



LITEMAX

DLF1095 & DLH1095

Sunlight Readable 10.4" LED B/L LCD

(Revision Edition Dec.27 2011)

All information is subject to change without notice.

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Record of Revision

Version and Date	Page	Old Description	New Description	Remark
Mar.17 2010 v.01	All		Preliminary Spec. (First Draft)	
Jun.28 2010 v.02	All		Adding AD5621GD spec	
Dec.27 2011 V.03	All		Data update	

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1.0 GENERAL DESCRIPTION

DLF1095 & DLH1095 is 10.4" TFT-LCD is a improved transmission of color and images type color active matrix TFT LCD module using amorphous silicon TFT's (Thin Film Transistors) as active switching devices with 1,000nits LED backlight powered by Durapixel™ technology. This module has a 10.4 inch diagonally measured active area with XGA resolutions (1024 horizontal by 768 vertical pixel array). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 262,144 colors. The TFT-LCD panel used for this module is a low reflection and higher color type

1.1 FEATURES

- (1) 10.4 XGA display size with wide operation temp cell **(-20~70 °C)**
- (2) LVDS interface with 6bit color data
- (3) Light weight and Thinner design
- (4) Digitizer easy insertion design
- (5) Mechanical Compatible with TOSHIBA LTD104KA1S Series
- (6) High luminance and contrast ratio, low reflection and **wide viewing angle (-89~ +89 degree)**

1.2 MECHANICAL SPECIFICATIONS

Item		Specifications
Dimensional Outline & Weight (typ.)	Normal	238.6(W) x 173.2(H) x 6(D) mm Weight: 240g
	AOT Glass	238.6(W) x 173.2(H) x 8.1(D) mm Weight: 450g
	Taped Touch	238.6(W) x 173.2(H) x 7.95(D) mm Weight: 420g
Number of Pixels		1024(W) x 768(H) pixels
Active Area		210.432(W) x 157.824(H) mm
Pixel Pitch		0.2055(W) x 0.2055(H)
Backlight		LED, Sidelight type

1.3 ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	REMARK
Logic Power Supply	V _{DD}	VSS-0.3	4.0	V	Ta = 25 ± 2 °C
Logic Input Voltage	V _{IN}	VSS-0.3	V _{DD} +0.3	V	
Operating Temperature	T _{OP}	-20	+70	°C	Note1

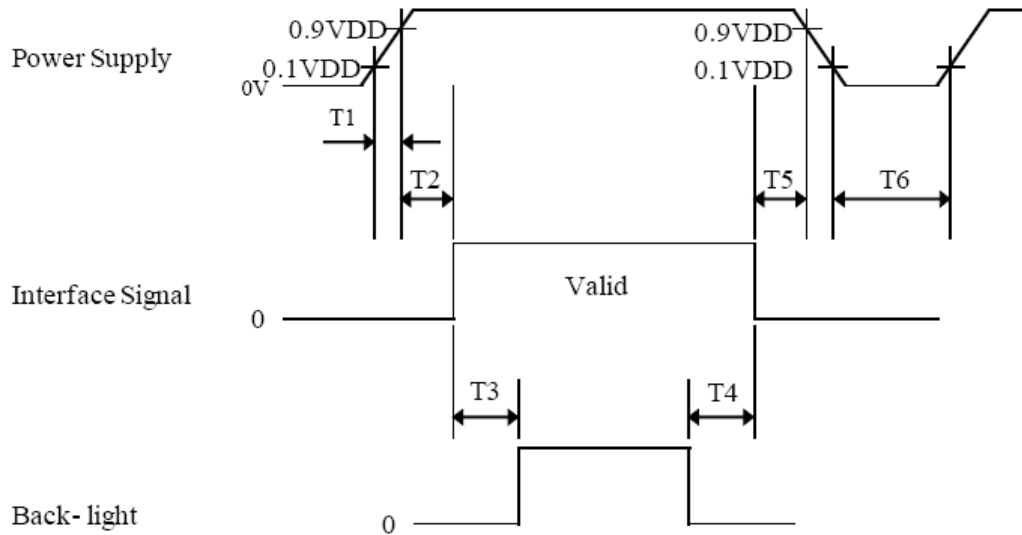
Note1. As compromised, T-Con and D-IC are excluded within the range of guarantee for Operating Temperature.

*T-CON : 0~70 °C / D-IC : -10 ~ 75 °C(Source) / -20 ~ 75 °C(Gate)

2.0 POWER SEQUENCE

SEQUENCE OF POWER SUPPLIES AND SIGNALS

To prevent a latch-up or DC operation of the LCD module, the power on/off sequence shall be as shown in below



Parameter	Values			Units
	Min	Typ	Max	
T1	0	-	10	ms
T2	0	-	50	ms
T3	100	-	-	ms
T4	100	-	-	ms
T5	0	-	50	ms
T6	1	-	-	Sec

3.0 SIGNAL TIMING SPECIFICATIONS

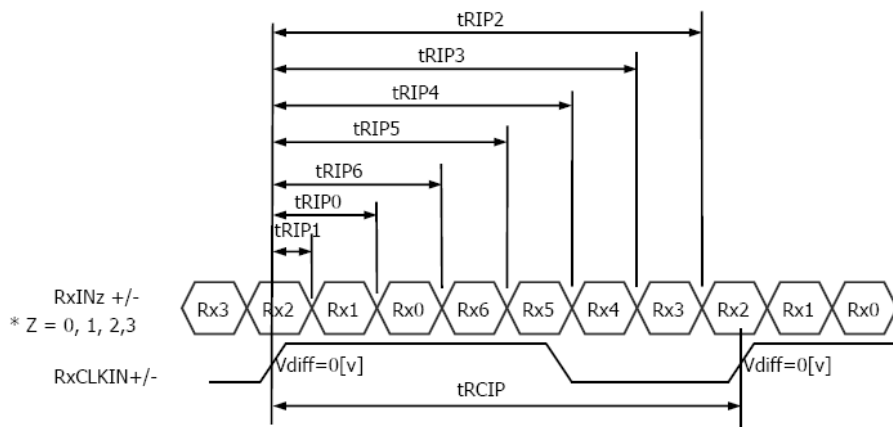
LVDS Transmitter Input

The 10.4" XGA LCM is operated by the only DE (Data enable) mode (LVDS Transmitter Input)

ITEM	SYMBOL	MIN	TYP	MAX	UNIT
Frame Period	T1	772	806	-	lines
Vertical Display Period	T2	-	768	-	lines
One Line Scanning Period	T3	1100	1344	-	clocks
Horizontal Display Period	T4	-	1024	-	clocks
Clock Frequency	1/T5	-	65	80	MHz

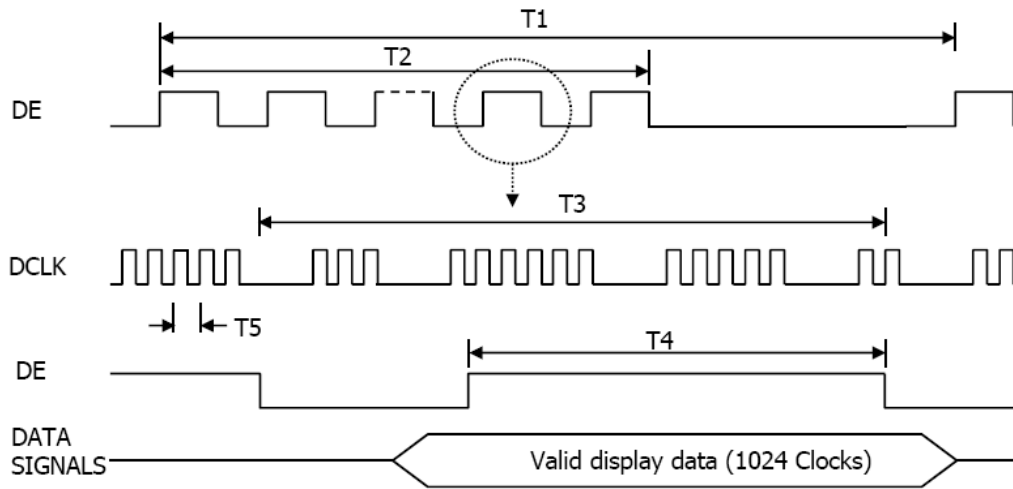
LVDS Rx interface timing parameter

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	REMARK
CLKIN Period	tRCIP	12.5	15.38	-	nsec	
Input Data 0	tRIP1	-0.4	0.0	+0.4	nsec	
Input Data 1	tRIP0	tRCIP/7-0.4	tRCIP/7	tRCIP/7+0.4	nsec	
Input Data 2	tRIP6	2 × tRCIP/7-0.4	2 × tRCIP/7	2 × tRCIP/7+0.4	nsec	
Input Data 3	tRIP5	3 × tRCIP/7-0.4	3 × tRCIP/7	3 × tRCIP/7+0.4	nsec	
Input Data 4	tRIP4	4 × tRCIP/7-0.4	4 × tRCIP/7	4 × tRCIP/7+0.4	nsec	
Input Data 5	tRIP3	5 × tRCIP/7-0.4	5 × tRCIP/7	5 × tRCIP/7+0.4	nsec	
Input Data 6	tRIP2	6 × tRCIP/7-0.4	6 × tRCIP/7	6 × tRCIP/7+0.4	nsec	



