Model: EPMF2010B-DA011

Panel Mount (Metal-5mm), 20.1" LCD monitor, 1600 x 1200, 300 nits VGA+DVI Input with RS232, Front OSD, including rear screw/Clamp/VESA Mount

EPM Series: **Industrial Panel Mount Metal Housing LCD Monitor**
(Optional Integrated Touchscreen/Front IP65/NEMA4x/Front Stainless steel bezel and more…)

Features Highlights:

Metal 5mm Panel Mount for easy installation with stud mount and Clamps mount
(Optional for Front AR Glass or Vandal Resistant glass)

Optional for Resistive/ Capacitive/ SAW/ IR/ Projective Capacitive Touch screen

Auto Video Signal ON / OFF
Auto Always Power On

Optional Stainless steel Bezel 3mm thick

Optional Integrated IP65 Front Panel Mount with water proof sealed Gasket

Side OSD buttons can prevent unnecessary setting changes.

VESA Mounting Hole Pattern

Reliable built-in Power supply for 15" or above
(Optional for 9-36V DC input)

Standard VGA Input
(Optional for DVI. HDMI, AV, BNC, AV looping and SDI)

Optional for RS232 Remote Control Protocol: Command Code to set system

Model: EPMF2010B

Features:

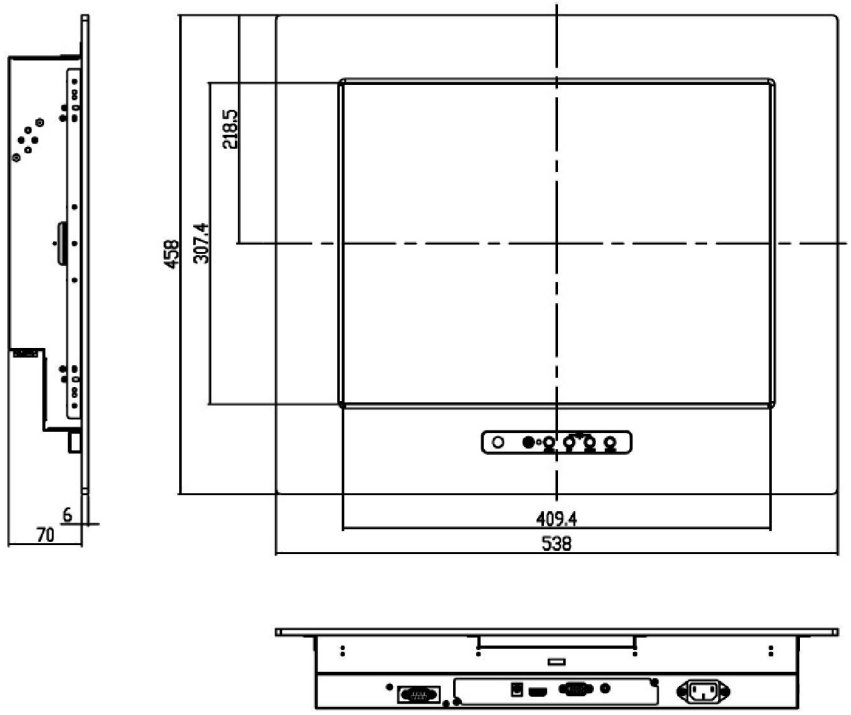
- Modularize mechanical design provides flexible product configuration and easy maintenance
- Optional ultra high brightness panel
- VGA connector with optional AV.SV.AV-Looping
- Complete custom design/solution for OEM customers

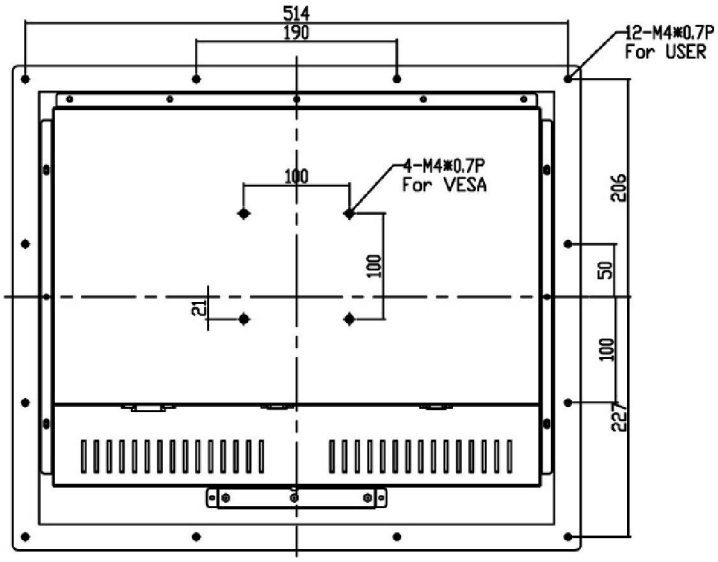
Specification:

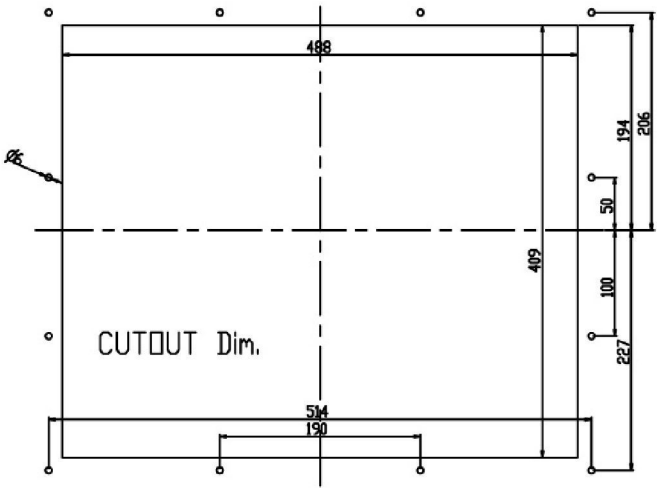
Panel	Cell Type / Glass Surface	TFT LCD / Black Anti-Glare, low reflection coating	
	Aspect Ratio / Size	4 : 3 / 20.1" viewable diagonal area	
	Active Area / Pixel Pitch	408.0(H) x 306.0(V) mm / 0.255(H) x 0.255(V) mm	
	Native Resolution / Colors	1600(H) x 1200(V) / 16.7 Million	
	Brightness / Contrast	300 cd/m^2 (typ) / 800 : 1	
	Response Time	≦ 8 ms	
	Viewing Angle (typical)	H. 178o (- 89o ~ + 89o) , V. 178o(- 89o ~ + 89o)	
	Light Source	CCFL , Long life, 50,000 hrs (typ)	
Input Sources	PC System	Signal	Analog RGB (0.7/1.0 V_{p-p}, 75 ohms)
		Sync	Separate Sync, Composite Sync, Sync On Green
		Frequency	F_h : 30 - 82Khz , F_v : 50 -75Hz
	Audio System	2W Speaker x 2	
Input Terminals	1 x VGA (15 Pin Female D-Sub) , 1 x PC Audio (Stereo Headphone Jack) , 1 x AC Inlet		
Convenient Features	IP65 front side sealed for water-dust proof		
	Auto Calibration , Back Light Adjustment , Plug&Play (VESA DDC/CI, DDC 2B)		
	OSD Multi-Languages , Wall Mount Ready (VESA 100 x 100 mm)		
Power	Internal power supply with universal / Auto-Sensing, AC 100 to 240V 50/60 Hz		
Power Consumption	Operation / Power Saving	40 watt , < 5 watt (Support DPMS)	
Operating Condition	Temperature / Humidity	0°C ~ 50°C (32°F ~ 122°F) , 10% ~ 90% (no condensation)	
Storage Condition	Temperature / Humidity	- 20°C ~ 60°C (- 4°F ~ 140°F) , 10% ~ 90% (no condensation)	
Certification		FCC , CE	
Dimensions	Physical	W x H x D = 540.0 x 440.0 x 75.0 (mm)	
	Carton	W x H x D = TBD	
Weight	N.W. / G.W.	7.7 Kgs / 8.7 Kgs	
Container Loaded	20ft / 40ft / 40ft HQ	TBD (Sets , By pallet)	

Options	Touch	Video / TV	Enhanced Panel	Others
	Resistive touch	SV + AV	Panel with LED backlight	Digital Signage(Stand alone)
	Capacitive touch	SV + AV + AV Looping	High brightness panel	Networking Digital Signage
	SAW touch	SV + AV + TV	Wide Temperature	Motion Sensor
	Infrared touch		Sunlight Readable	Light Sensor
	Protected glass			Auto-Dimming

Mechanical Drawing:







LCD Options:

LED Backlight Options
Introducing LED backlight options for monitors for energy efficiency and a brighter screen.

TouchScreen Options
Our LCD has a wide selection option to choose which touchscreen.technology suits for you.

