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NEXT VISION DISPLAY

SPECIFICATION

CUSTOMER : _____

MODULE NO.: NT101-N001ML

Version	01
Engineer	
Date	2022.10.18

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Customer:
Approved by

NEXT VISION DISPLAY CO., LTD.

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1. General Description

- The NT101-N001ML model is a Color TFT LCD supplied by Next Vision Display.
- This main Module has a 10.1 inch diagonally measured active display area with 1280(RGB)X800 resolution. Each pixel is divided into Red, Green and Blue sub-pixels and dots, which are arranged in vertical stripes.
- The NT101-N001ML has been designed to apply the HDMI interface method that enables low power, high speed, and high contrast.

2. Mechanical Specification

ITEM	Standard Value	Unit
Display Mode	Normally White, Transmissive LCD	--
Module Dimension	229.46(W)*149.1(H)*2.5(T)	mm
Resolution	1280(RGB)X 800	Pixels
Active Display Area	216.96(W)×135.6(H)	mm
Viewing Direction	Free	--
Gray inversion direction	Free	
LED Backlight Color	White	--
Interface	HDMI	--
Power supply	USB(5.0V)	--
Support system	Win/7/Win8/Win10(plug and play)	--
	Android,Linux (configured in requests)	
Power Consumption	800(Typ)	mA

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3. Absolute Max Ratings & Electrical Specification

- **Absolute Max Rating**

Item	Min.	Typ	Max	Unit	Remark
Operating temperature	-20	--	70	° C	
Storage temperature	-30	--	80	° C	
Humidity	--	--	90%	RH	@60° C

Note:

*1) Liquid Crystal driving voltage.

Due to the characteristics of LC Material, this voltage vary with environmental temperature.

*2) Temp.>60℃, Absolute humidity shall be less than 90%RH at 60℃
*3) Temp.≤60℃, 90%RH MAX.
*4) The recommended operating conditions refer to a range in which operation of this product is guaranteed. Should this range is exceeded, the operation cannot be guaranteed even if the values may be without the absolute maximum ratings.

Accordingly, please make sure that the module is used within this range. And these current values are measured under the condition that all devices are stopped, each component is stable and logic signal is input.

■ TFT Electrical Specification

Parameter of DC characteristics	Symbol	Min.	Typ.	Max.	Unit
Power supply Voltage	USB1	-	5.0	-	V
Backlight Power	USB2	-	5.0	-	V
Power supply Current	USB1	-	390	-	mA
	USB2	-	430	-	mA

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4. Optical Specification

Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Brightness	Bp	θ=0°	-	300	-	cd/m^2	
Uniformity	ΔBp	Φ=0°	-	80	-	%	
Viewing Angle	θ1 (Φ=90° or270°)	12 o'clock	75	85	-	Deg	Cr≥10
		6 o'clock	75	85	-		
	θ2 (Φ=0° or 180°)	9 o'clock	75	85	-		
		3 o'clock	75	85	-		
CIE	Wx	θ=0° Φ=0°	0.27	0.31	0.35		
	Wy		0.28	0.32	0.36		
Contrast Ratio	Cr		-	600		-	
Response Time	t_{on}		-	25	50	ms	
	t_{off}		-			ms	

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Note.1 These items are measured by C light.
Note.2 Definition of Viewing Angle(θ,ψ),refer to Fig.1 as below :