4.0 SIGNAL TIMING WAVEFORMS OF INTERFACE SIGNAL (DE MODE)

Timing Waveforms of Interface Signal



5.0 INTERFACE CONNECTION

Electrical Interface Connection

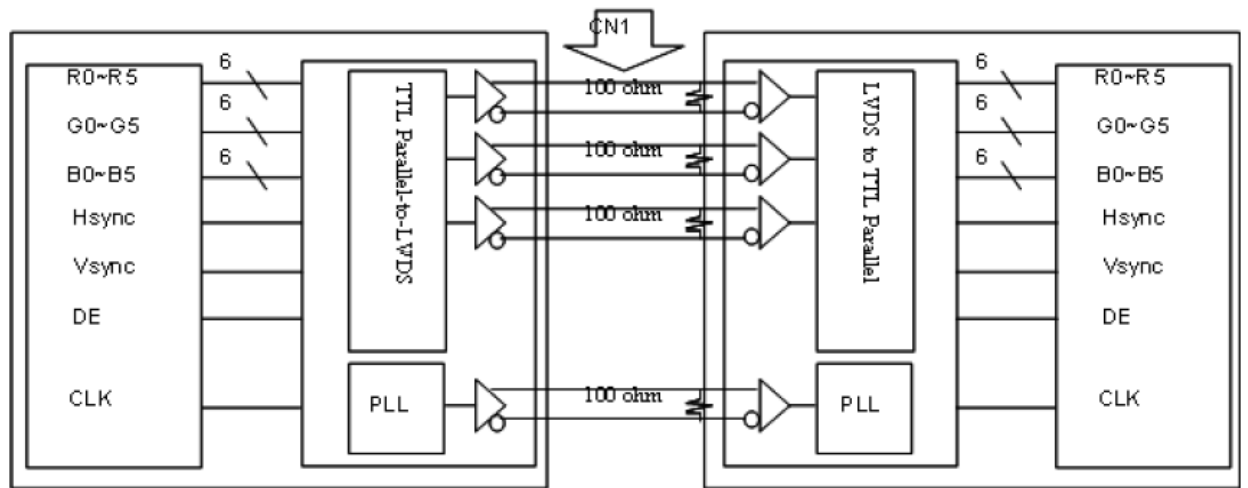
CN1: Interface Connector: 20455-030E-02(I-PEX) or equivalent

User side Connector: 20453-030T (I-PEX) or equivalent

Pin No	Symbol	Function	Remark
1	VSS	Ground	
2	VDD1	Power Supply: +3.3V	
3	VDD2	Power Supply: +3.3V	
4	EDID 3.3V	EDID +3.3V	
5	NC	Reserved	
6	EDID CLK	EDID CLK	
7	EDID DATA	EDID DATA	
8	RIN0-	LVDS Negative data signal (-)	Tx pin # 48
9	RIN0+	LVDS Positive data signal (+)	Tx pin # 47
10	VSS	Ground	
11	RIN1-	LVDS Negative data signal (-)	Tx pin # 46
12	RIN1+	LVDS Positive data signal (+)	Tx pin # 45
13	VSS	Ground	
14	RIN2-	LVDS Negative data signal (-)	Tx pin # 42
15	RIN2+	LVDS Positive data signal (+)	Tx pin # 41
16	VSS	Ground	
17	RCLKIN-	LVDS Negative clock signal (-)	Tx pin # 40
18	RCLKIN+	LVDS Positive clock signal (+)	Tx pin # 39
19	VSS	Ground	
20			
21			
22	VSS	Ground	
23	VSS	Ground	
24	VSS	Ground	
25	VSS	Ground	
26			
27			
28			
29			
30	VSS	Ground	

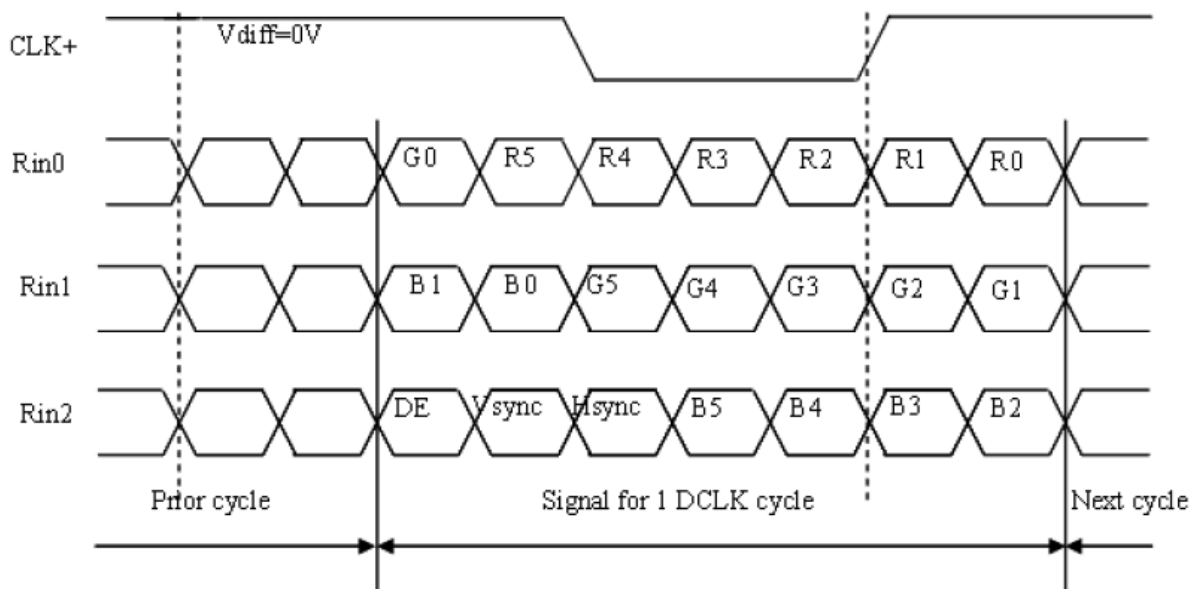
Light bar Interface Connector: JST ZHR-2

PIN NO	Color	Symbol	Description
1	Black	Output	LED Low Voltage (-)
2	Red	Output	LED High Voltage(+)



[LVDS Block Diagram]

INTERFACE CONNECTION

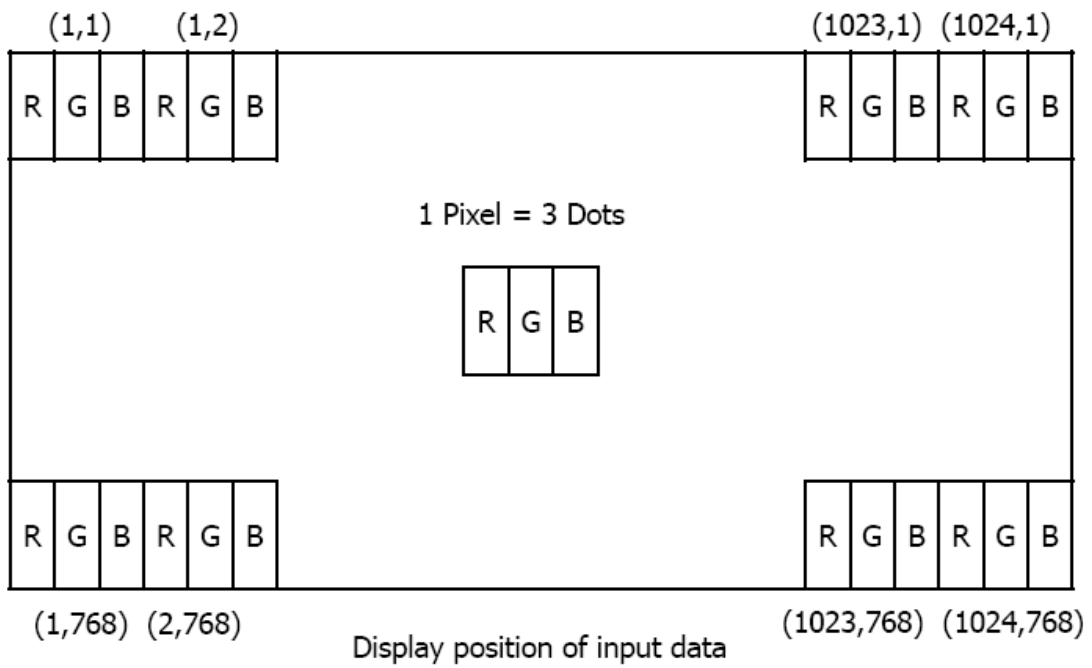


LVDS Interface

LVDS Transmitter: THC63LVDM83A or equivalent

INPUT SIGNAL	TRANSMITTER		INTERFACE		FI-XB30S-HF10	REMARK
	PIN NO.	PIN NO.	SYSTEM (TX)	TFT-LCD (RX)	PIN NO.	
R0	51	48 47	OUT0- OUT0+	IN0- IN0+	8 9	
R1	52					
R2	54					
R3	55					
R4	56					
R5	3					
G0	4	46 45	OUT1- OUT1+	IN1- IN1+	11 12	
G1	6					
G2	7					
G3	11					
G4	12					
G5	14					
B0	15	42 41	OUT2- OUT2+	IN2- IN2+	14 15	
B1	19					
B2	20					
B3	22					
B4	23					
B5	24					
HSYNC	27	40	CLKOUT-	CLKIN-	17	
VSYNC	28					
DE	30					
MCLK	31	39	CLKOUT+	CLKIN+	18	

Data Input Format



6.0 INPUT SIGNALS, BASIC DISPLAY COLORS & GRAY SCALE OF COLORS

Each color is displayed in sixty-four gray scales from a 6 bit data signal input. A total of 262,144 colors are derived from the resultant 18 bit data.

