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SSD4805-YNU
Sunlight Readable 48” LED B/L LCD

User Manual

Approved by	Checked by	Prepared by

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Record of Revision

Version and Date	Page	Old Description	New Description	Remark
Nov/22/2019	all		Initial release	

Contents

1 General Description

The SSD4805-YNU is a 48 inch color TFT-LCD display with aspect ratio 16:3 and wide resolution 3840x 720. It is Litemax's Spanpixel series product which designed for high brightness with power efficiency LED backlight. It provides LCD panel with specific aspect ratios and sunlight readable for digital signage, public transportation, exhibition hall, department store, and vending machine.

1.1 Features

- High Brightness 1000nits
- Sunlight Readable
- Aspect ratio 16:3
- LED Backlight
- Wide Viewing Angle

1.2 General Specifications

Model Name	SSD4805-YNU V1
Description	48" TFT LCD, 1000nits LED Backlight, 3840x720
Screen Size	48"
Display Area (mm)	1194.05(H) x 223.88(V)
Brightness	1000 cd/m^2
Resolution	3840x720
Aspect Ratio	16 : 3
Contrast Ratio	1200 : 1
Pixel Pitch (mm)	0.31095(H) x 0.31095(V)
Pixel Pre Inch (PPI)	81
Viewing Angle	178°(H),178°(V)
Color Saturation (NTSC)	83%
Display Colors	16.7M
Response Time (Typical)	10ms
Panel Interface	V-by-One
AD Board Input Interface	DVI, HDMI, DP
Input Power	AC 100~240V
Power Consumption	98W
OSD Key	5 Keys (Power Switch, Menu, +, Exit, -)
OSD Control	Brightness, Color, Contrast, Auto Turing, H/V Position…etc
Dimensions (mm)	1220.4x250.8x70.2
Bezel Size(U/B/L/R)	11.2/11.2/11.2/11.2 mm
Weight (Net)	9.2 kg
Mounting	300x75, 650x100
Operating Temperature	0 ˚C ~ 50 ˚C
Storage Temperature	-20 ˚C ~ 60 ˚C

SSD= Panel+ LED Driving Board + AD Control Board + Housing

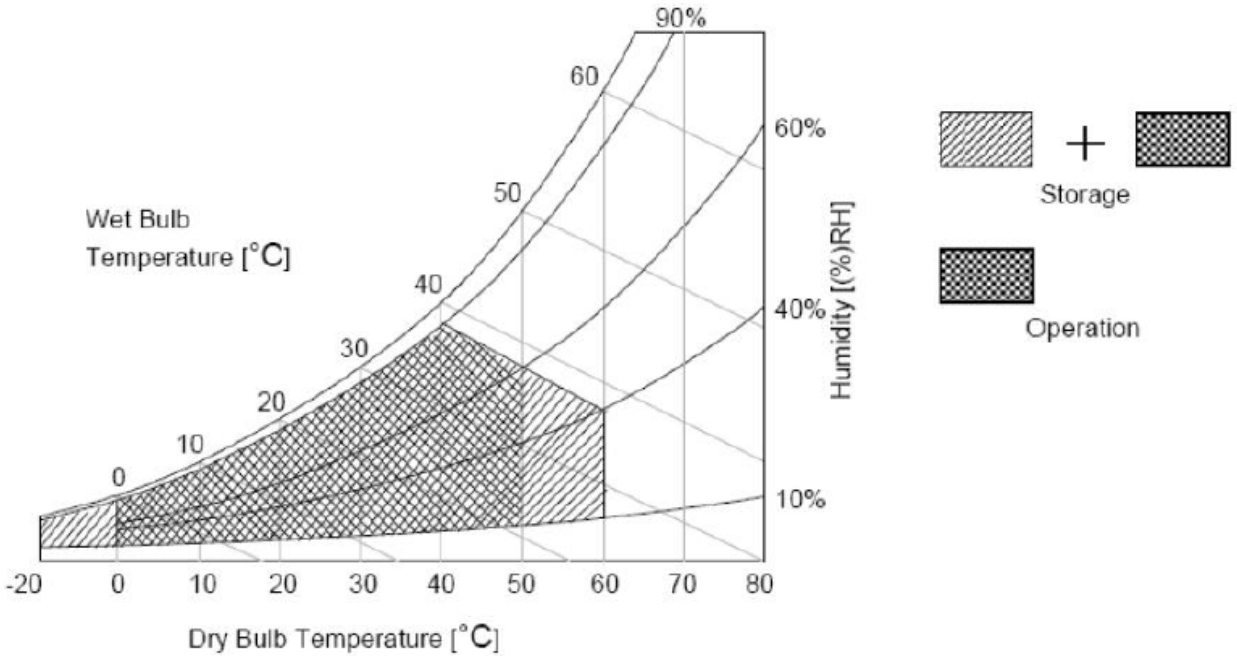
1.3 Absolute Maximum Ratings

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed below Table.

[VSS=GND=0V]

Parameter	Min.	Typ.	Max.	Unit	Remarks
Power Supply Voltage	VSS-0.3	12	13.2	V	Ta = 25 ℃
Operating Temperature	0	-	+50	℃	Note1
Storage Temperature	-20	-	+60	℃	
Operating Ambient Humidity	10	-	80	%RH	
Storage Humidity	10	-	80	%RH	

Note 1 : Temperature and relative humidity range are shown in the figure below.
Wet bulb temperature should be 39 ℃ max. and no condensation of water.



2 Electrical Specifications

2.1 Panel Electrical Specifications

[Ta =25± 2 ℃]

Parameter	Min.	Typ.	Max.	Unit	Remarks
Power Supply Voltage	VSS-0.3	12	13.2	V	Note1
Power Supply Current	-	600	1000	mA	
Power Consumption	-	7.2	13.2	Watt	
Rush current	-	-	5	A	

Note 1 : The supply voltage is measured and specified at the interface connector of LCM.
The current draw and power consumption specified is for VDD=12.0V

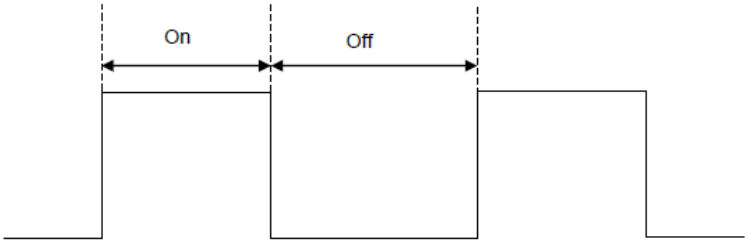
2.2 Converter Electrical Specifications

[Ta =25± 2 ℃]

Parameter	Symbol	Values			Unit	Remark
		Min	Typ	Max		
Power Supply Input Voltage	VBL	21.6	24	26.4	Vdc	
Power Supply Ripple Voltage	VRP	-	-	400	mV	
Power Supply Current	IDD	-	4	-	A	
Power Consumption	PDD	-	96	-	Watt	Note 1
Backlight On/Off Control Voltage	V_{BLON} (off)	0	-	0.3	V	
	V_{BLON} (on)	2.4	3.3	3.6	V	
Backlight PWM	High Level	2.4	3.3	3.6	V	On duty
	Low Level	0	-	0.3	V	Off duty
	Dimming Ratio	10	-	100	%	Note 2
	PWM Frequency	100	-	300	Hz	

Note 1: The specified current and power consumption are under the typical supply Input voltage, 24V.It is total power consumption.

Note 2 : High-duty = On/(On+Off) * 100



2.3 SIGNAL TIMING SPECIFICATION

Parameter		Min.	Typ.	Max.	Feature
LED Forward Voltage	VF	5.6	6.2	6.4	V
LED Forward Current	IF	-	85	-	Ma
LED Power Consumption	PLED	73.3	81.2	83.8	W
LED Life-Time	N/A	50000	-	-	Hour

2.4 INTERFACE CONNECTION

●Converter Input Signal & Powerf

Connector : 14pin(Manufactured by 德潤) or Equivalent

Pin No.	Symbol	Feature
1	24V	Power Supply +24.0V
2	24V	Power Supply +24.0V
3	24V	Power Supply +24.0V
4	24V	Power Supply +24.0V
5	24V	Power Supply +24.0V
6	GND	Ground
7	GND	Ground
8	GND	Ground
9	GND	Ground
10	GND	Ground
11	NC	No Connection
12	BLON	BLON
13	PWM_IN	PWM_IN
14	FAIL	FAIL

●Open Cell Input Signal & Power

Connector : 51pin(F05035FA51M1WL) or Equivalent

Pin No	Symbol	Description	Pin No	Symbol	Description
1	VDD	Power Supply +12.0V	27	GND	Ground
2	VDD	Power Supply +12.0V	28	Rx0n	V-by-One HS Data Lane 0
3	VDD	Power Supply +12.0V	29	Rx0p	V-by-One HS Data Lane 0
4	VDD	Power Supply +12.0V	30	GND	Ground
5	VDD	Power Supply +12.0V	31	Rx1n	V-by-One HS Data Lane 1
6	VDD	Power Supply +12.0V	32	Rx1p	V-by-One HS Data Lane 1
7	VDD	Power Supply +12.0V	33	GND	Ground
8	VDD	Power Supply +12.0V	34	Rx2n	V-by-One HS Data Lane 2
9	NC	No Connection	35	Rx2p	V-by-One HS Data Lane 2
10	GND	Ground	36	GND	Ground
11	GND	Ground	37	Rx3n	V-by-One HS Data Lane 3
12	GND	Ground	38	Rx3p	V-by-One HS Data Lane 3
13	GND	Ground	39	GND	Ground
14	NC	for BOE internal use	40	Rx4n	V-by-One HS Data Lane 4
15	NC	for BOE internal use	41	Rx4p	V-by-One HS Data Lane 4
16	NC	for BOE internal use	42	GND	Ground
17	NC	for BOE internal use	43	Rx5n	V-by-One HS Data Lane 5
18	NC	for BOE internal use	44	Rx5p	V-by-One HS Data Lane 5
19	NC	for BOE internal use	45	GND	Ground
20	NC	No Connection	46	Rx6n	V-by-One HS Data Lane 6
21	Local_ON	'L' = Local dimming Disable	47	Rx6p	V-by-One HS Data Lane 6
22	SEL_SEC	分区选择信号,L/NC:2section,H:1section	48	GND	Ground
23	NC	No Connection	49	Rx7n	V-by-One HS Data Lane 7
24	GND	Ground	50	Rx7p	V-by-One HS Data Lane 7
25	HTPDN	Hot plug detect	51	GND	Ground
26	LOCKN	Lock detect			

●VBYONE Interface

Byte	Packer input	Color data mapping
		30 bpp RGB
0	Bit-0	R2
	Bit-1	R3
	Bit-2	R4
	Bit-3	R5
	Bit-4	R6
	Bit-5	R7
	Bit-6	R8
	Bit-7	R9
1	Bit-8	G2
	Bit-9	G3
	Bit-10	G4
	Bit-11	G5
	Bit-12	G6
	Bit-13	G7
	Bit-14	G8
	Bit-15	G9
2	Bit-16	B2
	Bit-17	B3
	Bit-18	B4
	Bit-19	B5
	Bit-20	B6
	Bit-21	B7
	Bit-22	B8
	Bit-23	B9
3	Bit-24	-
	Bit-25	-
	Bit-26	B0
	Bit-27	B1
	Bit-28	G0
	Bit-29	G1
	Bit-30	R0
	Bit-31	R1

2.5 SIGNAL TIMING SPECIFICATION

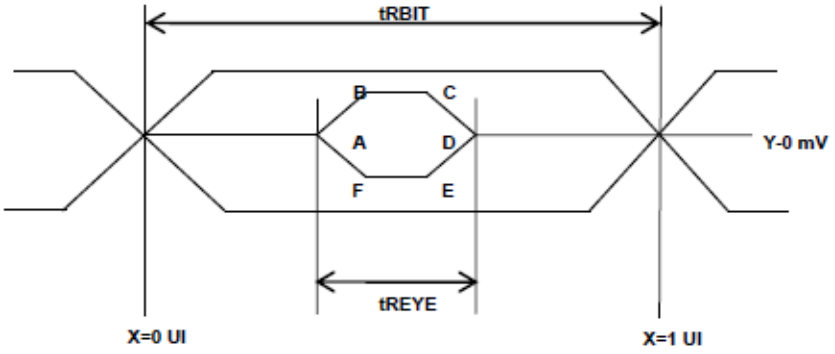
Input data specification V-By-One Connector
Timing characteristics of input signals

Item		Symbols	Min	Typ	Max	Unit
Frequency		1/Tc	40	74.25	85	MHz
Vertical	Frame Rate	F	47	60	61	Hz
	Total	T_V	740	810	1010	T_H
	Display	T_{VD}		720		T_H
	Blank	T_{VB}	20	90	290	T_H
Horizontal	Total	T_H	4240	4400	4800	T_{CLK}
	Display	T_{HD}		3840		T_{CLK}
	Blank	T_{HB}	400	560	960	T_{CLK}

2.6 Input Signal Timing

V by one Input Signal Timing
SSCG Receive Information of TCON: When modulation frequency is 30KHz, spread spectrum modulation range is inner ±0.5%