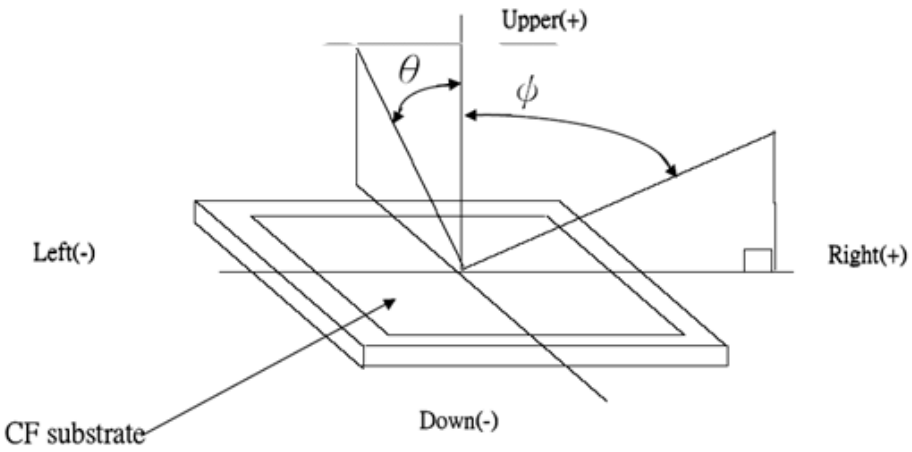
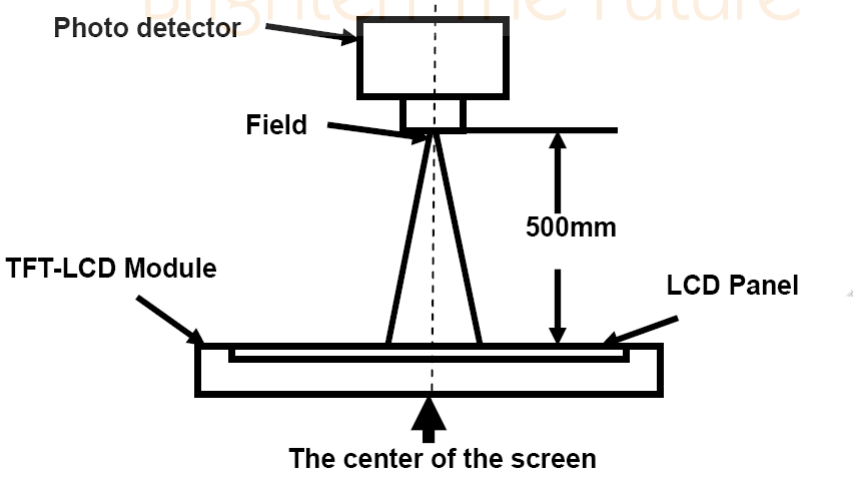


Fig.1 Definition of Viewing Angle

Note.3 Using LC+ EWV Polarizer+Corresponding Backlight, reference only, Measure device：BM-5A (TOPCON)，viewing cone= 1 °，I_L=20mA。

Electro-optical characteristics test method:

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Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD is on the "White" state}}{\text{Luminance measured when LCD is on the "Black" state}}$$

“White state “:The state is that the LCD should driven by Vwhite.

“Black state”: The state is that the LCD should driven by Vblack.

Vwhite: To be determined

Vblack: To be determined.

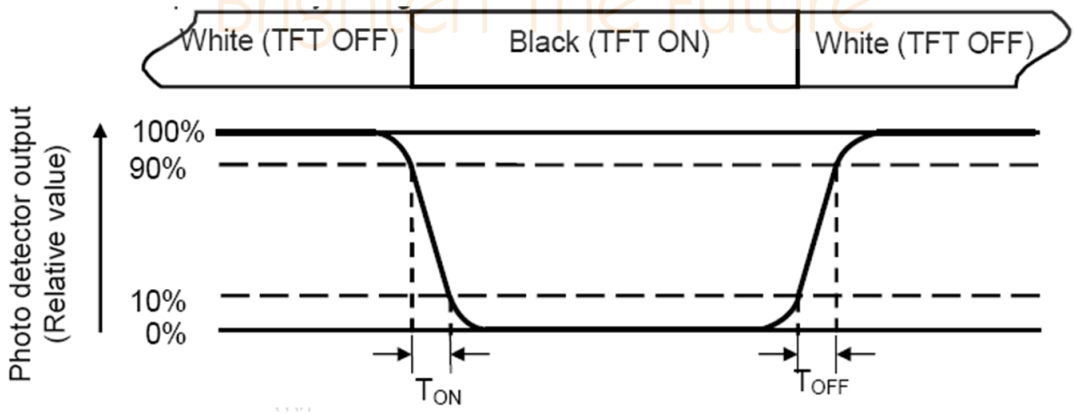
Definition of Response Time:

The response time is defined as the LCD optical switching time interval between “White” state and

“Black” state. Rise time (TON) is the time between photo detector output intensity changed from

90% to 10%. And fall time (TOFF) is the time between photo detector output intensity changed from10% to 90%.