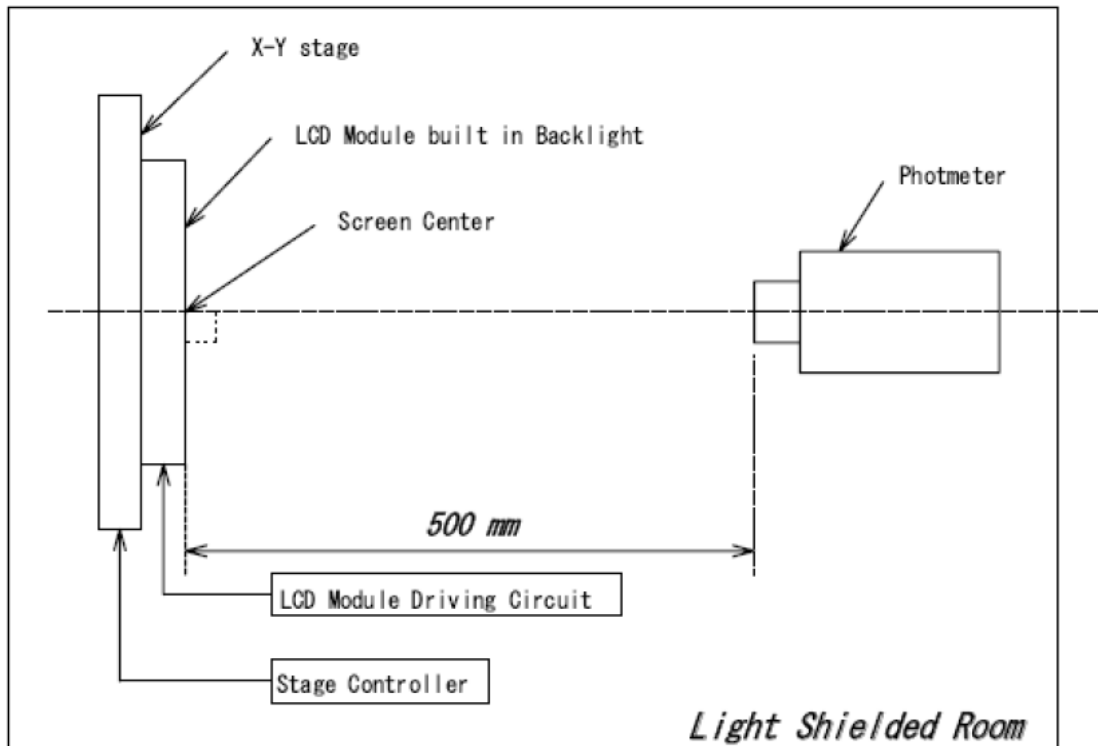
COLORS & GRAY SCALE		RED DATA						GREEN DATA						BLUE DATA					
		R5	R4	R3	R2	R1	R0	G5	G4	G3	G2	G1	G0	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
	Cyan	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	Magenta	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale Of Red	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Darker	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	↓						↓						↓					
	▽	↓						↓						↓					
	Brighter	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	▽	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale Of Green	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	Darker	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	△	↓						↓						↓					
	▽	↓						↓						↓					
	Brighter	0	0	0	0	0	0	1	1	1	1	0	1	0	0	0	0	0	0
	▽	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0
Gray Scale Of Blue	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Darker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	△	↓						↓						↓					
	▽	↓						↓						↓					
	Brighter	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	1
	▽	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Gray Scale Of White & Black	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	△	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1
	Darker	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0
	△	↓						↓						↓					
	▽	↓						↓						↓					
	Brighter	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0	1
	▽	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

7.0 OPTICAL SPECIFICATION

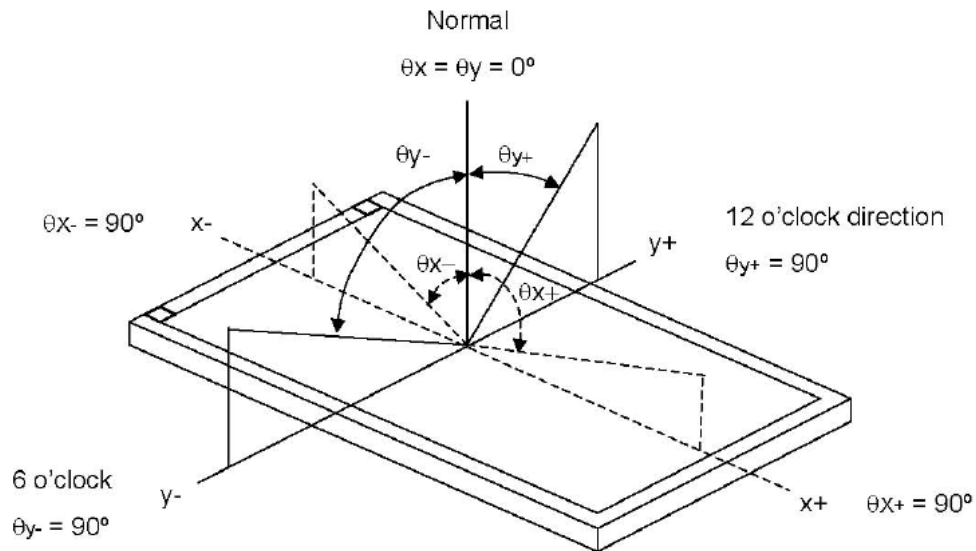
Optical					
Item	Symbol	Condition	Data	Unit	Remarks
Color chromaticity	Red	Rx	0.570	-	
		Ry	0.346	-	
	Green	Gx	0.340	-	
		Gy	0.538	-	
	Blue	Bx	0.154	-	
		By	0.149	-	
	White	Wx	0.312	-	
		Wy	0.348	-	
Center Luminance of White	Lc		1054±10%	cd/m ²	Panel only
Average Luminance	La		1000±10%	cd/m ²	Panel only
Average Luminance After Touch	La		750±10%	cd/m ²	AMT AS-70035-09
Uniformity	Lu		80	%	
Contrast Ratio	CR	θx=0	689	-	
Color Saturation	NTSC	θy=0 Klein K-10	42	%	
Viewing Angle	Horizontal	θx+	89	Deg	
		θx-	89		
	Vertical	θy+	89		
		θy-	89		
LED Life Time	N/A	25°C	70,000	Hours	Defined as module brightness decay of 50% in 25°C ambient.

8.0 MEASURING METHOD

MEASURING SYSTEM



- (1) The measurement point is the center of the active area except the measurement of Luminance Uniformity.
- (2) Photometer : BM-7
- (3) Definition of φ and θ :



MEASURING METHODS

Luminance:

The luminance of the center on a white raster (gray scale level L63) shall be measured. Measurement shall be executed 30 minutes after the lamp is lit up.

Contrast Ratio:

The contrast ratio can be calculated by the following expression.

$$\text{Contrast Ratio (CR)} = L63 / L0$$

L63 : Luminance on the white raster (gray scale level L63)

L 0 : Luminance on the black raster (gray scale level L0)

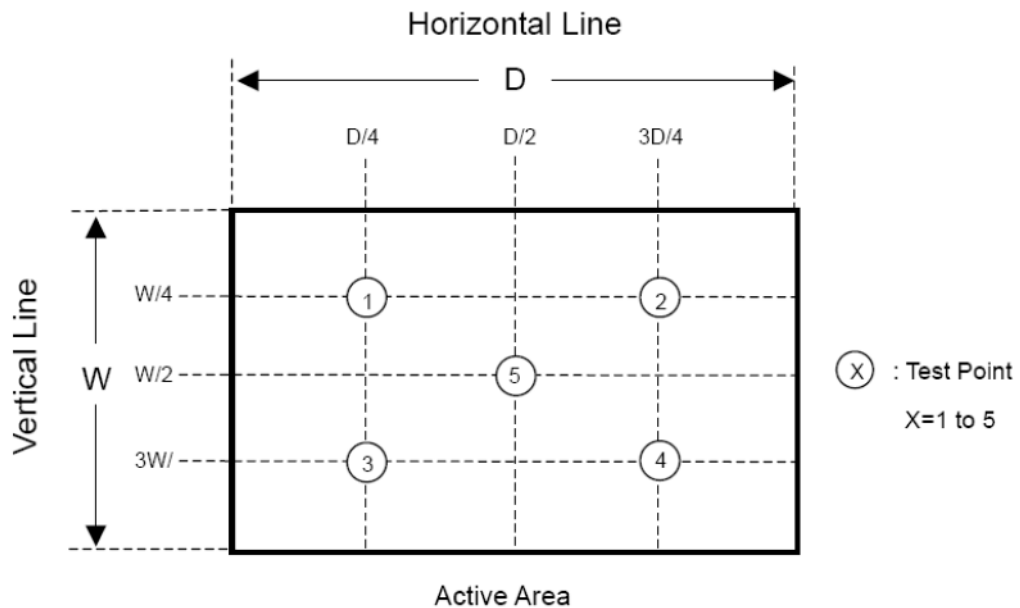
Viewing Angle:

Viewing angle is defined as the angles(T.I), in which specified contrast ratio can be obtained. (Refer to Measuring Method (3) for the axes.)