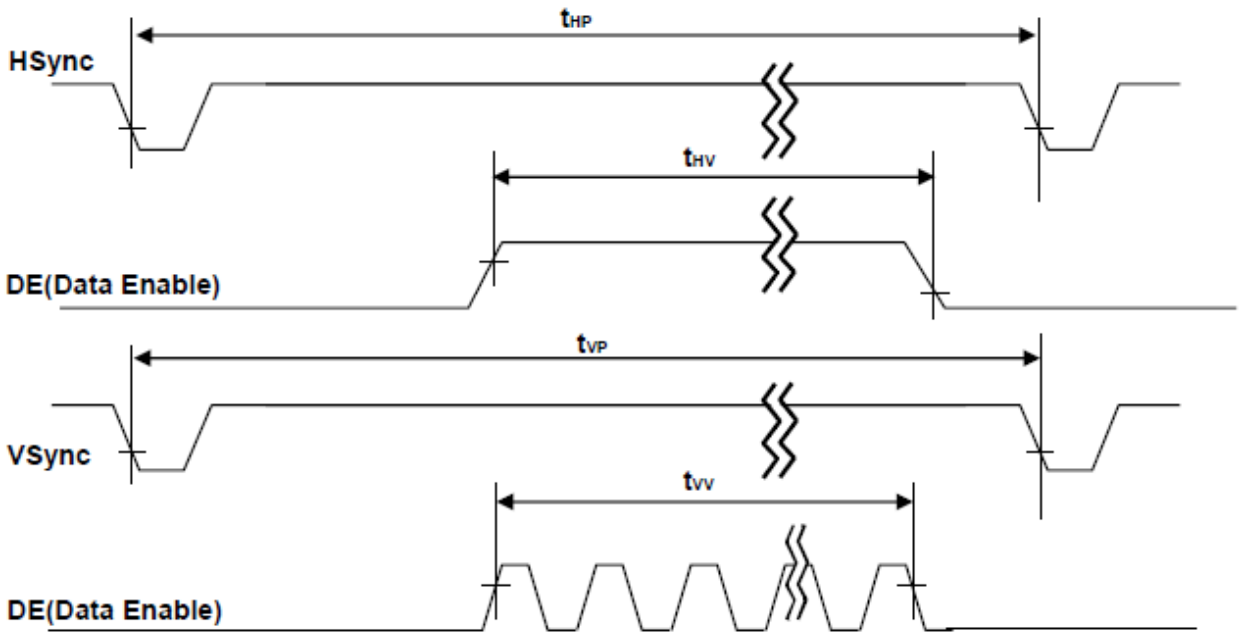
Parameter	Symbol	Condition	Min	Typ	Max	Unit	Voltage
Unit Interval(VBO Operation Bit Rate)	tRBIT	3-byte	392	tTCIP/30	-	PS	-
		4-byte	294	tTCIP/40	-	PS	-
Eye Width at Package Pin	tREYE	-	-	0.5	-	UI	-
Eye Width Position A at Package Pin	tA	-	-	0.25	-	UI	0 mV
Eye Width Position B at Package Pin	tB	-	-	0.3	-	UI	50 mV
Eye Width Position Cat Package Pin	tC	-	-	0.7	-	UI	50 mV
Eye Width Position D at Package Pin	tD	-	-	0.75	-	UI	0 mV
Eye Width Position E at Package Pin	tE	-	-	0.7	-	UI	-50 mV
Eye Width Position F at Package Pin	tF	-	-	0.3	-	UI	-50 mV
Intra – pair Skew	TTOSK_intra	-	-0.3	-	0.3	UI	-
Intra – pair Skew	TTOSK_inter	-	-500	-	500	UI	-



SIGNAL TIMING WAVEFORMS OF INTERFACE SIGNAL

Input data specification

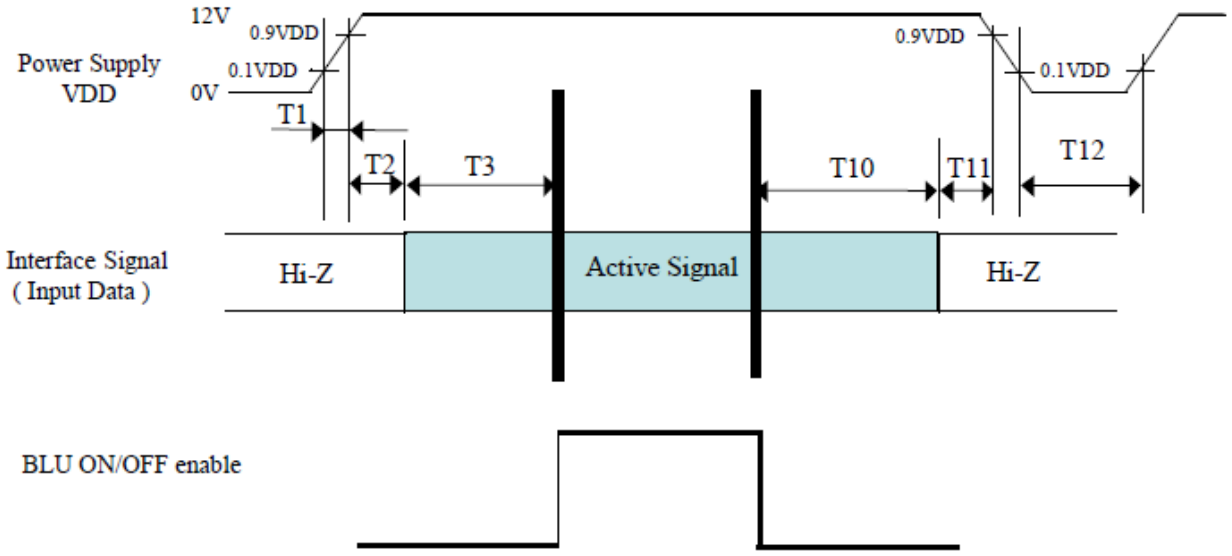
- Timing characteristics of input signals



-V by one Data format as follows this table

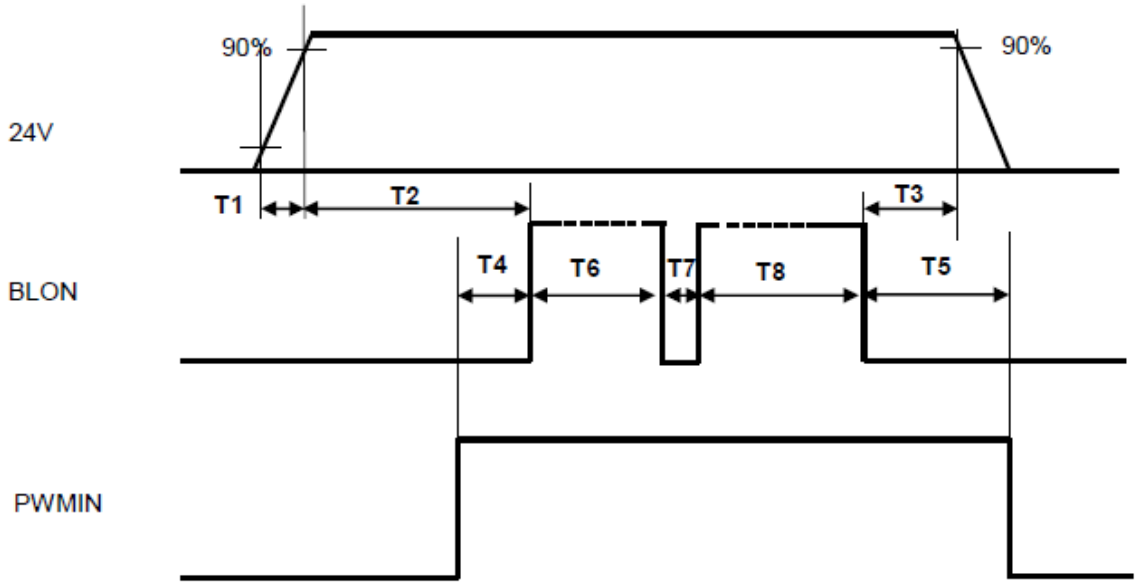
Mode 1: Non-Division			
Lane	1st Data	2nd Data	Data#
Lane0	1	9	3833
Lane1	2	10	3834
Lane2	3	11	3835
Lane3	4	12	3836
Lane4	5	13	3837
Lane5	6	14	3838
Lane6	7	15	3839
Lane7	8	16	3840

2.7 Power Sequence

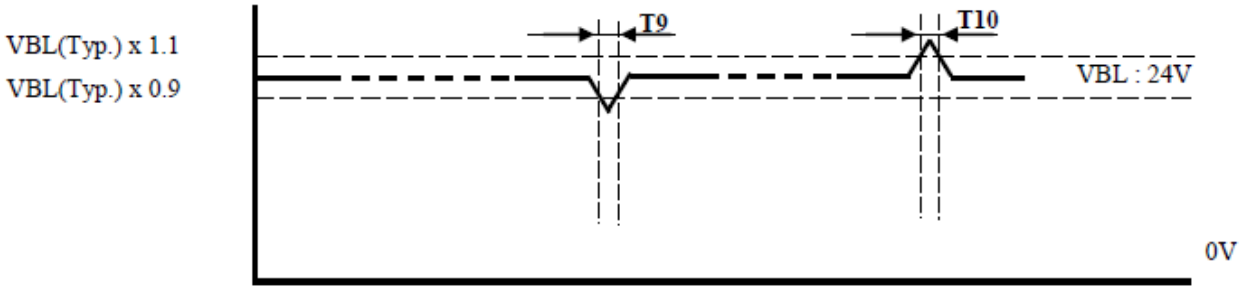


Parameter	Values			Units
	Min	Typ	Max	
T1	0.5	-	-	ms
T2	0	-	-	ms
T3	600	-	-	ms
T10	200	-	-	ms
T11	0	-	-	ms
T12	1	-	-	s

2.8 BL Power Sequence



-Input Voltage deep condition for converter



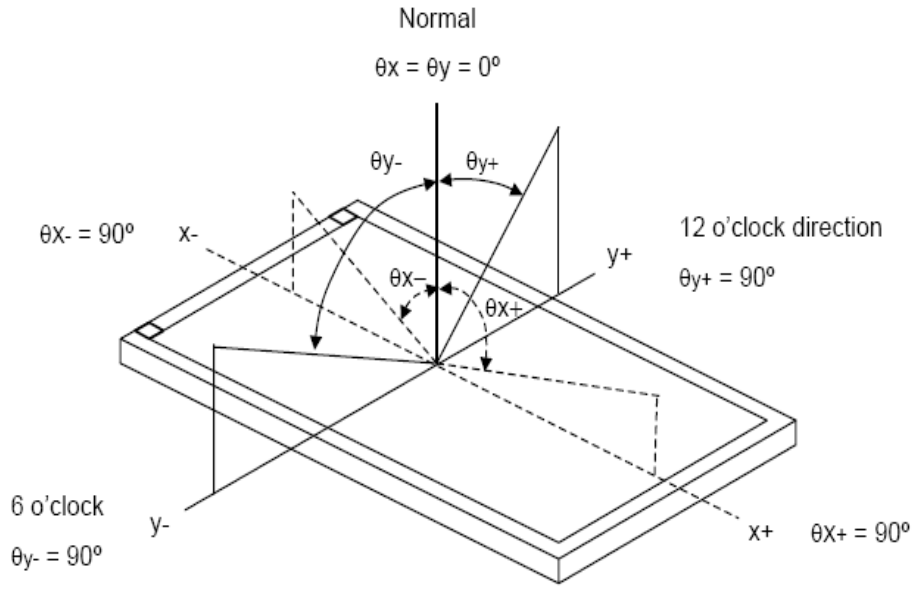
Parameter	Values			Units
	Min	Typ	Max	
T1/T3	10	-	-	ms
T2	200	-	-	ms
T4/T5	0.1	-	-	ms
T6/T8	2	-	-	sec
T7	500	-	-	ms
T9/T10	0.3	-	-	ms

3 Optical Specification

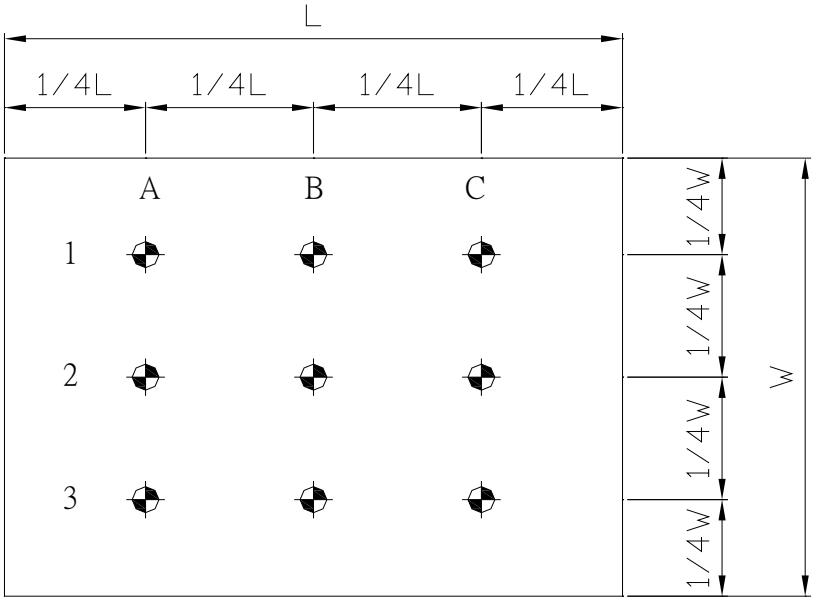
Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Color chromaticity	Red	Rx	θx=0 θy=0 Klein K-10	0.618	0.648	0.678	-	Test Mode: (1) (2) (3)
		Ry		0.299	0.329	0.359	-	
	Green	Gx		0.263	0.293	0.323	-	
		Gy		0.609	0.639	0.669	-	
	Blue	Bx		0.117	0.147	0.177	-	
		By		0.017	0.047	0.077	-	
	White	Wx		0.244	0.274	0.304	-	
		Wy		0.254	0.284	0.314	-	
Center Luminance of White		Lc	θx=0 θy=0 BM-7		1000		cd/m^2	
Uniformity		Lu			83		%	
Contrast Ratio		CR	θx=0 θy=0 Klein K-10		1200		-	Test Mode: (1) (4)
Color Saturation		NTSC			83		%	
Viewing Angle	Horizontal	θx+	CR ≥ 10		89		Deg	Test Mode: (1) (3)
		θx-			89			
	Vertical	θy+			89			
		θy-			89			