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Definition of color chromaticity (CIE1931)

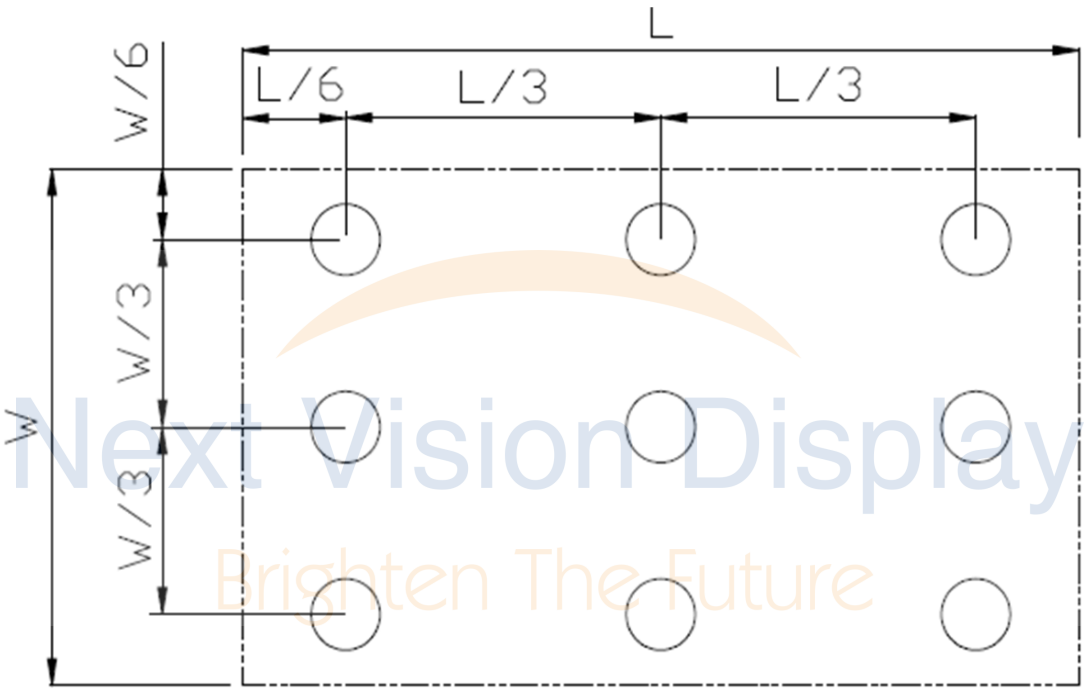
Color coordinates measured at center point of LCD

Definition of Luminance Uniformity

Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the center of each measuring area.

Luminance Uniformity(U) = Lmin/ Lmax

L-------Active area length W----- Active area width



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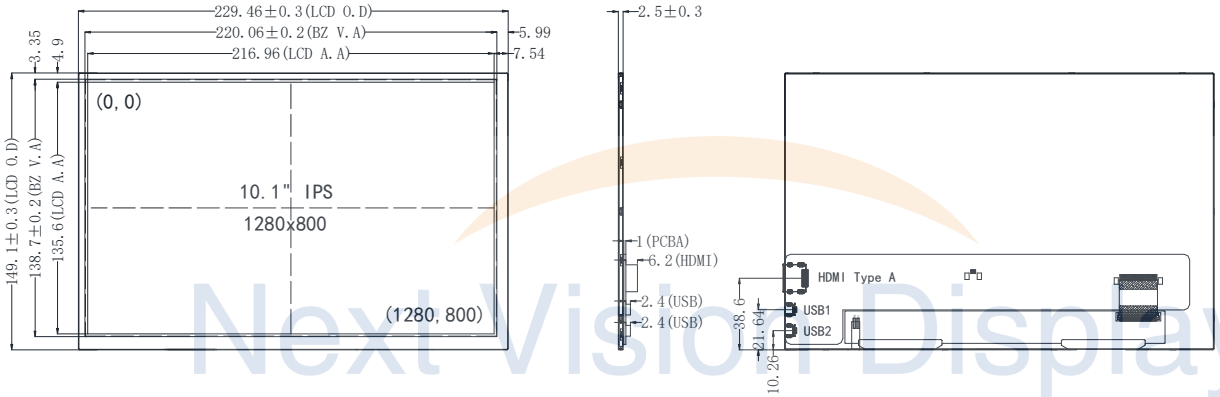
Lmax: The measured maximum luminance of all measurement position.

Lmin: The measured minimum luminance of all measurement position.