(4) Luminance Uniformity:

The Luminance should be measured at 5 positions on white raster(gray scale level L63). Uniformity can be calculated by the following expression.

$$\text{Luminance Uniformity} = \frac{\text{Minimum Luminance}}{\text{Maximum Luminance}} \times 100\%$$

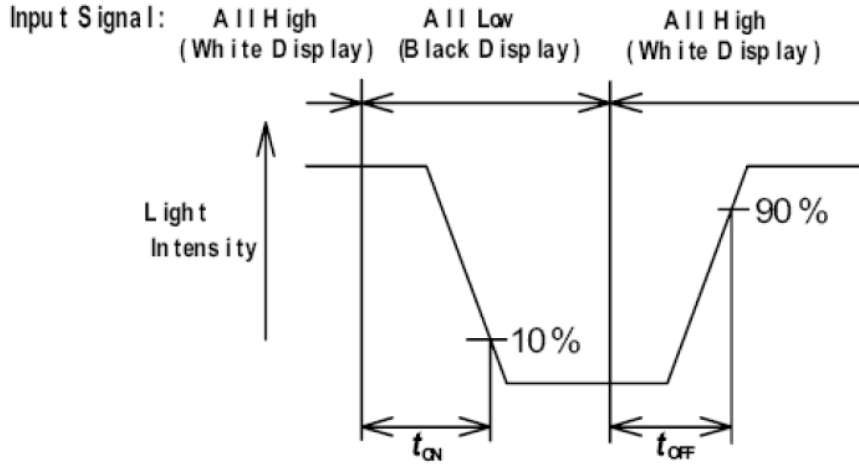


(5) Chromaticity :

The values(x,y) of chromaticity coordinates should be measured for the White, Red, Green and Blue Raster(gray scale level L63) each with a photometer.

(6) Response Time :

The response time (t_{ON} , t_{OFF}) is measured with a photo detector (photodiode) which measures the light intensity of the pixels.



t_{ON} : Turn on time is the time for a photo detector output waveform to go from its maximum value to 10% of its maximum.

t_{OFF} : Turn off time is the time for a photo detector output waveform to go from zero to 90% of its maximum.

Photodiode : S1223-01 HAMAMATSU PHOTONICS K.K.
White Display : White Raster (gray scale level L63)
Black Display : Black Raster (gray scale level L0)

9.0 LED DRIVING BOARD SPECIFICATIONS

1. LED Application

This specification is applied to LED converter unit for DLF1095 (1000 nits) LED backlight

2. Operating Characteristics

Item	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	Remark
Input Voltage	Vin		10	12	14	V	DC
Input Current (Low Brightness)	IinL	VIN=12V,Vadj=5V 0%	0.0	-----	-----	mA	
Input Current (High Brightness)	IinH	VIN=12V,Vadj= 0V	620	510	440	mA	
LED Current (Low Brightness)	IoutL	VIN=12V,Vadj==5V	0.0	-----	-----	Arms	
LED Current (High Brightness)	IoutH	VIN=12V,Vadj= 0V	221	221	221	mA	
Working Frequency	Freq	VIN=12V,Vadj=0V	539.55	545	550.45	KHZ	
PWM Frequency	Freq	VIN=12V	180	200	220	HZ	
Brightness Control	Vadj	Connection of Voltage	0.5	-----	4.8	V	DC
ON/OFF Control	Von/off	Normal Operation	1.5	-----	5	V	DC
Output Voltage	Vout	VIN=12V,Vadj= PWM 100%	25.62	25.57	25.82	V	DC
Efficiency	η	VIN=12V,Vadj= PWM 100%	91.32	92.34	92.63	%	Note 1

Note 1:Efficiency= $[(I_{outH} * V_{out}) / (I_{inH} * V_{in})] * 100\%$,Tolerance $\pm 0.5\%$

3. Environment

Operation Temperature	-20 ~ 85°C	
Operation Humidity	83.79% Max.RH	Note: Examine CONVERTER & LED efficiency for 16 hours under 25 degrees.
Storage Temperature	-40 ~ 85°C	
Storage Humidity	83.79% Max.RH	Note: Examine CONVERTER & LED efficiency for 16 hours under 25 degrees.

4. Connector Socket

4-1. Input Connector: J3 (JST SM08B-SRSS-TB or Compatible):

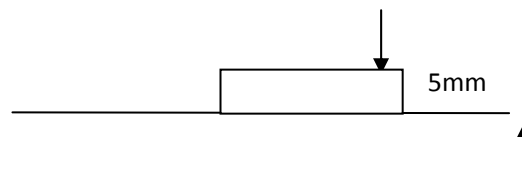
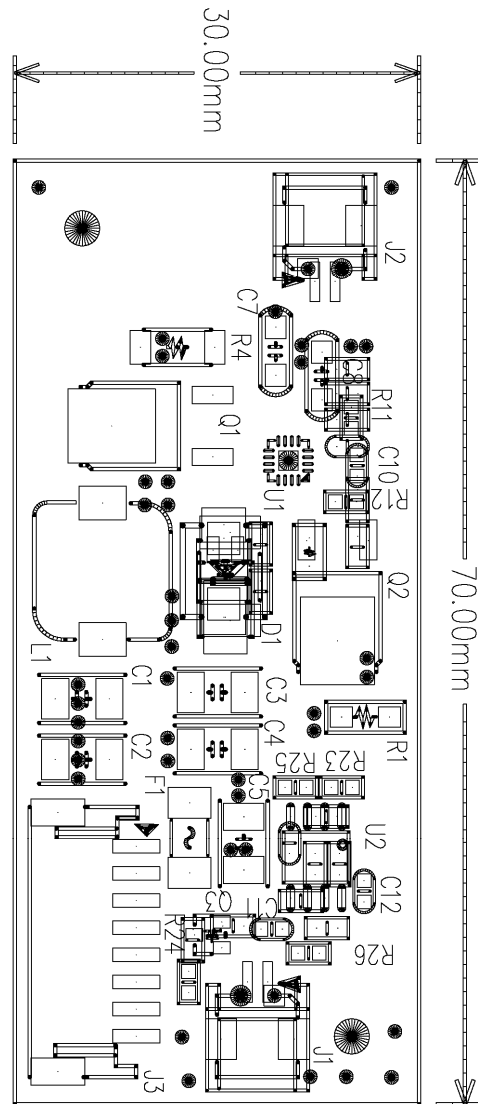
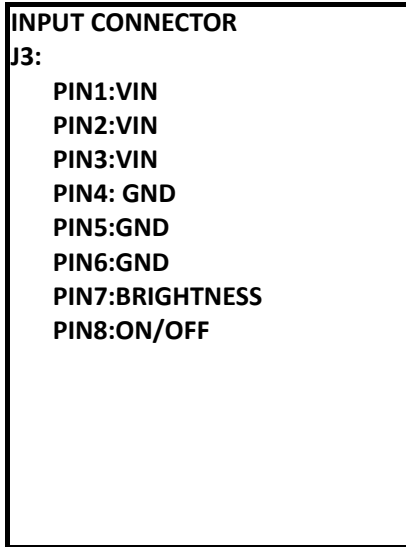
PIN No	Symbol	Description
1	Vin	DC+12V
2	Vin	DC+12V
3	Vin	DC+12V
4	GND	Ground
5	GND	Ground
6	GND	Ground
7	Brightness	Brightness Control 5V~0V
8	Control	ON/OFF Control 0.8V(OFF) 2.0~5.0V(ON)

4-2 .Output Connector: J1, J2 (JST S 2B-ZR-SM2-TF or Compatible):

PIN NO	Symbol	Description
1	Output	LED High Voltage(+)
2	Output	LED Low Voltage (-)

5. Mechanical Characteristics

Dimension: 70mm*30mm*5mm



10.0 AD5621 SPECIFICATIONS

We developed this A/D board to support industrial high brightness and commercial applications. This A/D board has many functions. It has options of external luminance sensor, a surface mounted VR button to control the brightness, fan rotation and thermal sensor.