Test Mode：

(1) Definition of Viewing Angle (θx , θy):

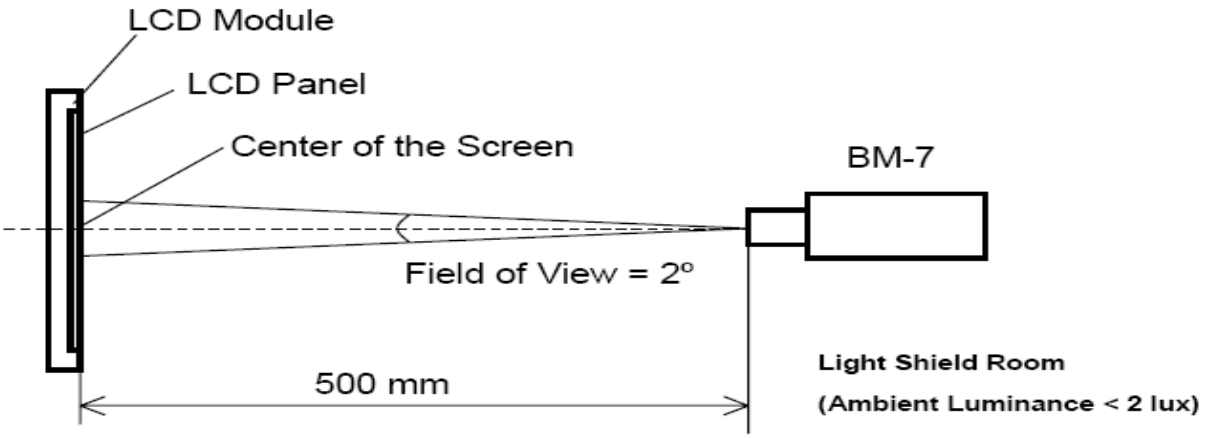


(2) Definition of Test Point:

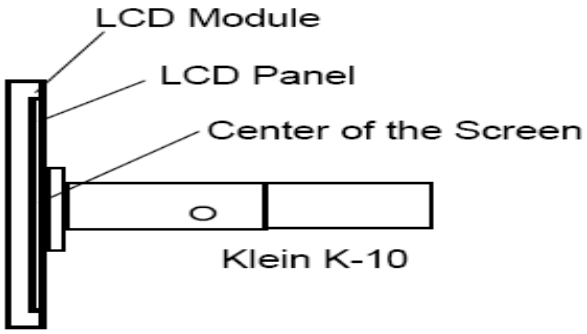


Active Area

(3) BM-7 Measurement Setup:

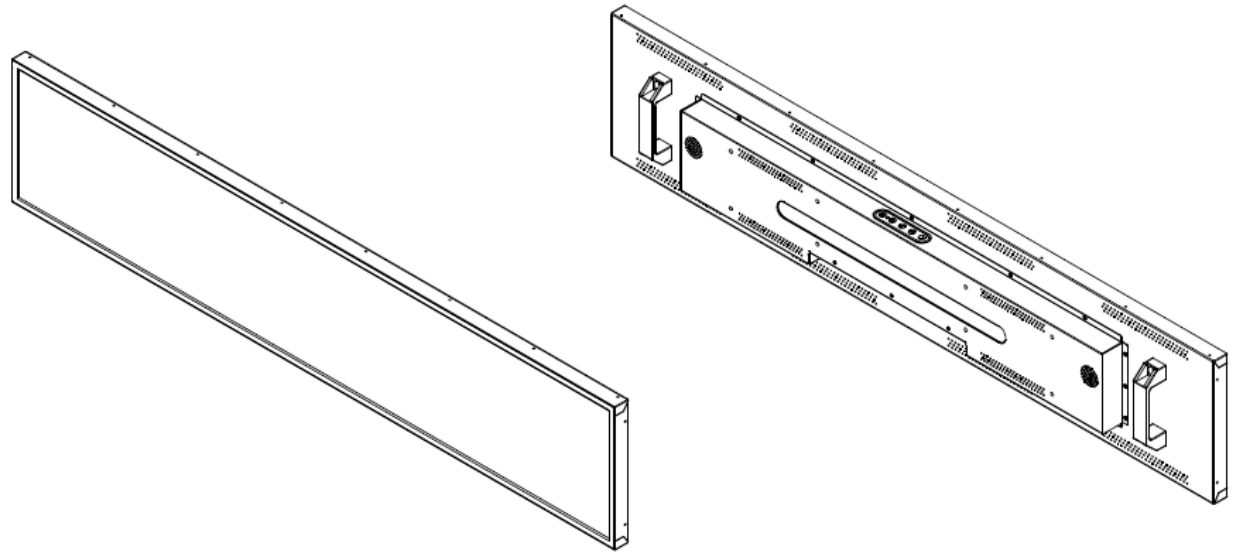


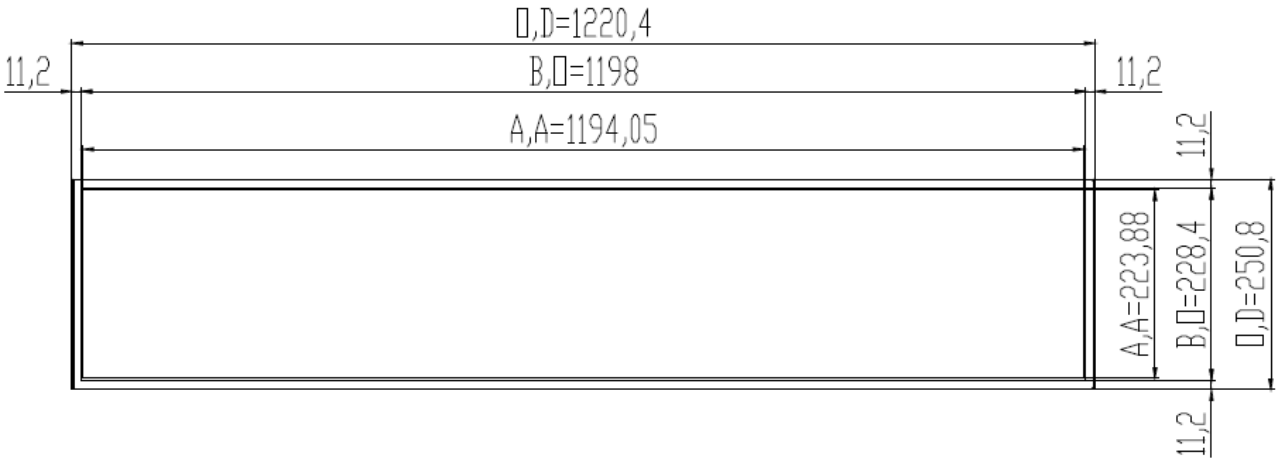
(4) Klein K-10 Measurement Setup:

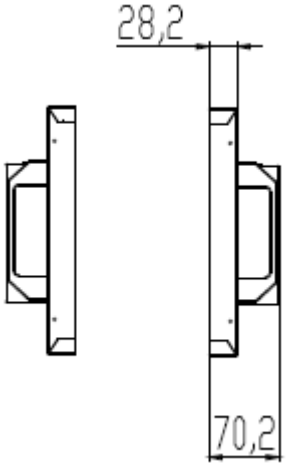


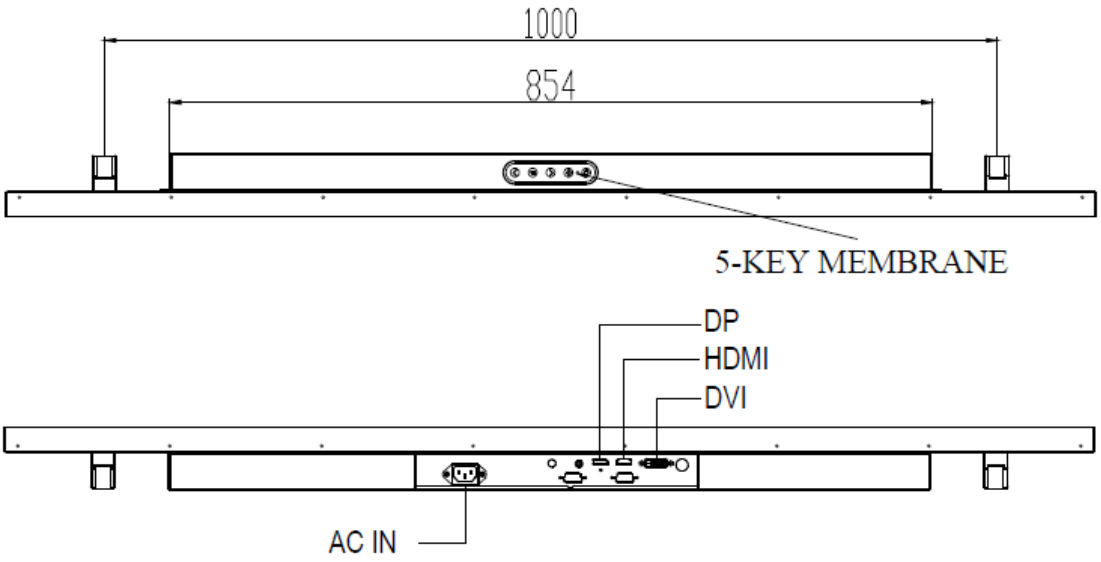
4 Mechanical Drawing

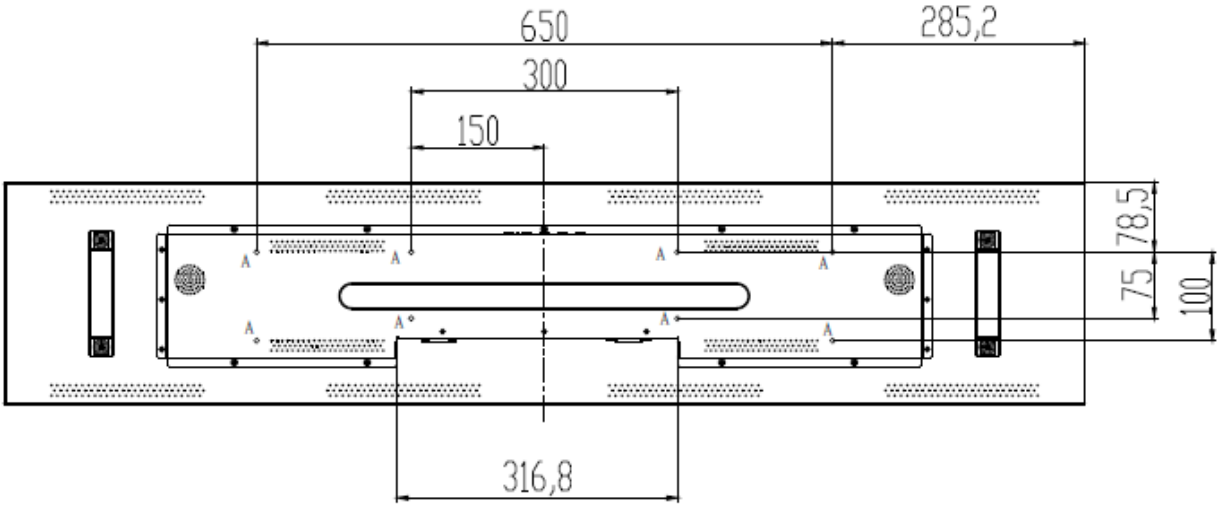
Unit:mm











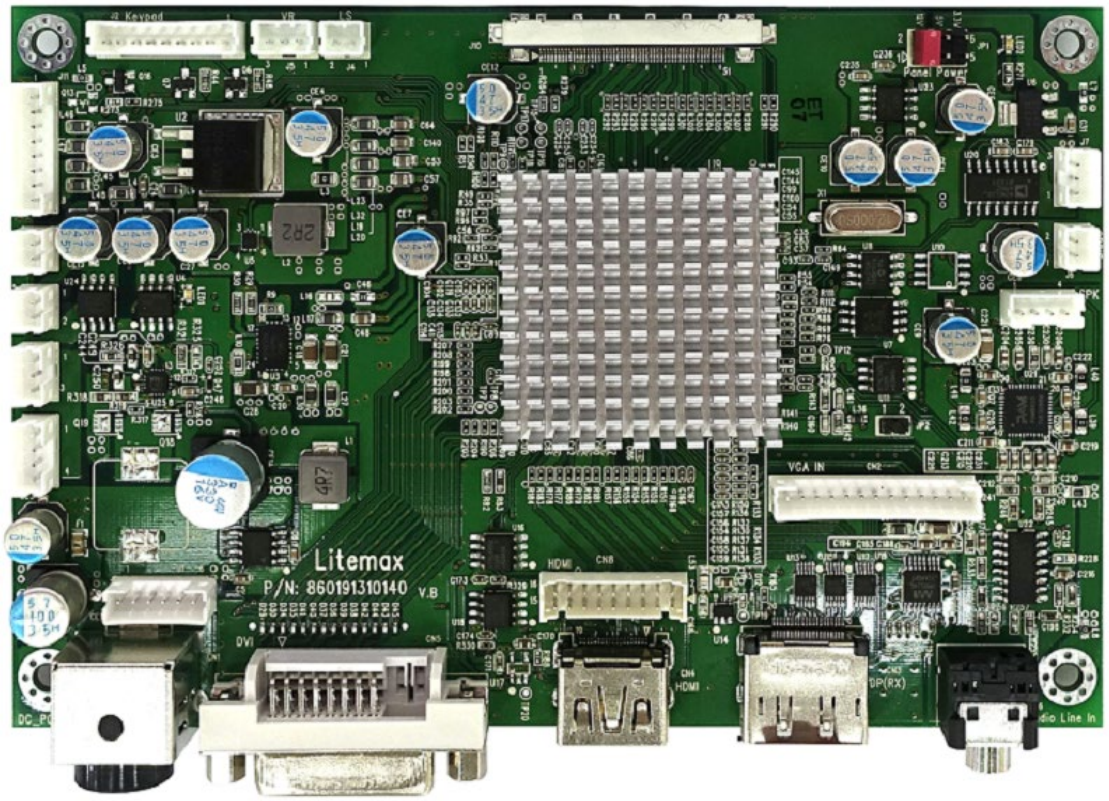
Note:
O.D : Outline Dimension
B.O : Bezel Opening
A.A : LCD Active Area
A:8-M6 USER HOLE _MAX. DEPTH=8mm

5 AD9131GDHPAR Board & OSD Functions

We developed this A/D board to support industrial high brightness and commercial applications. This A/D board has many functions. It has an external luminance sensor as an option, or optional VR button to control brightness, fan rotation and RS232. Rev.1 is European RoHS compliant.

