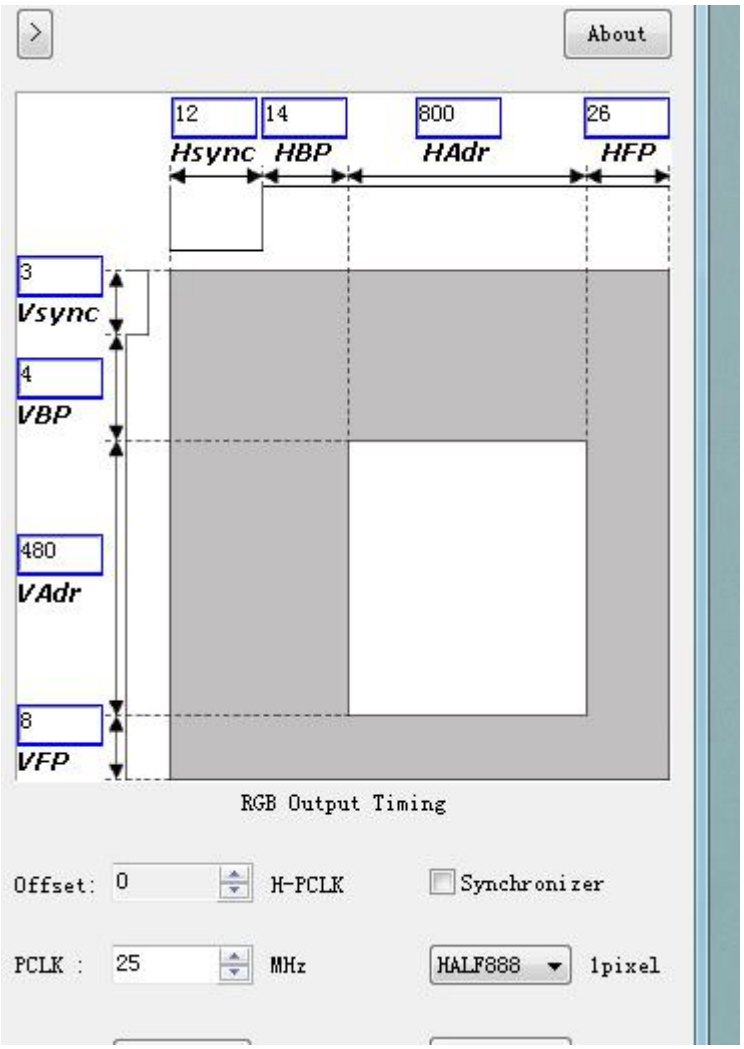
Input data/sync parameters in RGB interface

(VDDIO=1.65V to 3.6V, VDD1=2.6V to 3.6V, VDD2=2.6V to 3.6V, GND=0V, T_A=-40 to +95°C)

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
PCLK period	T_{cph}	16.8	8+tr+tf	-	ns
PCLK clock high width	T_{chw}	6	-	-	ns
PCLK clock low width	T_{clw}	6	-	-	ns
VS setup time	T_{ss}	3	-	-	ns
VS hold time	T_{sh}	3	-	-	ns
HS setup time	T_{ss}	3	-	-	ns
HS hold time	T_{sh}	3	-	-	ns
DE setup time	T_{ss}	3	-	-	ns
DE hold time	T_{sh}	3	-	-	ns
Data setup time	T_{dsu}	3			ns
Data hold time	T_{dhd}	3			ns
Input signal rising time	Tr	-	-	20	ns
Input signal falling time	Tf	-	-	20	ns