10.1 General Description

- Max Resolution Up To WXGA 60Hz
- LVDS Output
- Support Panel DC5V or 3.3V, 12V Output
- External Fan Control by Software
- OSD Control
- Inverter 0~5V Dimming Control
- Input Power 12V
- Analog signal Input (RGB)
- *External V.R. brightness control
- *External light sensor brightness control

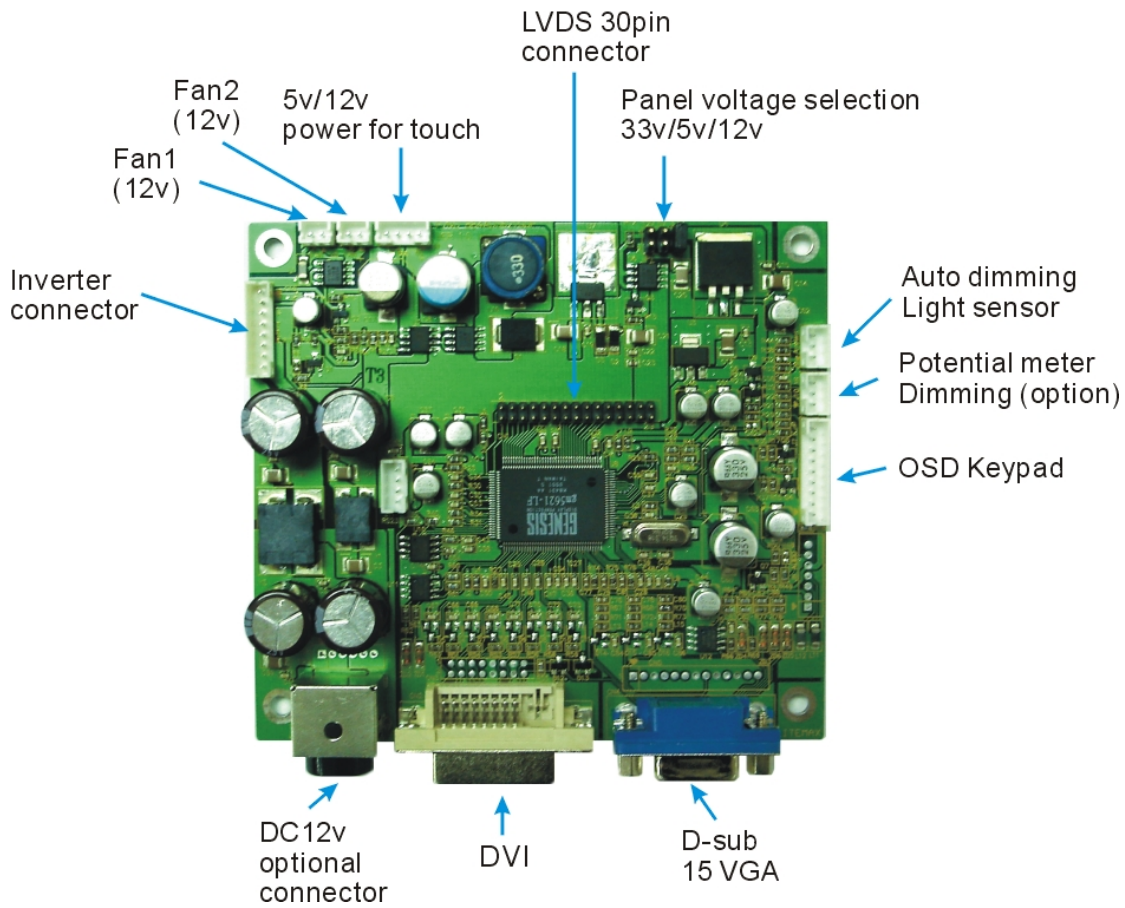
10.2 Supported Timing (*by your panel resolution)

The following table displays optimum quality modes that the LCD monitor provides. If the other video modes are used, the monitor will stop working or display a poor quality picture.

TIMMING	
MODE	RESOLUTION
VGA	640x480@60Hz
	640x480@72Hz
	640x480@75Hz
SVGA	800x600@56Hz
	800x600@60Hz
	800x600@72Hz
	800x600@75Hz
XGA	1024x768@60Hz
	1024x768@70Hz
	1024x768@75Hz
SXGA	1280x1024@60Hz
	1280x1024@70Hz
	1280x1024@75Hz
WXGA	1366x768@60Hz