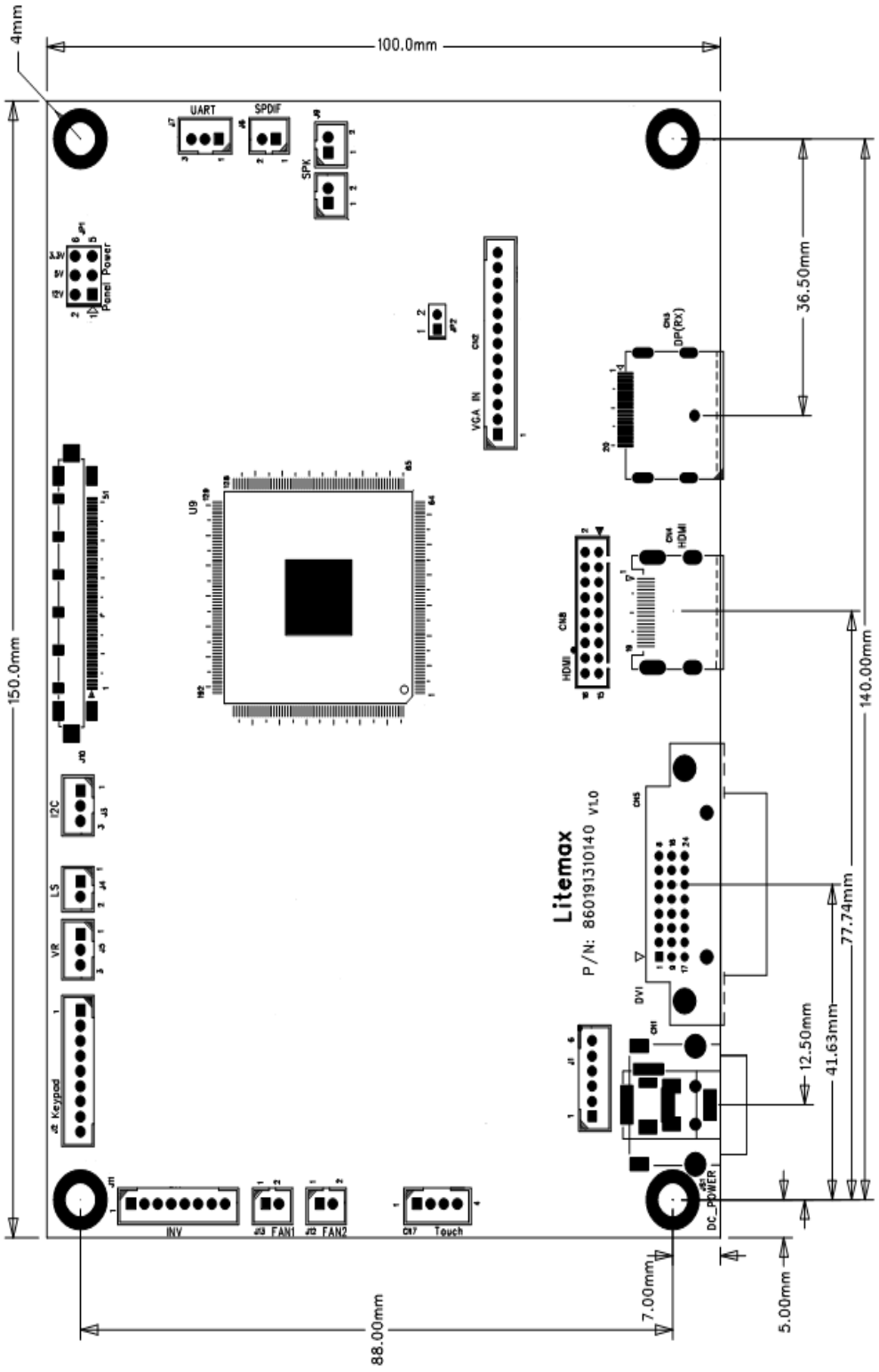
5.1 General Description

- Max Resolution Up To UHD(4096X2160)
- Support V-By-one panel
- Analog RGB Input up to 205MHz
- DVI operates up to165M Hz
- 1 ULTRA-RELIABLE Dual-link DVI INPUT(4K2K@30Hz)
- 1 VGA INPUT(Optional)
- 1 HDMI(HDMI 2.0) Input(4K2K@60Hz)
- 1 Display port Input (DP 1.2a) (4K2K@60Hz)
- Support Panel DC5V or 3.3V, 12V Output
- External Fan Control by Software
- OSD Control
- Inverter Analog or PWM Dimming Control
- External V.R. brightness control (Optional)
- External light sensor brightness control (Optional)
- External RS232 control (Optional)
- Input Power 24Vdc,or 12Vdc(24Vdc Power Input Is Optional)

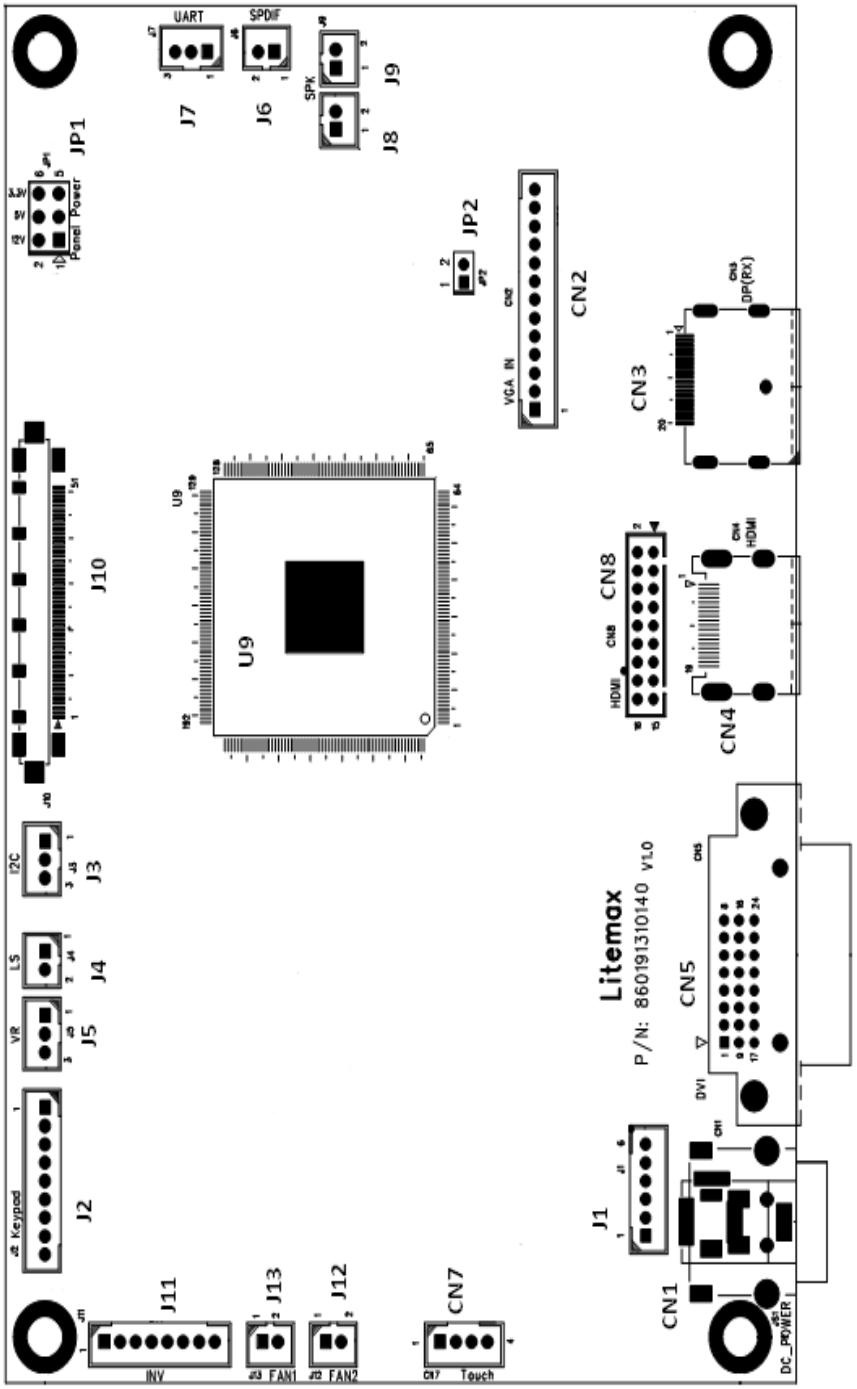


5.2 Outline Dimensions

AD9131GDHPAR 150mm x 100mm



5.3 AD9131GDHPAR Board Pin Define



J10: Panel V-by-One connector

Pin No.	Function	Pin No.	Function
1	PANEL-VCC	27	GND
2	PANEL-VCC	28	RX0N
3	PANEL-VCC	29	RX0P
4	PANEL-VCC	30	GND
5	PANEL-VCC	31	RX1N
6	PANEL-VCC	32	RX1P
7	PANEL-VCC	33	GND
8	PANEL-VCC	34	RX2N
9	NC	35	RX2P
10	GND	36	GND
11	GND	37	RX3N
12	GND	38	RX3P
13	GND	39	GND
14	GND	40	RX4N
15	eDP_HPD1	41	RX4P
16	AUXTX_P1	42	GND
17	AUXTX_N1	43	RX5N
18	P_SDA	44	RX5P
19	P_SCL	45	GND
20	NC	46	RX6N
21	eDP_HPD0	47	RX6P
22	LD_EN	48	GND
23	AUXTX_P0	49	RX7N
24	AUXTX_N0	50	RX7P
25	HTPDN	51	GND
26	LOCKN		

CN5: DVI-D Input Connector (24pin)

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	Vertical SYNC.	16	Hot Plug Detect	24	T.M.D.S. Clock-

CN2: Analog RGB Input connector (13pin connector)

Pin No.	Symbol	Description	Pin No.	Symbol	Description
1	SDA	DDC Serial Data	8	BLUE_RTN	Blue Return
2	SCL	DDC Data Clock	9	BLUE	Analog Blue
3	GND	Reserved	1	GREEN_RTN	Green Return
4	+5V	+5VDDC	1	GREEN	Analog Green
5	GND	Reserved	1	RED_RTN	Red Return
6	VSYNC	Vertical Sync	1	RED	Analog Red
7	HSYNC	Horizontal Sync			

CN4: HDMI Connector (19pin HDMI)

Pin No.	Function	Pin No.	Function	Pin No.	Function
1	T.M.D.S. Data2+	9	T.M.D.S. Data0-	17	GND
2	Shield	10	T.M.D.S. Clock+	18	HDMI 5V
3	T.M.D.S. Data2-	11	Shield	19	Hot Plug Detect
4	T.M.D.S. Data1+	12	T.M.D.S. Clock-		-
5	Shield	13	CEC		
6	T.M.D.S. Data1-	14	NC		
7	T.M.D.S. Data0+	15	HDMI_SCL		
8	Shield	16	HDMI_SDA		

CN8: HDMI Connector (18pin 2.0mm)

Pin No.	Function	Pin No.	Function	Pin No.	Function
1	T.M.D.S. Data2+	9	T.M.D.S. Data0+	17	HDMI_SCL
2	T.M.D.S. Data2-	10	T.M.D.S. Data0-	18	HDMI_SDA
3	Shield	11	Shield		
4	Shield	12	CEC		
5	T.M.D.S. Data1+	13	T.M.D.S. Clock+		

6	T.M.D.S. Data1-	14	T.M.D.S. Clock-		
7	Shield	15	HDMI 5V		
8	Shield	16	Hot Plug Detect		

CN3: DISPLAY PORT Connector (20pin DP)

Pin No.	Function	Pin No.	Function
1	LAN_C_D3N	11	GND
2	GND	12	ML_LANE0_P
3	LAN_C_D3P	13	GND
4	ML_LANE2_N	14	GND
5	GND	15	AUX _CH_P
6	ML_LANE2_P	16	GND
7	ML_LANE1_N	17	AUX _CH_N
8	GND	18	Hot plug detect
9	ML_LANE1_P	19	GND
10	ML_LANE0_N	20	DP +5V

CN1: Power DIN(24V or 12V)

Pin No.	Function	Pin No.	Function
1	24Vdc or 12Vdc(Not 1)	2	24Vdc or 12Vdc (Not 1)
3	GND	4	GND

CN1: Power Jack (24V or 12V)

Pin No.	Function	Pin No.	Function
1	24Vdc or 12Vdc(Not 1)	2	GND
3	GND		

J1: Power input connector (6 pin 2.0mm)

Pin No.	Function	Pin No.	Function
1	24Vdc or 12Vdc(Not 1)	2	24Vdc or 12Vdc(Not
3	24Vdc or 12Vdc(Not 1)	4	GND
5	GND	6	GND

Not 1:Power input has tow different versions,12V power input version and 24V input version don't mistake.