Table 6.1: Input data/sync. parameters in RGB interface

REF setting



Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

7. *Optical Characteristics*

Item	Symbol		Condition	Min.	Typ.	Max.	Unit	Note
Brightness (Whit TP)	Bp		θ=0° Φ=0°	-	400	-	Cd/m²	1
Uniformity	⊿Bp			75	-	-	%	1,2
Viewing Angle	3:00		Cr≥10	-	80	-	Deg	6
	6:00			-	80	-		
	9:00			-	80	-		
	12:00			-	80	-		
Contrast Ratio	Cr		θ=0° Φ=0°	800	1400		-	4
Response Time	T_r			-	-	30	ms	5
	T_f			-	-	-	ms	
Color of CIE Coordinate	W	x	θ=0° Φ=0°		-		-	7
		y			-		-	
	R	x			0.641		-	
		y			0.334		-	
	G	x			0.331		-	
		y			0.637		-	
	B	x			0.149		-	
		y			0.046		-	
NTSC Ratio	S			65	70	-	%	

Note: The parameter is slightly changed by temperature, driving voltage and materiel

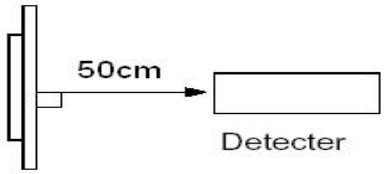
Note 1: The data are measured after LEDs are turned on for 5 minutes. LCM displays full white. The brightness is the average value of 9 measured spots. Measurement equipment PR-705 (Φ8mm)

Measuring condition:

- Measuring surroundings: Dark room.
- Measuring temperature: Ta=25℃.
- Adjust operating voltage to get optimum contrast at the center of the display.

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

Measured value at the center point of LCD panel after more than 5 minutes while backlight turning on.

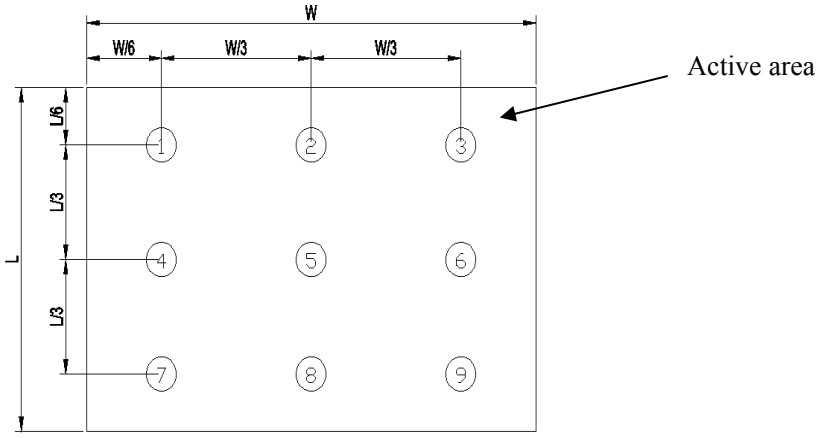


Note 2: The luminance uniformity is calculated by using following formula.

⊿Bp = Bp (Min.) / Bp (Max.)×100 (%)

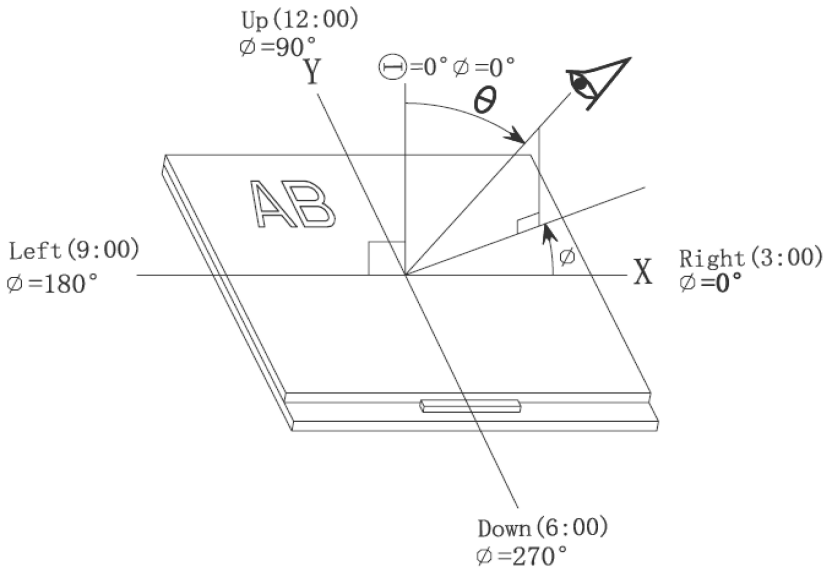
Bp (Max.) = Maximum brightness in 9 measured spots

Bp (Min.) = Minimum brightness in 9 measured spots.