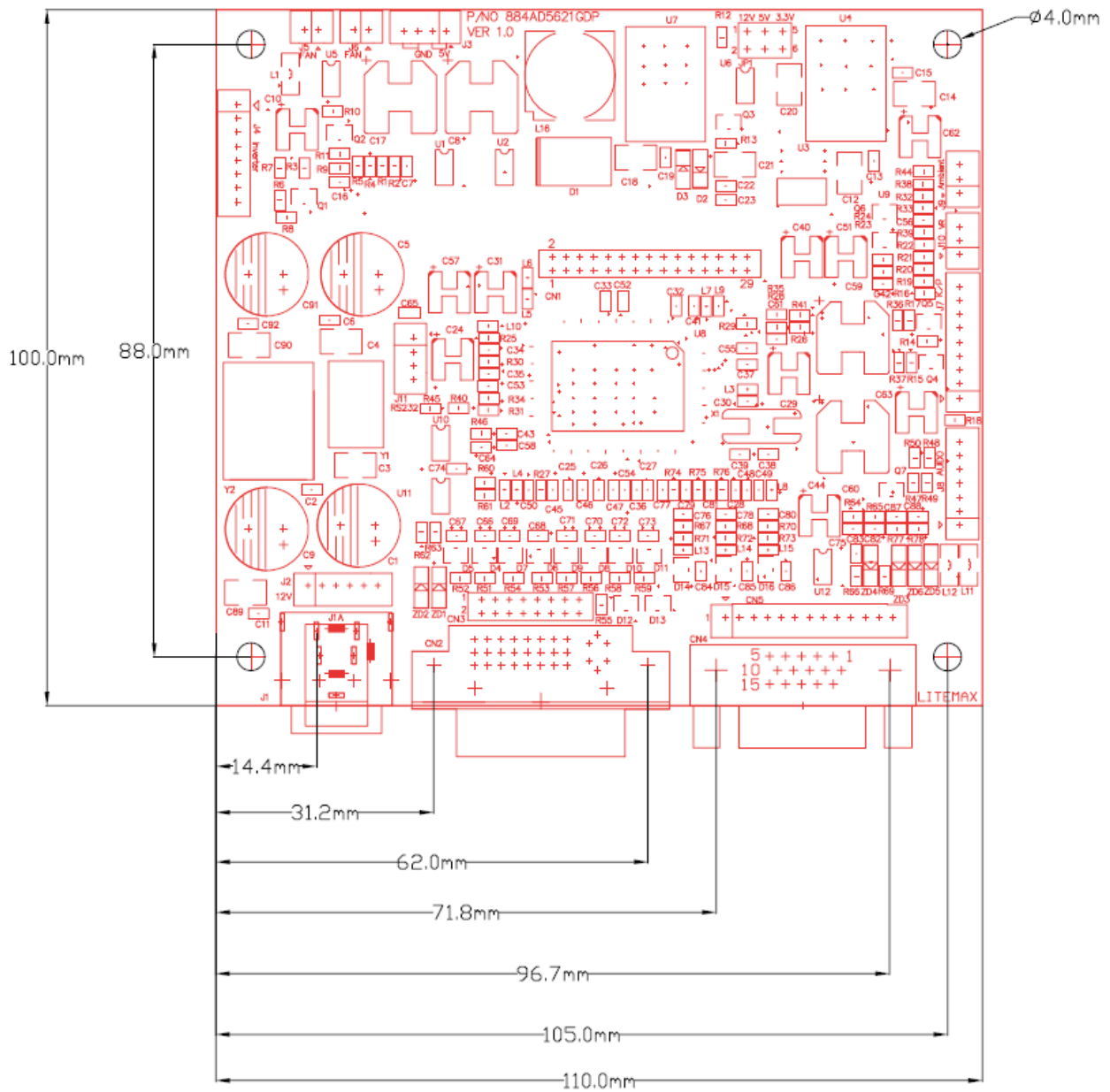
Release Model: AD5621GD

AD5621-GD

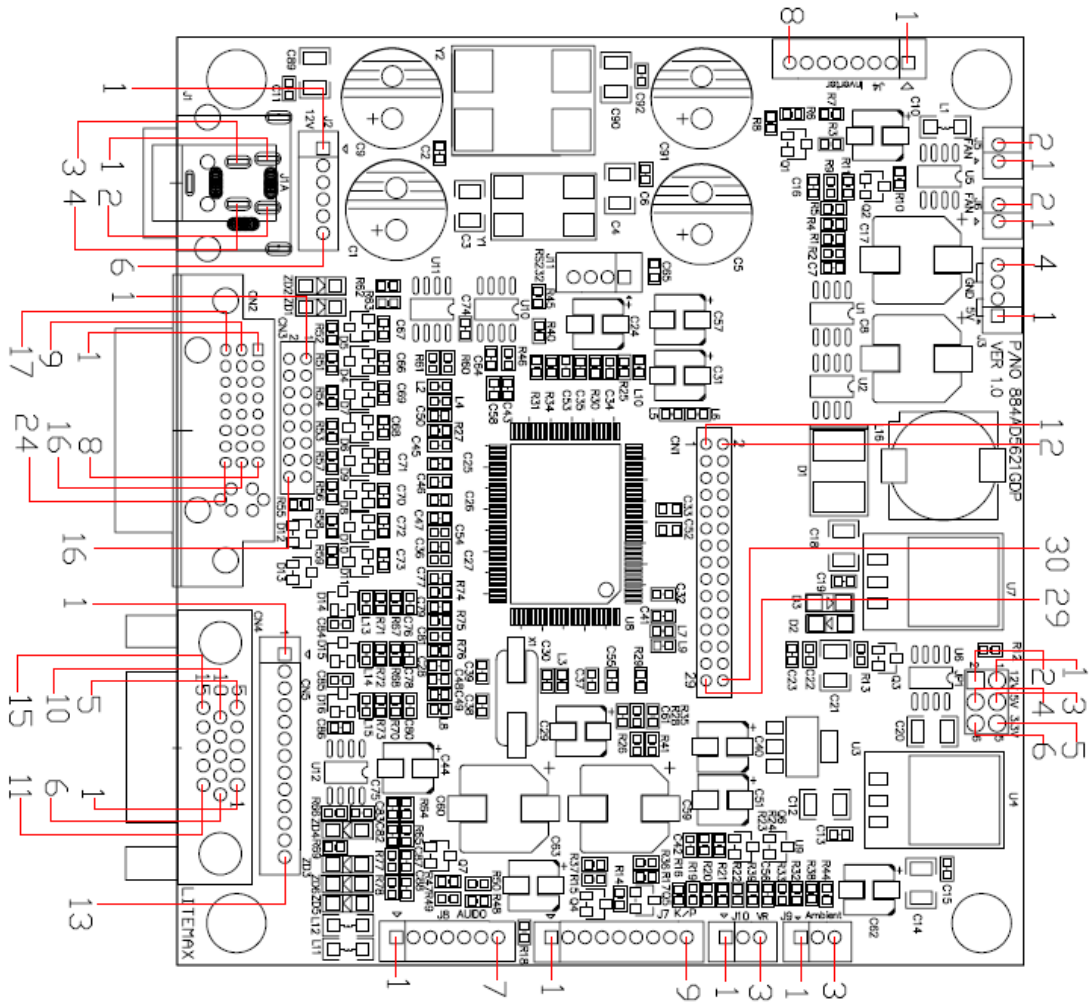


10.3 Outline Dimensions

unit:mm



10.4 Pin Define



CN1: Panel connector

Pin No.	Function	Pin No.	Function
1	RxO0+	16	RxE1-
2	RxO0-	17	RxE2+
3	RxO1+	18	RxE2-
4	RxO1-	19	RxEC+
5	RxO2+	20	RxEC-
6	RxO2-	21	RxE3+
7	RxOC+	22	RxE3-
8	RxOC-	23	GND
9	RxO3+	24	GND
10	RxO3-	25	GND
11	GND	26	GND
12	GND	27	PANEL-VCC
13	RxE0+	28	PANEL-VCC
14	RxE0-	29	PANEL-VCC
15	RxE1+	30	PANEL-VCC

CN2: DVI-D Input connector

Pin No.	Function	Pin No.	Function	Pin No.	Function
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2/4 Shield	11	T.M.D.S. Data1/3 Shield	19	T.M.D.S. Data0/5 Shield
4	T.M.D.S. Data4-	12	T.M.D.S. Data3-	20	T.M.D.S. Data5-
5	T.M.D.S. Data4+	13	T.M.D.S. Data3+	21	T.M.D.S. Data5+
6	DDC Clock	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	Ground (for +5V)	23	T.M.D.S. Clock+
8	Not Connected	16	Hot Plug Detect	24	T.M.D.S. Clock-

CN3: DVI-D Input connector(16pin connector)

Pin No.	Function	Pin No.	Function	Pin No.	Function
1	T.M.D.S.	7	DDC Data	13	GND
2	T.M.D.S.	8	DDC Clock	14	GND
3	T.M.D.S.	9	GND	15	Hot Plug Detect
4	T.M.D.S.	10	GND	16	+5V Power
5	T.M.D.S.	11	T.M.D.S. Clock-		
6	T.M.D.S.	12	T.M.D.S. Clock+		

CN4: Analog RGB Input connector(D-SUB 15Pin)

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	RED	Analog Red	9	NC	+5VDC
2	GREEN	Analog Green	10	SGND	Sync GND
3	BLUE	Analog Blue	11	NCD	Reserved
4	GND	Reserved	12	SDA	DDC Serial Data
5	NC	VGA_CAB	13	HSYNC	Horizontal Sync
6	RGND	Red Return	14	VSYNC	Vertical Sync
7	GGND	Green Return	15	SCL	DDC Data Clock
8	BGND	Blue Return			

CN5: Analog RGB Input connector(13pin connector)

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	SCL	DDC Data Clock	8	RED	Analog Red
2	SDA	DDC Serial Data	9	GGND	Green Return
3	GND	Reserved	10	GREEN	Analog Green
4	NC	VGA_CAB	11	BGND	Blue Return
5	VSYNC	Vertical Sync	12	BLUE	Analog Blue
6	HSYNC	Horizontal Sync	13	NC	+5VDC
7	RGND	Red Return			

J1: Power DIN Jack(12V)

Pin No.	Function	Pin No.	Function
1	12VDC	2	12VDC
3	GND	4	GND

J2: Power connector(12V)

Pin No.	Function	Pin No.	Function
1	12VDC	4	GND
2	12VDC	5	GND
3	12VDC	6	GND

J3: Power connector(5V)

Pin No.	Function	Pin No.	Function
1	5VDC	2	5VDC
3	GND	4	GND

J4: Inverter Connector

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	ON/OFF	Backlight ON/OFF	5	GND	GND
2	BRIGHT	Dimming adjust	6	12VDC	Input 12VDC
3	GND	GND	7	12VDC	Input 12VDC
4	GND	GND	8	12VDC	Input 12VDC

J5,J6: FAN

Pin No.	Function	Pin No.	Function
1	FAN(+)	2	GND

J7: Key Pad

Pin No.	Function	Pin No.	Function
1	POWER KEY	6	MENU KEY
2	GREEN LED	7	AUTO KEY
3	RED LED	8	GND
4	LEFT KEY	9	GND
5	RIGHT KEY		

J8: TO Audio PCB connector(Audio control)

Pin No.	Function	Pin No.	Function
1	12VDC	5	5VDC
2	12VDC	6	Volume
3	GND	7	Mute
4	GND		

J9: Ambient

Pin No.	Function	Pin No.	Function
1	NC	3	GND
2	L_Sensor		

J10: VR connector

Pin No.	Function	Pin No.	Function
1	3,3VDC	2	VR
3	GND		

J11: G-PROBE(RS232)

Pin No.	Function	Pin No.	Function
1	5VDC	3	RXD
2	TXR	4	GND

JP1: PANEL VCC

Pin No.	Function	Pin No.	Function
1-2	12V	5-6	3.3V
3-4	5V		

DC characteristics.

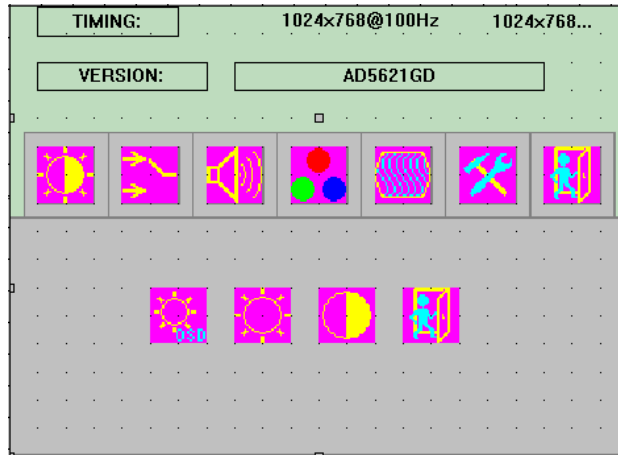
Power Consumption	6	W Note1
Operation Temperature	0~70	°C
Storage Temperature	-20~85	°C

Note: This Value is for a/d board body.

10.6 OSD menu

Here are some instructions for you to use the OSD (On Screen Display). By pressing the “menu”, you will see the below picture.

Timing shows resolution, H-frequency, and V-frequency of the panel. Version shows the firmware control version. This 2 information is not changeable by user.

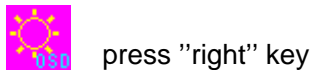


There are 7 sub pages inside the OSD manual, Brightness, Signal select, Sound, Color, Image, Tools, and Exit.

When you press “menu” button, you enter the “Brightness” sub page. You will see 4 selections:



OSD Brightness:



press "right" key



press “menu” once, you can go into adjust the brightness. Press “left” you can dim down the brightness to “0”, while press “right” you can increase the brightness to “100”.



Ambient light sensor: press this Icon, must to accompany with Litemax ambient light sensor to auto dimming.(OPTION)



Potentiometer: press this icon, adjust VR function.(OPTION)



Ambient light sensor with OSD offset: press this Icon



Press "right" key



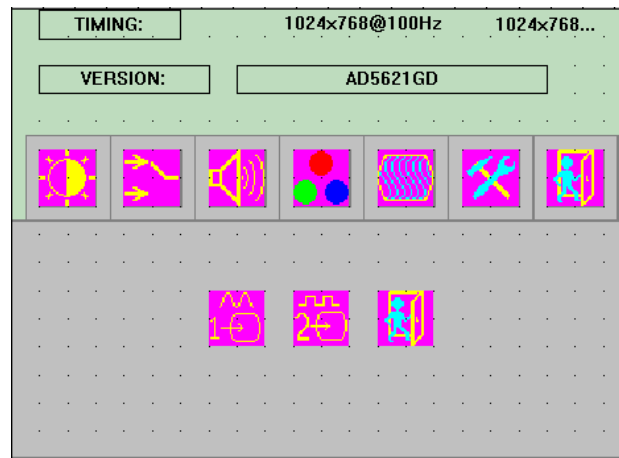
Press 'menu" once, you can adjust min. luminance to fit your application (OPTION)



Contrast: Press “menu” and “right” you can adjust the contrast from “0” to “100” by pressing the “left” and “right”.