CN7: Power out connector (5V/12V)(4PIN 2.0mm)

Pin No.	Function	Pin No.	Function
1	5Vdc	2	GND
3	12Vdc	4	GND

J11: Inverter Connector (8PIN 2.0mm)

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

J13,J12: FAN (2PIN 2.0mm)

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

J2: Key Pad (9PIN 2.0mm)

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

J5: VR connector (3PIN 2.0mm)

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

J4: Ambient (2PIN 2.0mm)

Pin No.	Function	Pin No.	Function
1	3.3VDC/5VDC	2	Sensor Out

JP1: PANEL VCC (3PIN 2.54mm)

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

J8 & J9: Speaker Connector (2PIN 2.0mm)

Pin No.	Function	Pin No.	Function
1	SPK+	2	SPK-

J13 UART Connector (RS232 IN) (3PIN 2.0mm)

Pin No.	Function	Pin No.	Function
1	TXD	2	RXD
3	GND		

J4: SPDIF (2PIN 2.0mm)

Pin No.	Function	Pin No.	Function
1	SPDIF_OUT	2	GND

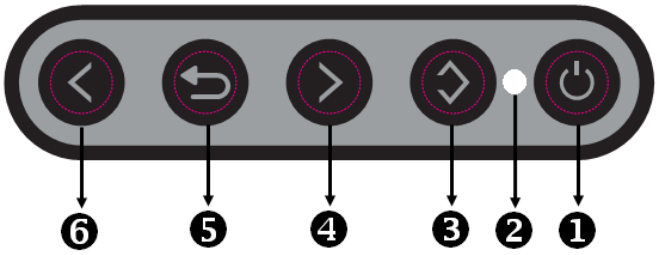
JP2: EDID (2PIN 2.0mm)

Pin No.	Function	Pin No.	Function
1	EEROM Write protect	2	GND

When need to rewrite EEROM EDID , short two pin .

5.4 OSD Function

MEMBRANE CONTROL BUTTOM



❶ **Key:** (Power) function key

Press the power switch will turn the monitor on.

Press it again to turn the monitor off.

❷ **LED Status:** Power ON-Green / Power off-No.

❸ **Key:** (Menu + Selection Right + Enter) function key

Press this button to the OSD “main menu”. And then press this button go to the “Selection Right” function, and press again this button to “Enter”.

❹ **Key:** (Menu + Selection Up + Increase) function key

Press this button to the OSD “main menu”. And then press this button go to the “Selection Up” function, and press again this button to adjustment value “Increase”.

❺ **Key:** (Menu + Exit) function key

Enter to the OSD adjustment menu. It also used for go back to previous menu for sub-menu.

❻ **Key:** (Menu + Selection Down + Decrease) function key

Press this button to the OSD “main menu”. And then press this button go to the “Selection Down” function, and press again this button to adjustment value “Decrease”.

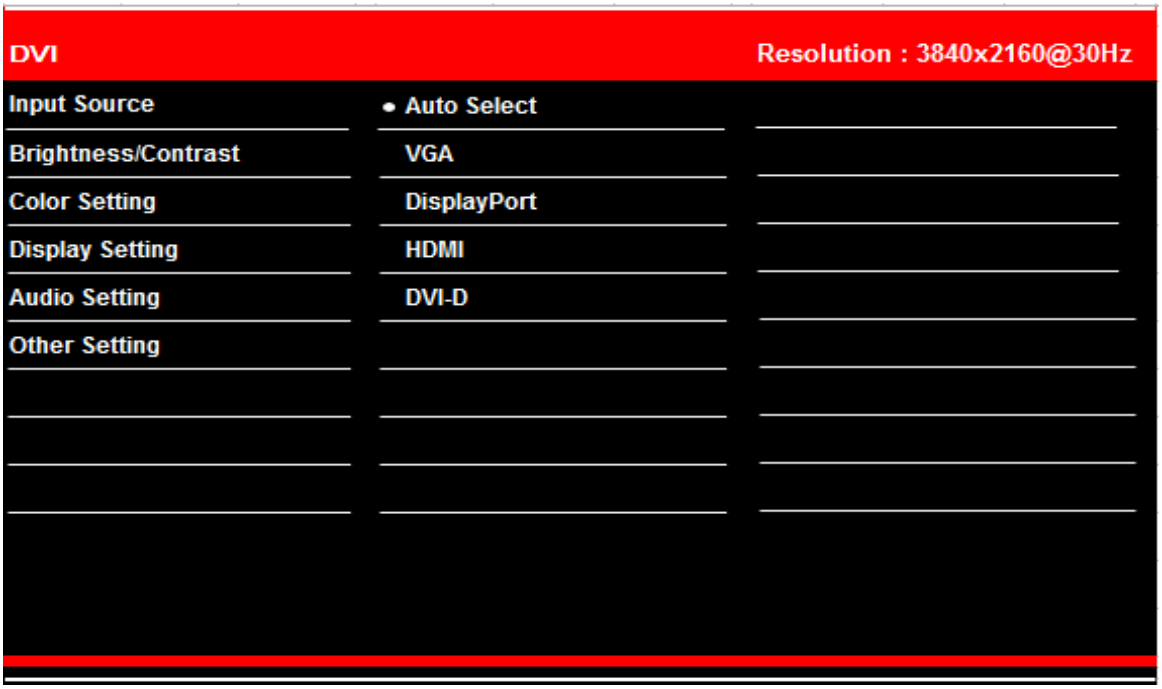
Screen Adjustment Operation Procedure

1. **Entering the screen adjustment**
   The setting switches are normally at stand-by. Push the **Menu Key** once to display the main menu of the screen adjustment. The adjustable items will be displayed in the main menu.
2. **Entering the settings**
   Use the **Down Key**  and **Up Key**  buttons to select the desired setting icon and push the SELECT button to enter sub-menu.
3. **Change the settings**
   After the sub-menu appears, use the **Down Key**  and **Up Key**  buttons to change the setting values.
4. **Save**
   After finishing the adjustment, push the  button to memorize the setting.
5. **Return & Exit the Main Menu**
   Exit the screen adjustment; push the “MENU” button. When no operation is done around 30 sec (default OSD timeout), it goes back to the stand-by mode and no more switching is accepted except MENU to restart the setting.

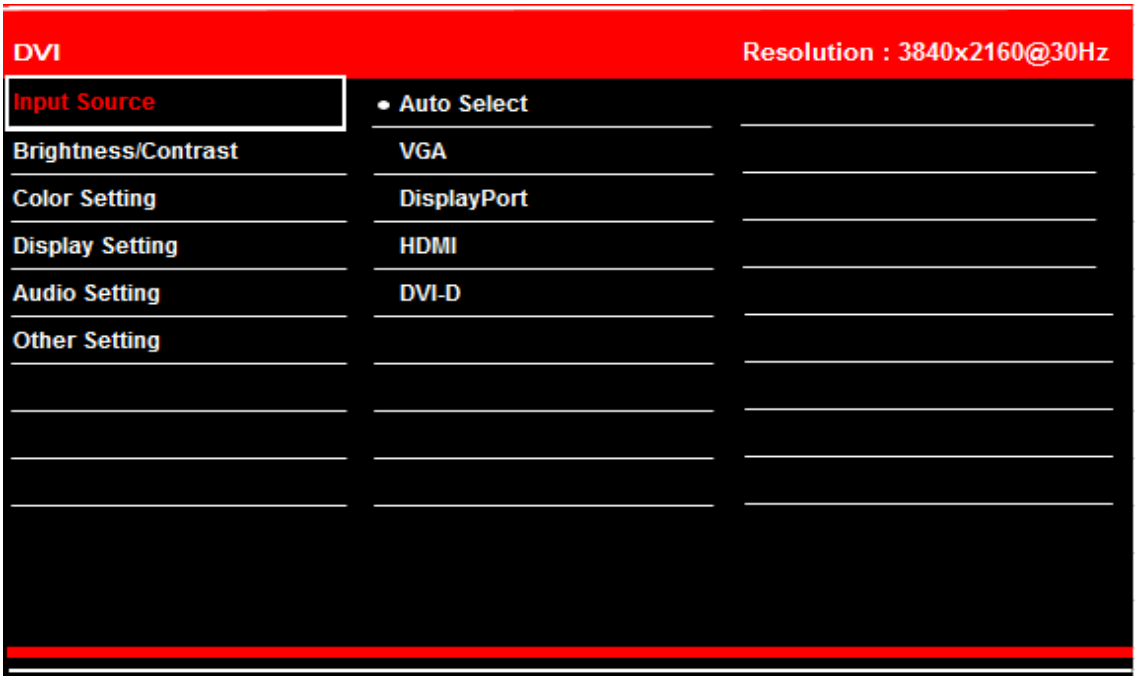
5.5 OSD Menu

By pressing the “menu” button, you will see the below picture. Across from timing you will see resolution, frequency, and V-frequency of the panel. These cannot be altered by the user.

There are 6 subpages inside the OSD manual, Input Source, Brightness/Contrast, Color Setting, Display Setting, Audio Setting, and Other Setting.

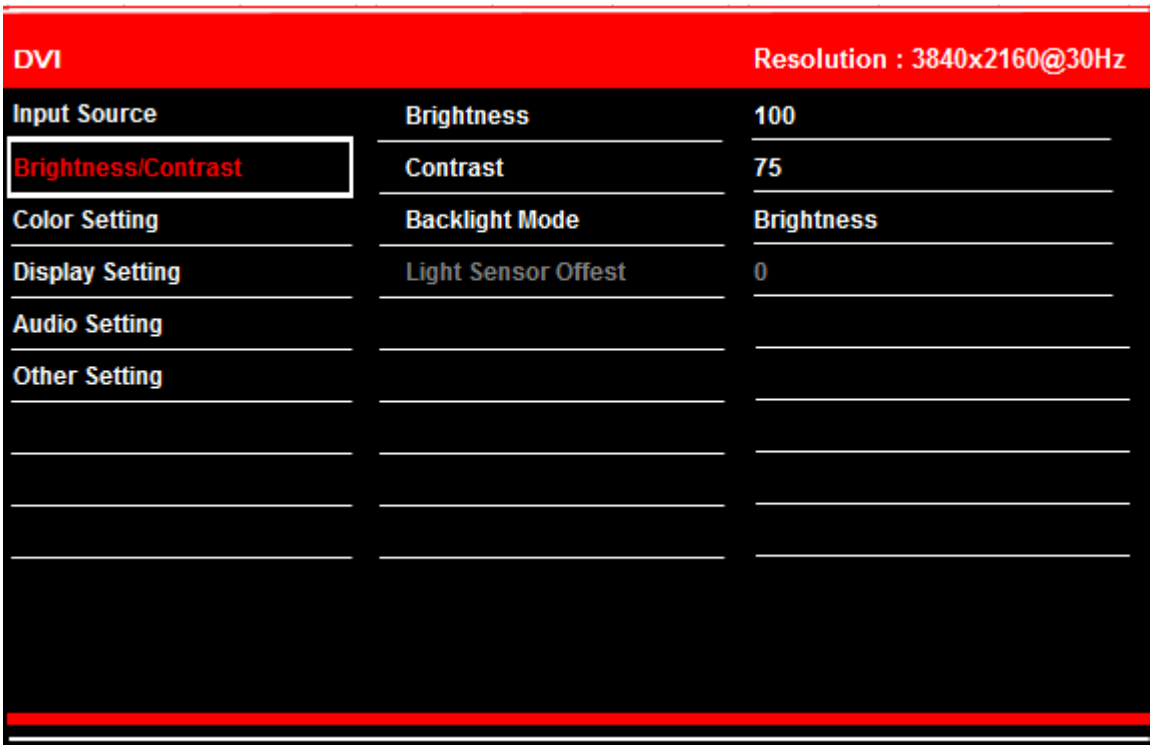


Input Source : press ”Menu” into subpage
There are have : Auto Select、VGA、DisplayPort、HDMI and DVI-D