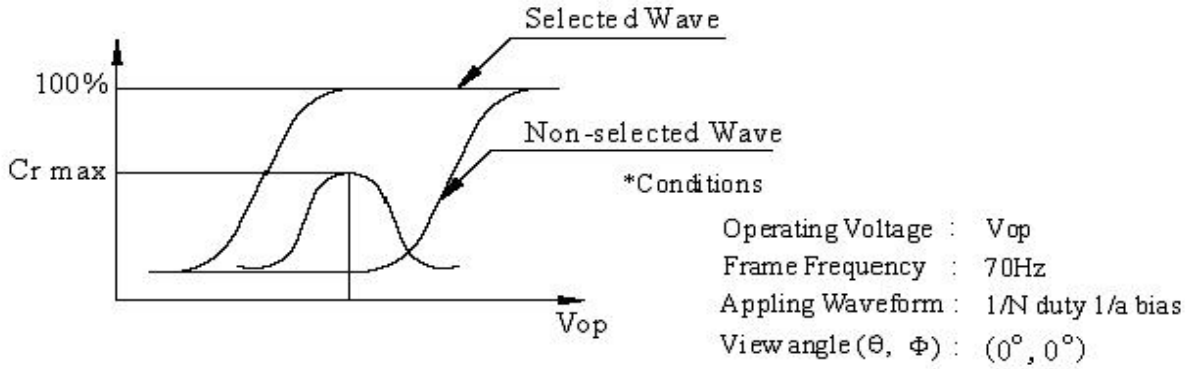


Note 3: The definition of viewing angle:

Refer to the graph below marked by θ and Φ



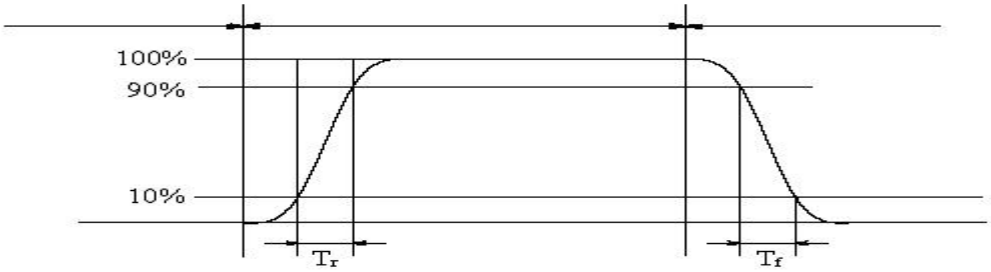
Note 4: Definition of contrast ratio.(Test LCD using DMS501)



$$Contrast\ ratio(Cr) = \frac{Brightness\ of\ selected\ dots}{Brightness\ of\ non-selected\ dots}$$

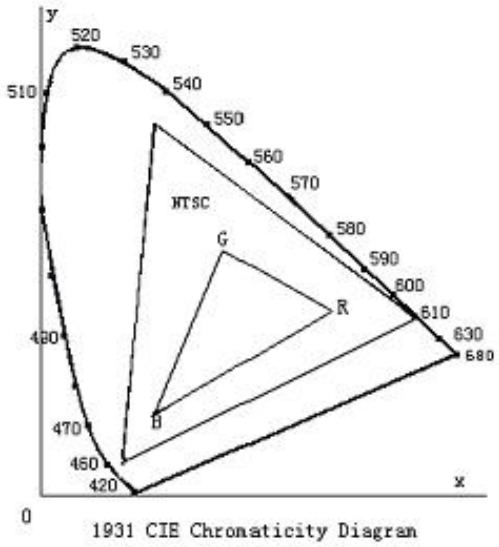
Note 5: Definition of Response time. (Test LCD using DMS501):

The output signals of photo detector are measured when the input signals are changed from “black” to “white”(falling time) and from “white” to “black”(rising time), respectively. The response time is defined as the time interval between the 10% and 90% of amplitudes.Refer to figure as below.