Exit: You can exit this sub menu back to normal screen.



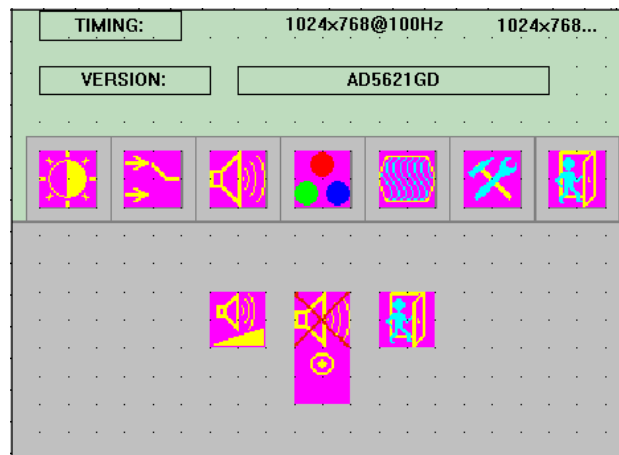
Analog: RGB/VGA INPUT



Digital: DVI input



Exit: You can exit this sub menu back to normal screen.



There are 3 options for "Sound" sub page.



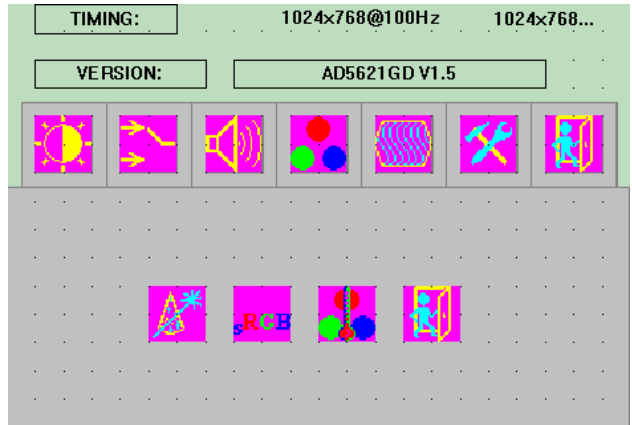
Audio Volume: Audio volume adjustment.



Mute: You can mute the speaker by pressing this option.



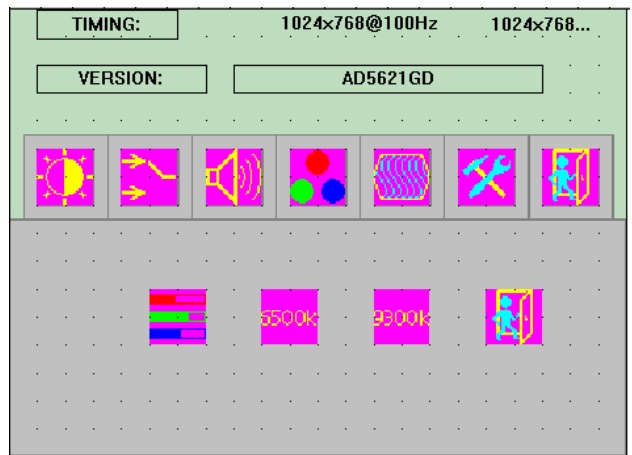
Exit: back to the normal screen.



Auto Color: by press this “Auto Color” option, you can get the optimal color performance.



sRGB: Windows standard color setting.



Color Tempture: You can have 3 options in this selection.



Color Tempture User



Color Tempture_6500K



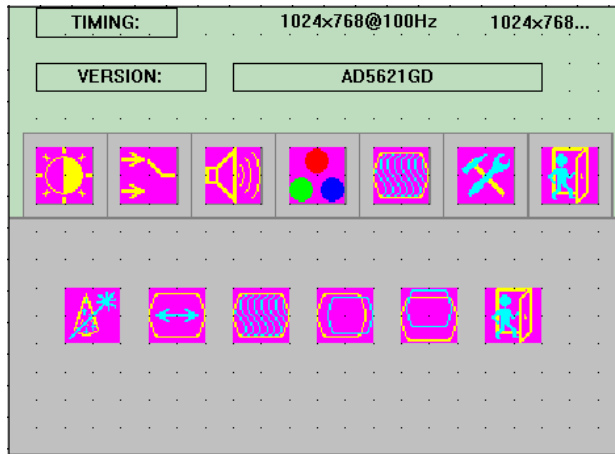
Color Tempture_9300K

“user mode”, “6500K” (Warm color scheme), “9300K (Cold color scheme).
 Def ault is “user”, and inside all “R”, “G”, and “B” are set “100”



Exit: back to the normal screen.

Go into the "Image" page, you can see below picture.



Auto just: Pressing this option, the AD5621 will adjust the optimal frequency of horizontal and vertical. You will see "Auto tune...." On the screen for around 3 seconds.



Clock: If you are not satisfied about the Autotune result, you can adjust manually by "Clock". The screen will be "wider" if you adjust this function.



Phase: If you see "double image" on characters, you can adjust "Phase" to make it perfect image.



HPos: You can shift the screen horizontally by this function.

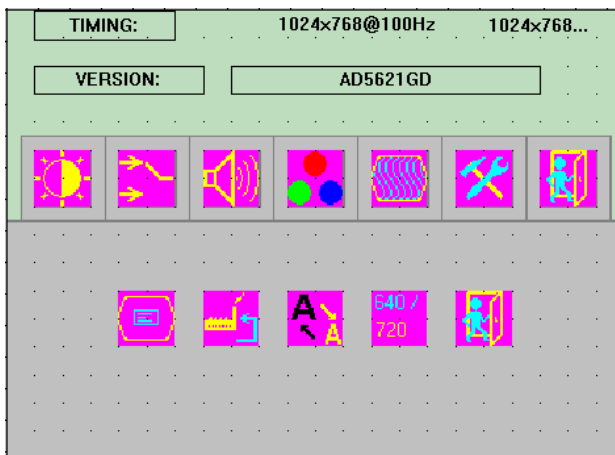


Vpos: You can shift the screen vertically by this function.

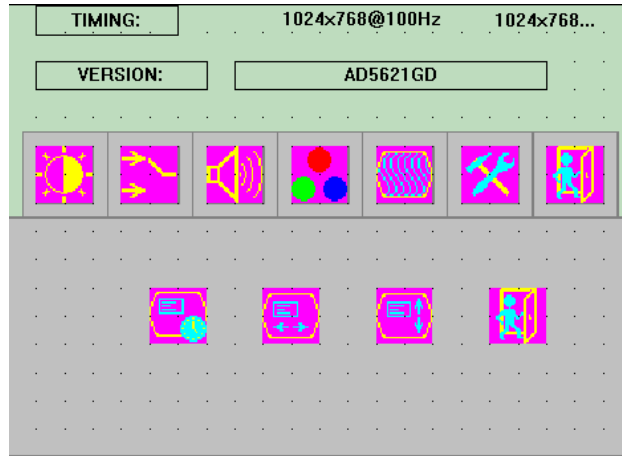


Exit: Back to normal screen.

On the "Tools" sub menu, you will see 5 icons.



Osd Control: Select this option, you will see 4 more options:



Osd_time: You can selection the time of OSD from 2 sec. to 16 sec.

D



Osd_HPos: You can move the OSD horizontally over the screen.



Osd_VPos: You can move the OSD Vertically over the screen.



Exit: back to main menu.



Factory_Reset: By pressing this, the screen will be back to the factory setting on very beginning and lost all the personal settings.



Sharpness: You can make the characters looks sharper.



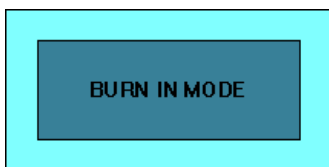
Dos_mode/Gxf_mode: Some old programs running over 640x400 and 720x400 (DOS Mode and graphics mode), you need to select this option manually.



Exit

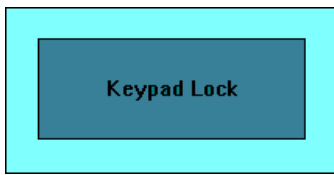
Factory Burn-in mode: While your VGA cable is connected on the monitor, press “Menu” and Left <” simultaneously, you will see “BURN IN MODE” on the center of the screen for 3 sec. Then unplug the VGA cable, the screen will show Red, Green, Blue, White, and Black in sequence automatically.

You can plug in the VGA signal cable, and re-plug the power connector to exit the burn-in mode.

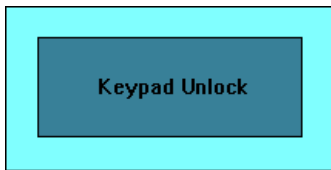


OSD Lock Function: It is possible to lock all the OSD buttons to prevent unauthorized changes to occur by pressing “Menu” and “right >” buttons simultaneously. You will see the “lock” icon below on

the center of the screen for 3 seconds. If any button is pushed after the lock function is initiated, the below icon will appear on the screen.'