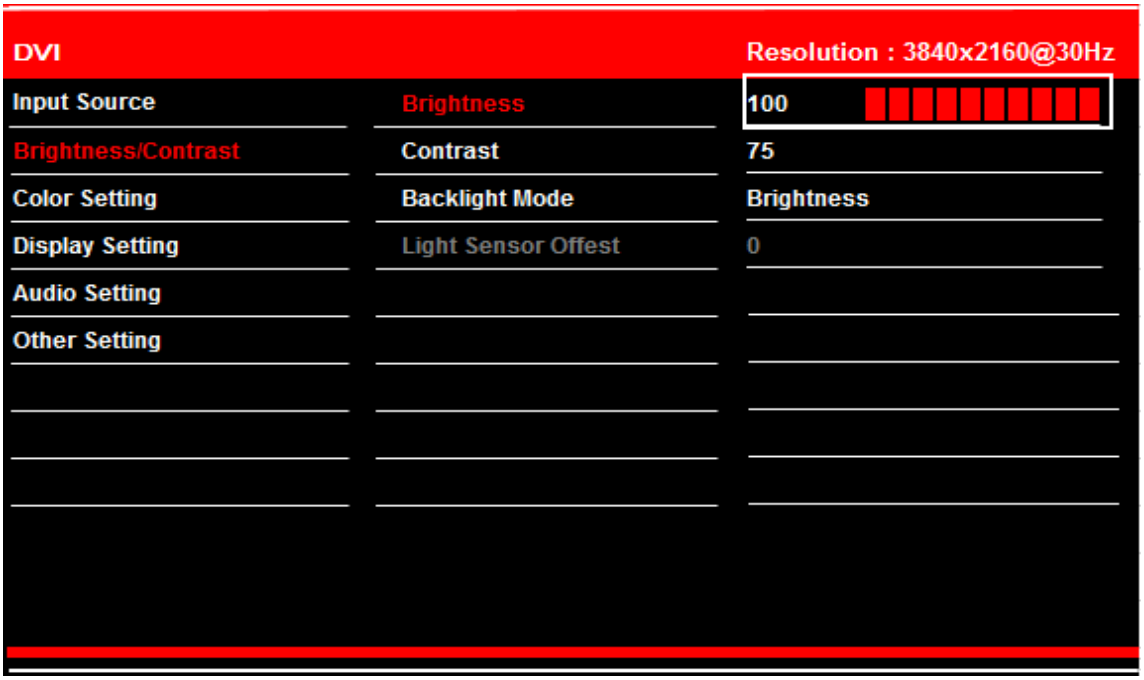


Brightness / Contrast Icon
There are 3 subpages inside the OSD manual, Brightness, Contrast and Backlight Mode.

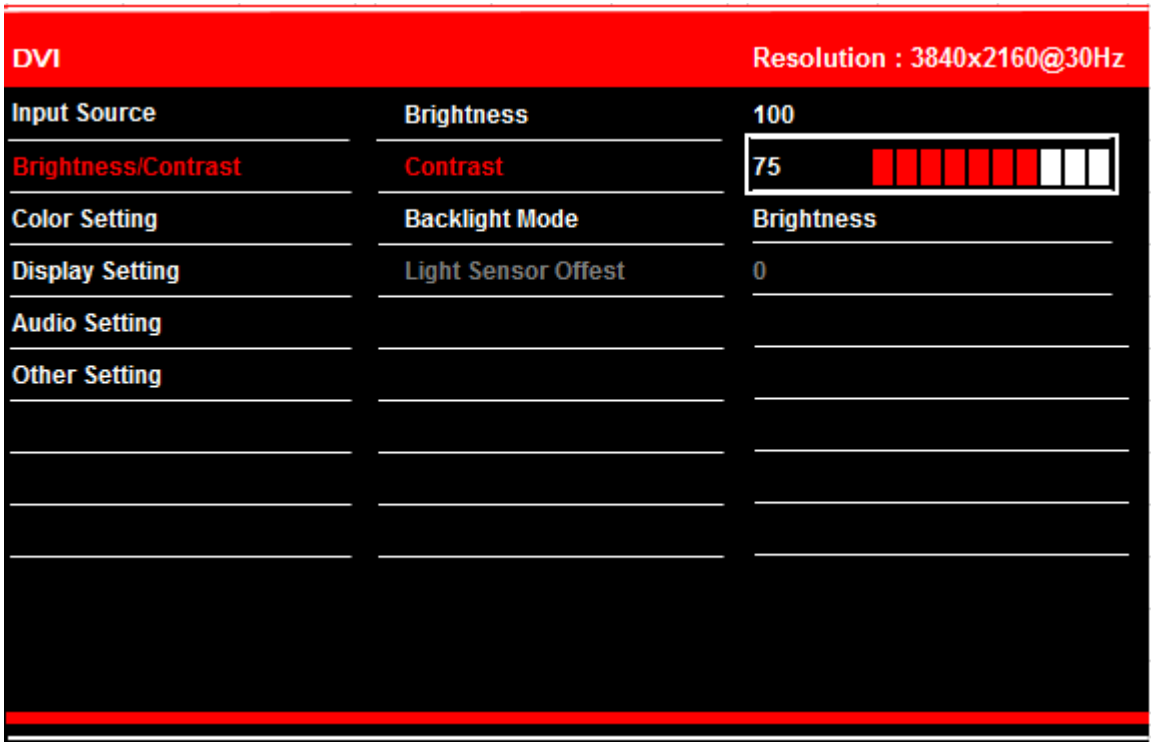
Brightness/Contrast : press ”Menu” into subpage
There are have : Brightness, Contrast and Backlight Mode



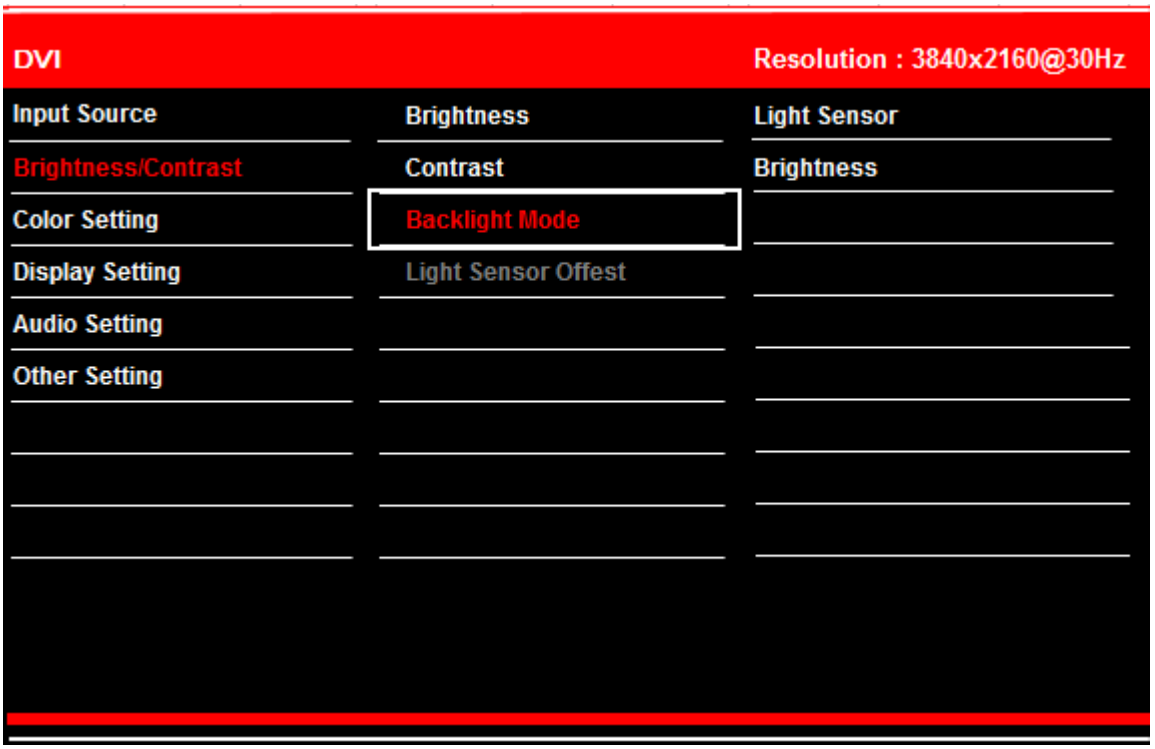
Brightness : press ”Menu” into subpage
If is Brightness Mode, you can go into adjust the brightness.
Press “left” you can dim down the brightness to “0”, while press “right” you can increase the brightness to “100”.



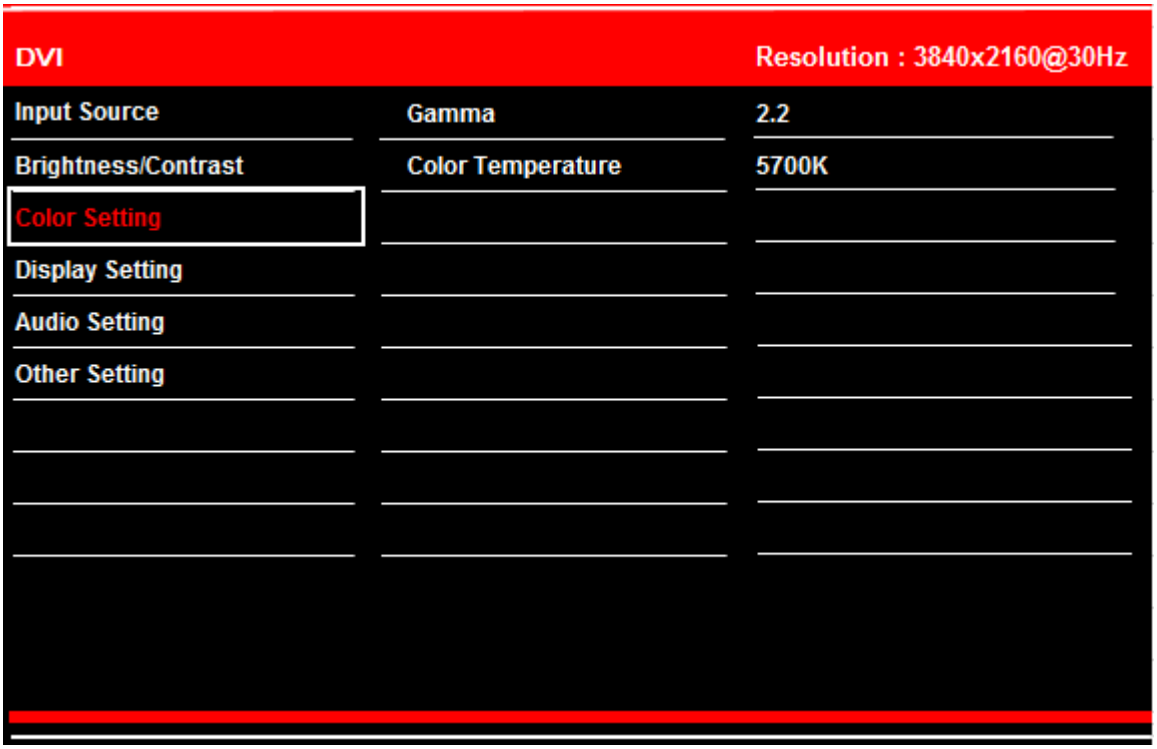
Contrast : press ”Menu” into subpage
Press “Menu” you can adjust the contrast from “0” to “100” by pressing the “left” and “right”.



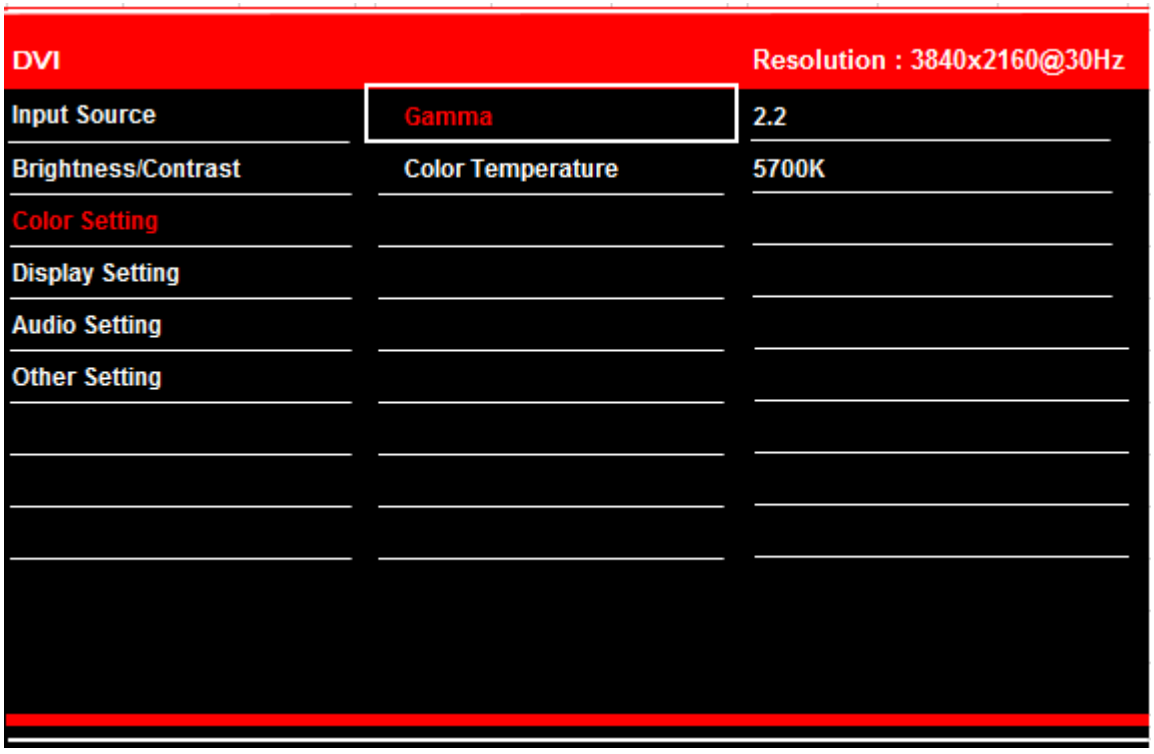
Backlight Mode : press ”Menu” into subpage
There are have: Light Sensor and Brightness can select.