The definition of response time

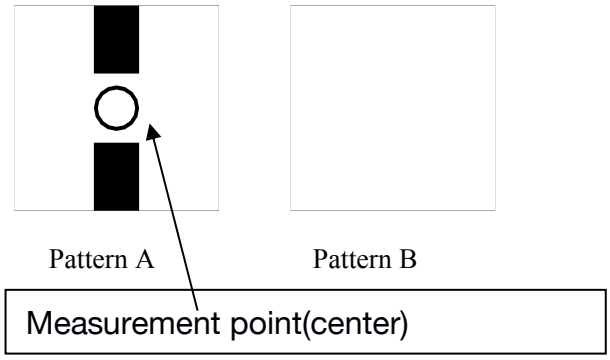
Note 6: Definition of Color of CIE Coordinate and NTSC Ratio.



Color gamut:

$$\mathbf{S = \frac{area\ of\ RGB\ triangle}{area\ of\ NTSC\ triangle} \times 100\%}$$

Note 7: Definition of cross talk.
Cross talk ratio(%)=|pattern A Brightness-pattern B Brightness|/pattern A Brightness*100



Electric volume value=3F+/-3Hex

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

8. Reliability Test Items and Criteria

No	Test Item	Test condition	Criterion
1	High Temperature Storage	90℃ 500H Restore 2H at 25℃ Power off``	1. After testing, cosmetic and electrical defects should not happen. 2. Total current consumption should not be more than twice of initial value.
2	Low Temperature Storage	-40℃ 500H Restore 2H at 25℃ Power off	
3	High Temperature Operation	85℃ 500H Restore 2H at 25℃ Power on	
4	Low Temperature Operation	-30℃ 500H Restore 4H at 25℃ Power on	
5	High Temperature/Humidity Operation	60℃±2℃ 90%RH 500H Power on	
6	Temperature Cycle	--30℃←----------→85℃ 30min 5min 30min after 5 cycle, Restore 2H at 25℃ Power off	
7	Vibration Test	10Hz~150Hz, 100m/s2, 120min	Not allowed cosmetic and electrical defects.
8	Shock Test	Half- sine wave,300m/s2,11ms	

Note: Operation: Supply 2.8V for logic system.
The inspection terms after reliability test, as below

ITEM	Inspection
Contrast	CR>50%
IDD	IDD<200%
Brightness	Brightness>60%
Color Tone	Color Tone+/-0,05

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

9. *Precautions for Use of LCD Modules*

9.1 Handling Precautions

9.1.1 The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

9.1.2 If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

9.1.3 Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

9.1.4 The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

9.1.5 If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

— Isopropyl alcohol — Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

— Water — Ketone — Aromatic solvents

9.1.6 Do not attempt to disassemble the LCD Module.

9.1.7 If the logic circuit power is off, do not apply the input signals.

9.1.8 To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.

a. Be sure to ground the body when handling the LCD Modules.

b. Tools required for assembly, such as soldering irons, must be properly ground.

c. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.

d. The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com

9.2 Storage precautions

9.2.1 When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.

9.2.2 The LCD modules should be stored under the storage temperature range. If the LCD modules will be stored for a long time, the recommend condition is:

Temperature : 0℃ ~ 40℃

Relatively humidity: ≤80%

9.2.3 The LCD modules should be stored in the room without acid, alkali and harmful gas.

9.3 The LCD modules should be no falling and violent shocking during transportation, and also should avoid excessive press, water, damp and sunshine.

END

Victronix Tecenstar INT'L Co., LTD Tel:86-755-33265935 Email:sales@victronix-tech.com