5. Mechanical Diagram

ALL PAGES OF THIS VERSION APPROVED			
SIGNATURE:		DATE:	

REV.	Description	Date
01	New released	



HDMI(for DISPLAY)

PIN	SYMBOL
1	TMDS Data2+
2	TMDS Data2 Shield
3	TMDS Data2-
4	TMDS Data1+
5	TMDS Data1 Shield
6	TMDS Data1-
7	TMDS Data0+
8	TMDS Data0 Shield
9	TMDS Data0-
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock-
13	CEC
14	Reserved
15	SCL
16	SDA
17	DDC/CEC Ground
18	+5V Power
19	Hot Plug Detect

USB1(for TOUCH&POWER)

PIN	SYMBOL
1	VBUS(5V)
2	USB D-
3	USB D+
4	NC
5	GND

USB2(for Backlight POWER)

PIN	SYMBOL
1	VBUS(5V)
2	NC
3	NC
4	NC
5	GND

NOTES:

1.	DISPLAY TYPE:	10.1"TFT_LCD/TRANSMISSIVE
2.	OPERATING TEMPERATURE:	−20°C~70°C
3.	STORAGE TEMPERATURE:	−30°C~80°C
4.	VIEWING ANGLE:	ALL
5.	BACKLIGHT BRIGHTNESS:	300CD/M2
6.	INTERFACE:	HDMI
7.	RESOLUTION:	1280(RGB)X800
8.	CONNECTOR:	/
9.	UNMARK TOLERANCES:	±0.2MM

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GENERAL TOL 0.30	ALL UNITS: MM	DATE	MODEL NUMBER : NT101-N001ML		SHEET: 1 OF 1
DWN:					DATE:
CHK:					
APP:			DO NOT SCALE THIS DRAWING.	PROJECTION	

6. Interface Pin Connections

HDMI interface：

NO.	Symbol	DESCRIPTION
1	TMDS Data2+	Positive side of channel 2 TMDS low-voltage signal differential input pair
2	TMDS Data2 Shield	Ground
3	TMDS Data2-	Negative side of channel 2 TMDS low-voltage signal differential input pair
4	TMDS Data1+	Positive side of channel 1 TMDS low-voltage signal differential input pair
5	TMDS Data1 Shield	Ground
6	TMDS Data1-	Negative side of channel 1 TMDS low-voltage signal differential input pair
7	TMDS Data0+	Positive side of channel 0 TMDS low-voltage signal differential input pair
8	TMDS Data0 Shield	Ground
9	TMDS Data0-	Negative side of channel 0 TMDS low-voltage signal differential input pair
10	TMDS Clock+	Positive side of reference clock. TMDS low-voltage signal differential input pair
11	TMDS Clock Shield	Ground
12	TMDS Clock-	Negative side of reference clock. TMDS low-voltage signal differential input pair
13	CEC	No Connection
14	Reserved(N.C.)	No Connection
15	SCL	DDC SCL
16	SDA	DDC SDA
17	DDC/CEC Ground	Ground
18	+5V Power	+5V Power
19	Hot Plug Detect	Hot Plug Detect

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USB1 interface：

NO.	Symbol	DESCRIPTION
1	VUSB	USB Power(5V)
2	D-	USB Data-
3	D+	USB Data+
4	NC	No connection
5	GND	Power Ground

USB2 interface：

NO.	Symbol	DESCRIPTION
1	VUSB	USB Power(5V) for Backlight Power
2	NC	No connection
3	NC	No connection
4	NC	No connection
5	GND	Power Ground

Application note: please connected USB interface first, then next connect HDMI interface.

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7. Timing Characteristics

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK frequency@ Frame rate=60Hz	DCLK	68.9	71.1	73.4	MHz
Horizontal display area	thd		1280		DCLK
1 Horizontal Line	th	1340	1440	1470	DCLK
HSYNC pulse width	thpw	-	10	-	DCLK
HSYNC Back Porch(Blanking)	thb	-	80	-	DCLK
HSYNC Front Porch	thfp	-	70	-	DCLK
Vertical display area	tvd		800		H
VSYNC period time	tv	815	823	833	H
VSYNC pulse width	tvpw	-	3	-	H
VSYNC Back Porch(Blanking)	tvb	-	10	-	H
VSYNC Front Porch	tvfp	-	10	-	H