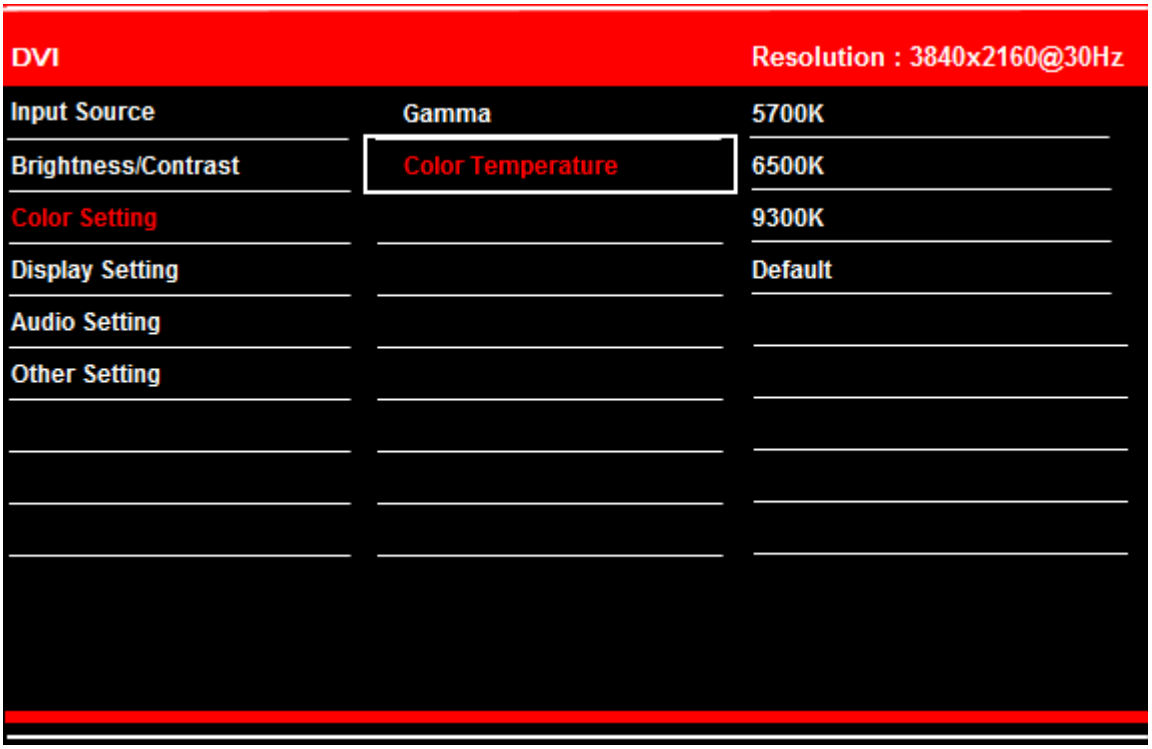
Color Setting Icon
There are 2 subpages inside the OSD manual, Gamma and Color Temperature.



Gamma : press ”Menu” into subpage, only select 2.2

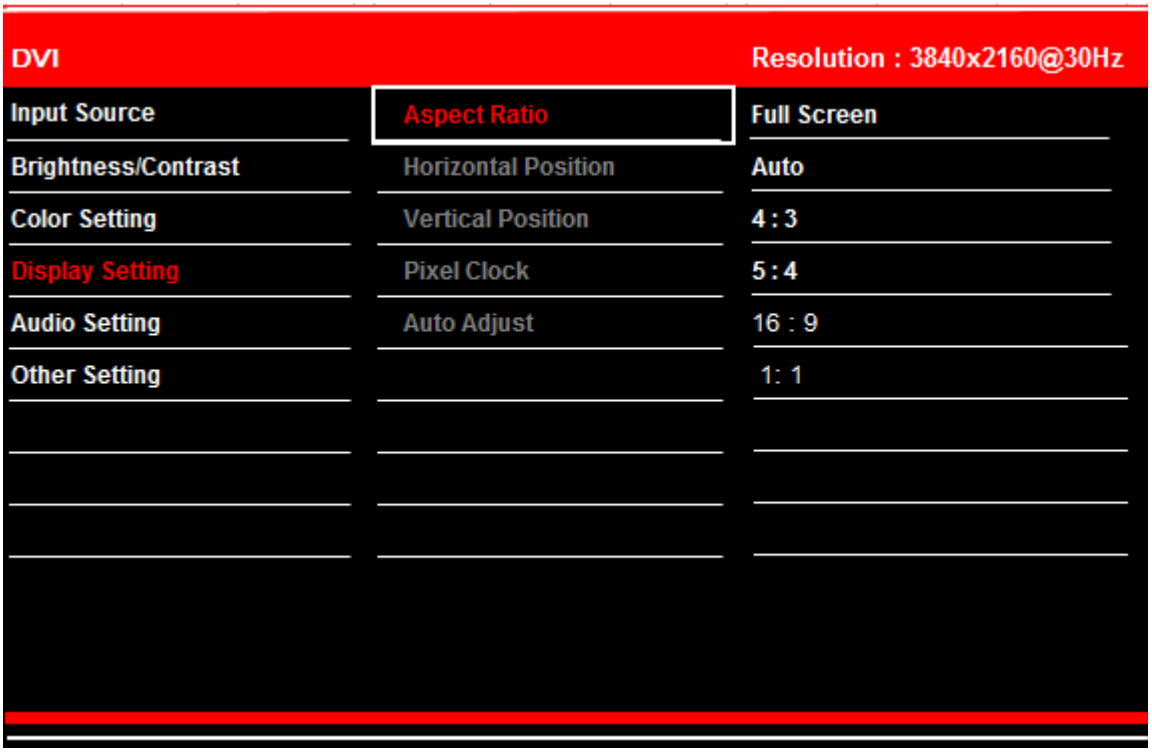


Color Temperature : press ”Menu” into subpage
You can have 4 options in this selection. 5700K, 6500K, 9300K and Default.

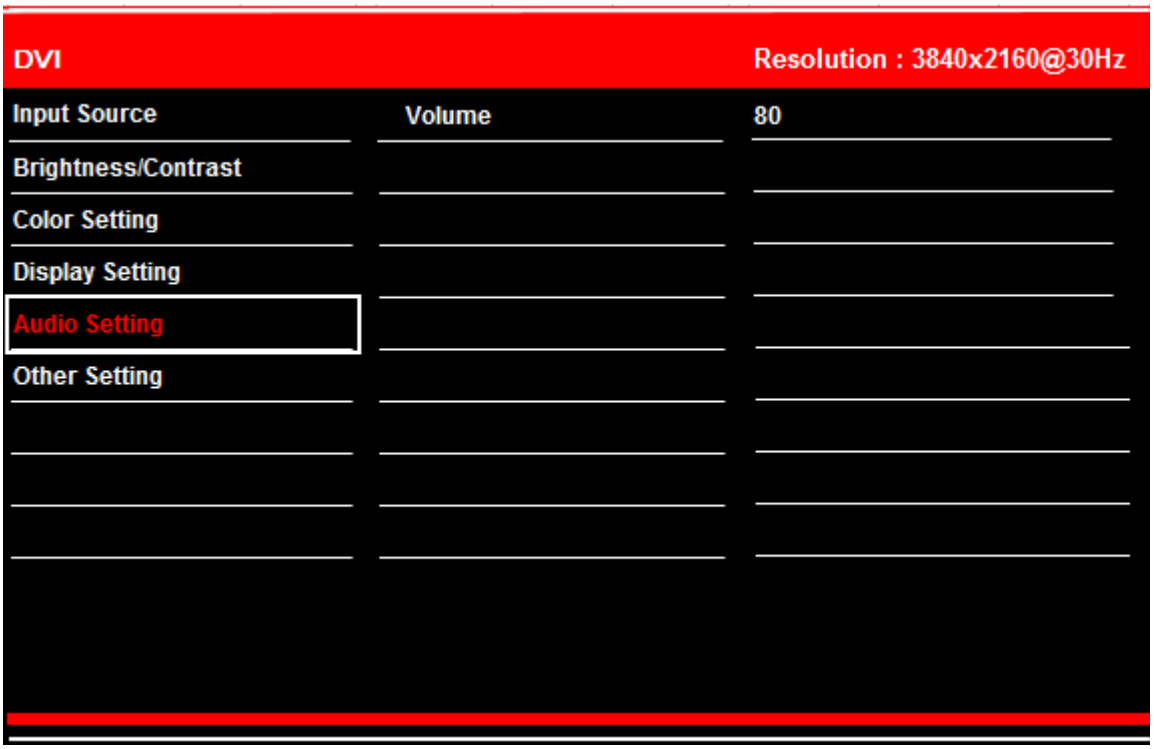


Display Setting Icon
There is 1 subpage inside the OSD manual, only select Aspect Ratio.

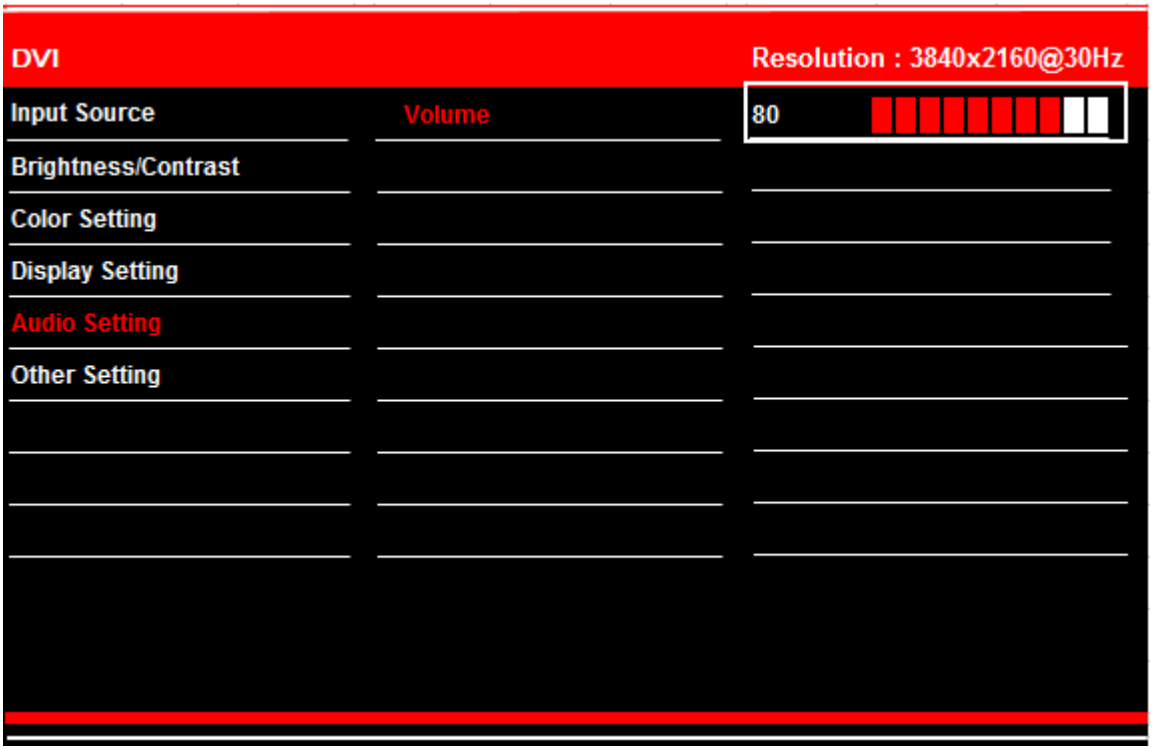
Aspect Ratio : press ”Menu” into subpage, You can have 6 options in this selection.
Full Screen, Auto, 4:3, 5:4, 16:9 and 1:1



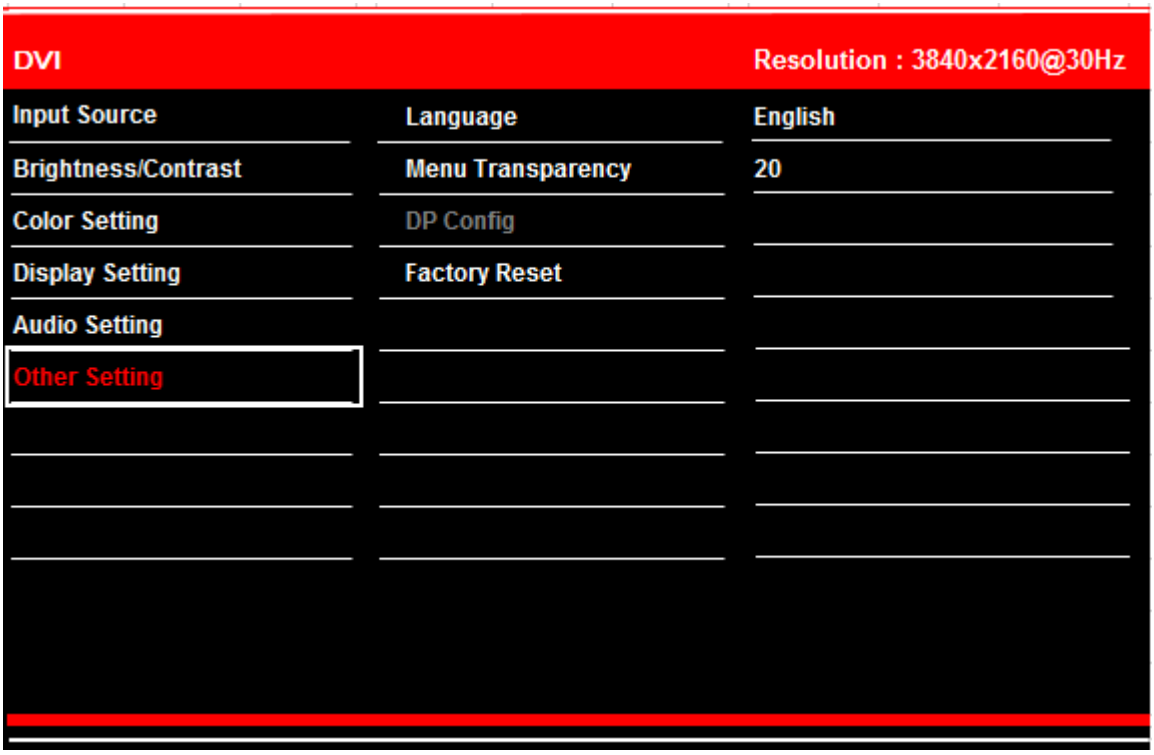
Audio Setting Icon
There is 1 subpage inside the OSD manual, Volume.