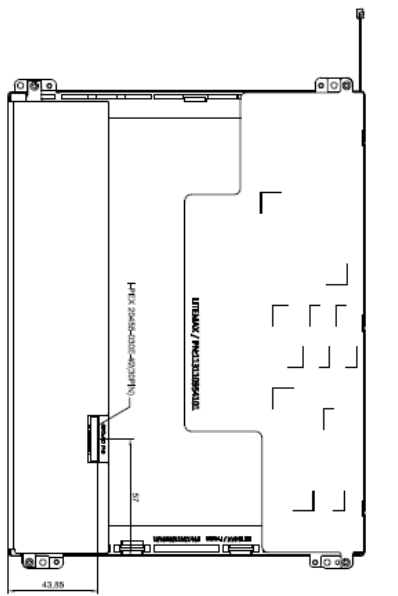
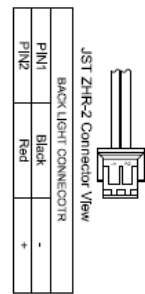
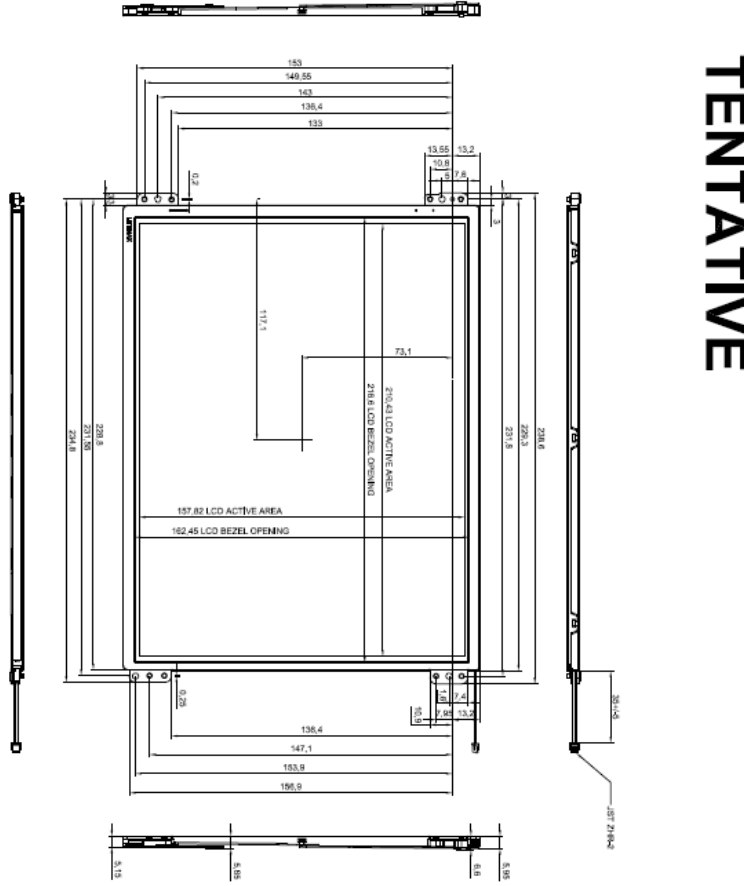
To release the OSD lock, press "Menu" and "Right >". The below icon will appear on the center of the screen for 3 seconds. Now all OSD keys are active again.



11.0 MECHANICAL DRAWING

DLF1095 & DLH1095

LITEMAX 10.4" LCD PANEL HY1095E TENTATIVE



APPROVED	CHECKED	DESIGNED	MATERIAL	DATE																																																																																																								
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<table border="1"> <tr> <th>LEVEL</th> <th>GENERAL TOLERANCE ±</th> <th>SELECT</th> <th>LEVEL</th> </tr> <tr> <td>0 - 4</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> </tr> <tr> <td>5 - 8</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> </tr> <tr> <td>9 - 12</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> </tr> <tr> <td>13 - 16</td> <td>0.25</td> <td>0.25</td> <td>0.25</td> </tr> <tr> <td>17 - 20</td> <td>0.3</td> <td>0.3</td> <td>0.3</td> </tr> <tr> <td>21 - 24</td> <td>0.35</td> <td>0.35</td> <td>0.35</td> </tr> <tr> <td>25 - 28</td> <td>0.4</td> <td>0.4</td> <td>0.4</td> </tr> <tr> <td>29 - 32</td> <td>0.45</td> <td>0.45</td> <td>0.45</td> </tr> <tr> <td>33 - 36</td> <td>0.5</td> <td>0.5</td> <td>0.5</td> </tr> <tr> <td>37 - 40</td> <td>0.55</td> <td>0.55</td> <td>0.55</td> </tr> <tr> <td>41 - 44</td> <td>0.6</td> <td>0.6</td> <td>0.6</td> </tr> <tr> <td>45 - 48</td> <td>0.65</td> <td>0.65</td> <td>0.65</td> </tr> <tr> <td>49 - 52</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> </tr> <tr> <td>53 - 56</td> <td>0.75</td> <td>0.75</td> <td>0.75</td> </tr> <tr> <td>57 - 60</td> <td>0.8</td> <td>0.8</td> <td>0.8</td> </tr> <tr> <td>61 - 64</td> <td>0.85</td> <td>0.85</td> <td>0.85</td> </tr> <tr> <td>65 - 68</td> <td>0.9</td> <td>0.9</td> <td>0.9</td> </tr> <tr> <td>69 - 72</td> <td>0.95</td> <td>0.95</td> <td>0.95</td> </tr> <tr> <td>73 - 76</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> </tr> <tr> <td>77 - 80</td> <td>1.05</td> <td>1.05</td> <td>1.05</td> </tr> <tr> <td>81 - 84</td> <td>1.1</td> <td>1.1</td> <td>1.1</td> </tr> <tr> <td>85 - 88</td> <td>1.15</td> <td>1.15</td> <td>1.15</td> </tr> <tr> <td>89 - 92</td> <td>1.2</td> <td>1.2</td> <td>1.2</td> </tr> <tr> <td>93 - 96</td> <td>1.25</td> <td>1.25</td> <td>1.25</td> </tr> <tr> <td>97 - 100</td> <td>1.3</td> <td>1.3</td> <td>1.3</td> </tr> </table>					LEVEL	GENERAL TOLERANCE ±	SELECT	LEVEL	0 - 4	0.1	0.1	0.1	5 - 8	0.15	0.15	0.15	9 - 12	0.2	0.2	0.2	13 - 16	0.25	0.25	0.25	17 - 20	0.3	0.3	0.3	21 - 24	0.35	0.35	0.35	25 - 28	0.4	0.4	0.4	29 - 32	0.45	0.45	0.45	33 - 36	0.5	0.5	0.5	37 - 40	0.55	0.55	0.55	41 - 44	0.6	0.6	0.6	45 - 48	0.65	0.65	0.65	49 - 52	0.7	0.7	0.7	53 - 56	0.75	0.75	0.75	57 - 60	0.8	0.8	0.8	61 - 64	0.85	0.85	0.85	65 - 68	0.9	0.9	0.9	69 - 72	0.95	0.95	0.95	73 - 76	1.0	1.0	1.0	77 - 80	1.05	1.05	1.05	81 - 84	1.1	1.1	1.1	85 - 88	1.15	1.15	1.15	89 - 92	1.2	1.2	1.2	93 - 96	1.25	1.25	1.25	97 - 100	1.3	1.3	1.3
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LitMax Electronic Inc. A-4 3MT 1-1 REV X1																																																																																																												

REV	ECN NO.	DESCRIPTION	SIZE	DATE
1	-	Design drawing		

12.0 PRECAUTIONS

HANDLING PRECAUTIONS

- (1) The module should be assembled into the system firmly by using every mounting hole. Be careful not to twist or bend the module.
- (2) While assembling or installing modules, it can only be in the clean area. The dust and oil may cause electrical short or damage the polarizer.
- (3) Use fingerstalls or soft gloves in order to keep display clean during the incoming inspection and assembly process.
- (4) Do not press or scratch the surface harder than a HB pencil lead on the panel because the polarizer is very soft and easily scratched.
- (5) If the surface of the polarizer is dirty, please clean it by some absorbent cotton or soft cloth. Do not use Ketone type materials (ex. Acetone), Ethyl alcohol, Toluene, Ethyl acid or Methyl chloride. It might permanently damage the polarizer due to chemical reaction.
- (6) Wipe off water droplets or oil immediately. Staining and discoloration may occur if they left on panel for a long time.
- (7) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contacting with hands, legs or clothes, it must be washed away thoroughly with soap.
- (8) Protect the module from static electricity, it may cause damage to the C-MOS Gate Array IC.
- (9) Do not disassemble the module.
- (10) Do not pull or fold the lamp wire.
- (11) Pins of I/F connector should not be touched directly with bare hands.

STORAGE PRECAUTIONS

- (1) High temperature or humidity may reduce the performance of module. Please store LCD module within the specified storage conditions.
- (2) It is dangerous that moisture come into or contacted the LCD module, because the moisture may damage LCD module when it is operating.
- (3) It may reduce the display quality if the ambient temperature is lower than 10 °C. For example, the response time will become slowly, and the starting voltage of lamp will be higher than the room temperature.

OPERATION PRECAUTIONS

- (1) Do not pull the I/F connector in or out while the module is operating.
- (2) Always follow the correct power on/off sequence when LCD module is connecting and operating. This can prevent the CMOS LSI chips from damage during latch-up.