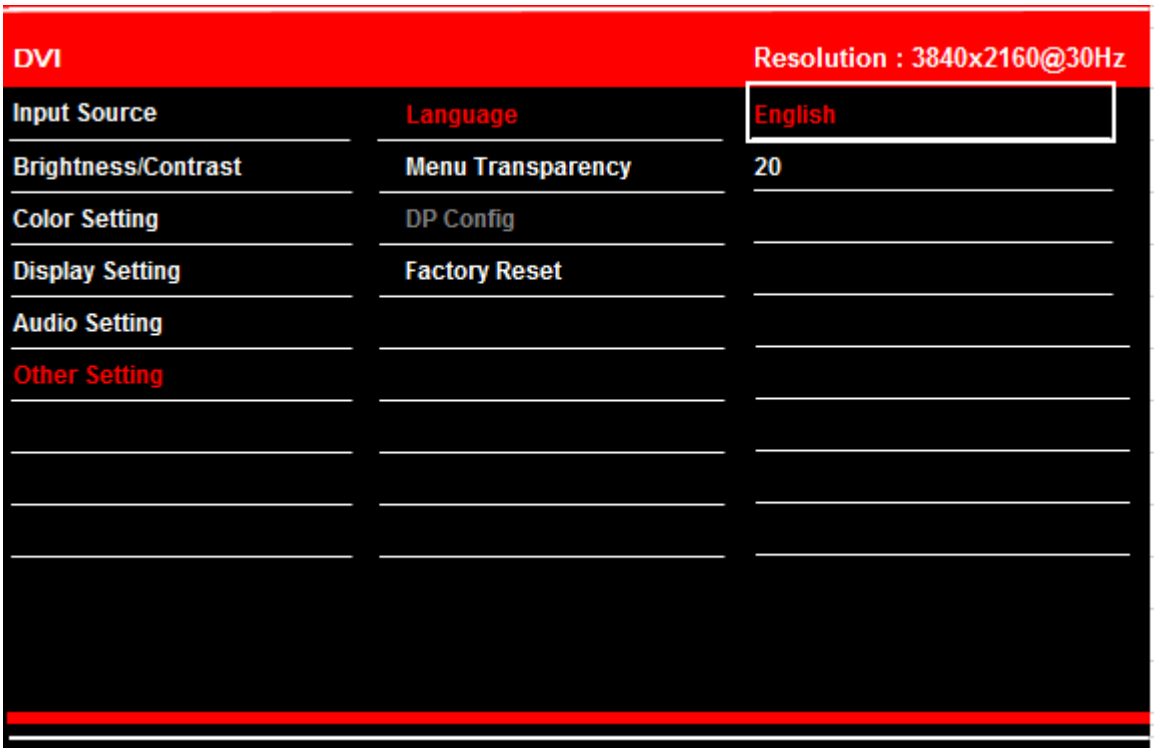
Volume : Press “Menu” you can adjust the Volume from “0” to “100” by pressing the “left” and “right”.



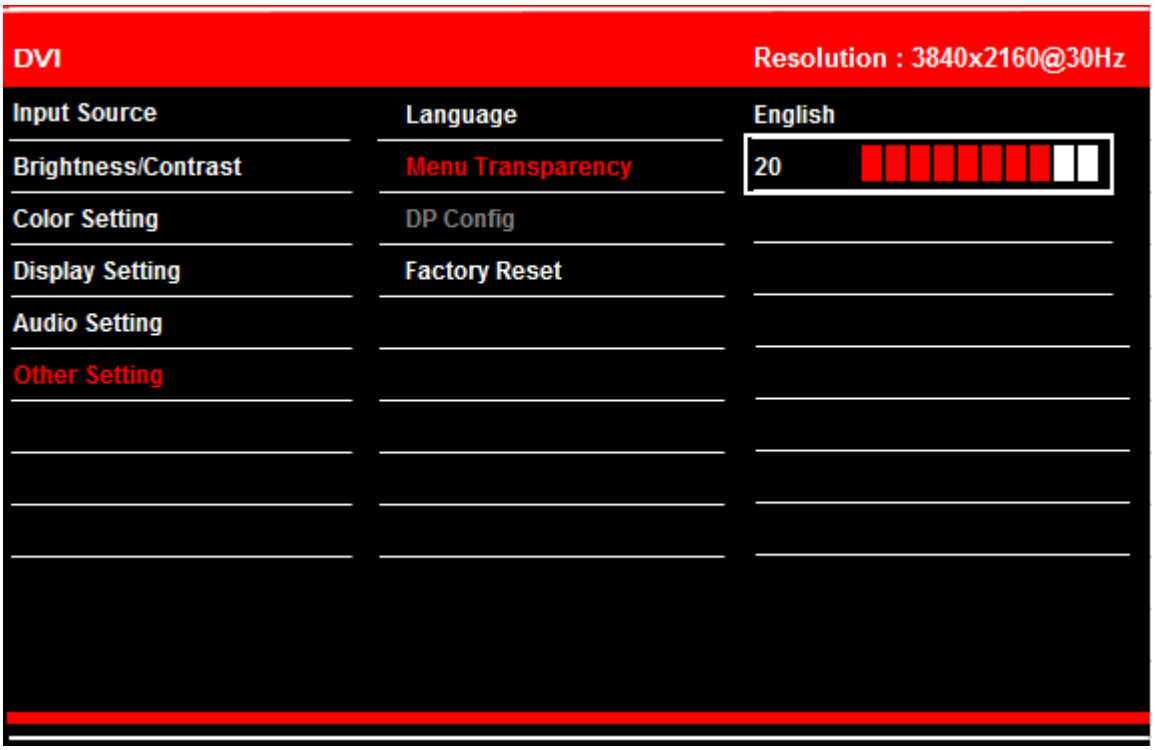
Other Setting Icon
There is 3 subpages inside the OSD manual, Language, Menu Transparency and Factory Reset.



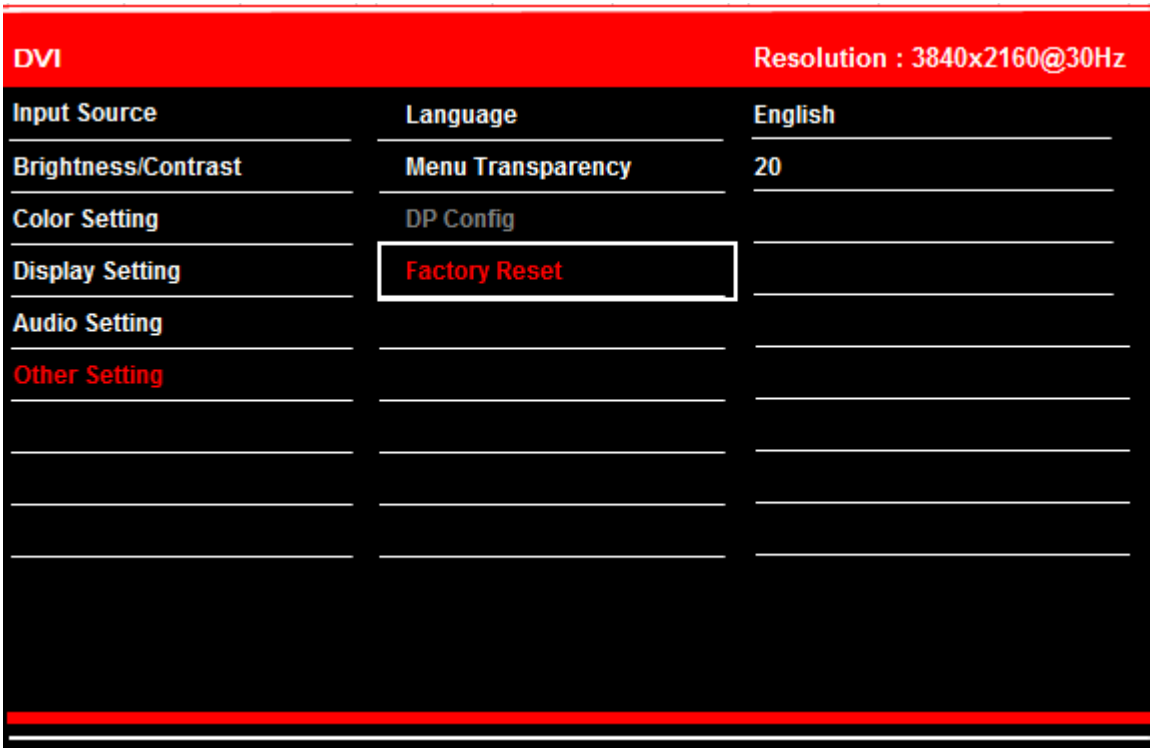
Language : press ”Menu” into subpage, only select English



Menu Transparency : Press “Menu” you can adjust the Menu Transparency from “0” to “100” by pressing the “left” and “right”.



Factory Reset: Press “Menu” into subpage, the screen will be back to the default settings.



6 Precautions

6.1 Handling and Mounting Precautions

(1) The module should be assembled into the system firmly by using every mounting hole. Do not apply rough force such as bending or twisting to the LCD during assembly.
(2) You should consider the mounting structure so that uneven force (ex. Twisted stress, Concentrated stress) is not applied to the module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the LCD module.
(3) While assembling or installing LCD modules, it can only be in the clean area. The dust and oil may cause electrical short or damage the polarizer.
(4) Use fingerstalls or soft gloves in order to keep display clean during the incoming inspection and assembly process.
(5) Do not press or scratch the surface harder than a HB pencil lead on the panel because the polarizer is very soft and easily be scratched.
(6) Please attach the surface transparent protection film to the surface in order to protect the polarizer. Transparent protection film should have sufficient strength in order to the resist external force.
(7) When the transparent protection film is peeled off, static electricity is generated between the film and polarizer. This should be peeled off slowly and carefully by people who are electrically grounded and with well ion-blown equipment or in such a condition, etc.
(8) 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.
(9) Wipe off water droplets or oil immediately. Staining and discoloration may occur if they left on panel for a long time.
(10) 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.
(11) Protect the LCD module from static electricity, it may cause damage to the C-MOS Gate Array IC.
(12) Do not disassemble the module.
(13) Do not pull or fold the lamp wire.
(14) Pins of I/F connector should not be touched directly with bare hands.

6.2 Storage Precautions

(1) High temperature or humidity may reduce the performance of LCD module. Please store LCD module within the specified storage conditions.
(2) If possible store them in a dark place. Do not expose the module to sunlight or fluorescent light. Keep the temperature between 5℃ and 35℃ at normal humidity.
(3) It is dangerous that moisture come into or contacted the LCD module, because the moisture may damage LCD module when it is operating.
(4) The polarizer surface should not come in contact with any other object. It is recommended that they be stored in the container in which they were shipped.

6.3 Operation Precautions

(1) Do not pull the I/F connector in or out while the LCD 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.
(3) Response time depends on the temperature. (In lower temperature, it becomes longer.)
(4) Brightness depends on the temperature. (In lower temperature, it becomes lower.)
(5) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
(6) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods are very important to minimize the interference.
(7) Please do not give any mechanical and/or acoustical impact to module. Otherwise, module can't be operated its full characteristics perfectly.
(8) Since a module is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wrist band etc. And don't touch interface pin directly.
(9) Do not display the fixed pattern for a long time because it may cause image sticking.
(10) In order to prevent image sticking, periodical power-off or screen save is needed after fixed pattern long time display.
(11) Black image or moving image is strongly recommended as a screen save.
(12) Static information display recommended to use with moving image. Cycling display between 10 minutes' information (static) display and 10 seconds' moving image.
(13) Background and character (image) color change is recommended. Use different colors for background and character, respectively. And change colors themselves periodically.
(14) LCD system is required to place in well-ventilated environment. Adapting active cooling system is highly recommended.
(15) Product reliability and functions are only guaranteed when the product is used under right operation usages.
(16) If product will be used in extreme conditions, such as high temperature/ humidity, shock and vibration it is strongly recommended to contact Litemax for filed application engineering advice. Otherwise, its reliability and function may not be guaranteed. Extreme conditions are commonly found at airports, transit stations, taxi-top, in vehicle and controlling systems.

7 Disclaimer

All information in this document are subject to change, please constant LiteMax for any new design.