	Four-Wire Resistive	Five-Wire Resistive	Pen Touch	Capacitive	Surface Wave(Saw)	Infrared Touch (Ir)
PRODUCT SIZE	1.7" - 24"	10.4" - 24"	15" – 19"	12" - 24"	10.4" - 30"	10.4" - 42"
TOUCH LIFE	1 – 2 million touches	30 – 35million touches	100 million touches	100 million touches	50 million touches	Long-term reliability
SCRATCH RESISTANCE	Hard Coated	Hard Coated	Hard Coated (SiO^2)	Hard Coated (SiO^2)	Glass Overlay Moh's hardness rating of 7	Glass Overlay Moh's hardness rating of 7
CONTAMINANT RESISTANCE	Resists moisture, dirt, vinegar, ammonia based food products and cleansers	Resists moisture, dirt, vinegar, ammonia based food products and cleansers	Resists moisture, dirt, vinegar, ammonia based food products and cleansers	Resists moisture, dirt, vinegar, ammonia based food products and cleansers	Resists moisture, dirt, vinegar, ammonia based food products and cleansers	Resists moisture, dirt, vinegar, ammonia based food products and cleansers
INPUT METHOD	Finger, Gloved Hand, Stylus	Finger, Gloved Hand, Stylus	Stylus Pen	Finger	Finger, Gloved Hand, Soft pliable stylus	Finger, Gloved Hand, Stylus
CONTROLLER	USB, RS232	USB, RS232	USB, RS232	USB, RS232	USB, RS232	USB, RS232

VIDEO Input Options:
For Video inputs options:
DVI, DVI+HDMI, SVideo+AV, SVideo+AV+DVI, AV+Looping, DVI+AV+Looping, HD-SDI, BNC(PAL/NTSC)

Optical Bonding Options
- Optical Bonding provides the best reduction of ambient light washout of any commercially available enhancement technology.
- Optical Bonding has a lower cost than most other competing technologies.
- Optical Bonding offers superior ruggedization, enhancing the display durability under vibration, shock and other environmental extremes.

RS-232 Remote Control Options
Remote Control Protocol: Command Code to set system

9-36V DC Input Options
iTech offers a selection of DC input from 9V to 36V

Light Sensor and Motion Sensor Options
iTech LCD offers Light and Motion Sensor

Privacy Filter
Front Glass Options:
- Anti Reflective AR Glass 3mm
- Anti Reflective AR Glass 6mm Vandal-Resistance
- Anti Reflective AR Glass 8mm Vandal-Resistance
- Anti Glare AG Glass 3mm

GTR 77 (VGA+DVI) with RS232

GENERAL FUNCTION

A. Power On System On (AC power On auto turn on)
B. Auto Signal Source detect
C. OSD up/ down for Brightness
D. TFT-LCD Module Driver Board
E. Resolution up to 1920X1080@60Hz
F. 15 Pin D-SUB VGA Connector input
G. DVI Connector input
H. LVDS Interface Output to Panel
I. Burn in mode (Press MENU + Power key)
J. OSD (On Screen Display) Control Menu.
K. RS232 Remote control
L. SUPPORTING HDCP PROTOCAL.(OPTIONAL)
M. SUPPORTING DDC/CI PROTOCAL.(OPTIONAL)
N. SUPPORTING DCR FUNCTION (OPTIONAL)

2. Support PC Timing

Item	Description	H-Freq. (KHz)	V-Freq. (Hz)
1.	VGA640×400	31.480	70.000
2.	VGA640×480	31.649	60.000
3.	VGA720×400	37.469	70.000
4.	VESA 640×480	37.862	72.809
5.	VESA 640×480	37.500	75.000
6.	VESA 800×600	35.156	56.250
7.	VESA 800×600	48.077	72.188
8.	VESA 800×600	46.875	75.000
9.	VESA 1024×768	48.363	60.000
10.	VESA 1024×768	56.476	70.000
11.	VESA 1024×768	60.023	75.000
12.	VESA 1152×864	54.948	60.057
13.	VESA 1152×864	66.095	70.016
14.	VESA 1280 x 768	47.400	60.000
15.	VESA 1280 x 768	60.300	75.000
16.	VESA 1280×960	60.000	60.000
17.	VESA 1280×960	75.000	75.000
18.	VESA 1280×1024	63.981	60.000
19.	VESA 1280×1024	79.977	75.000
20	VESA 1440x900	59.9	60
21	VESA 1440x900	75	75

22	VESA 1600x1200	75	60
23	VESA 1600x1200	81.3	65
24	VESA 1600x1200	87.5	70
25	VESA 1600x1200	93.8	75
26	VESA 1680x1050	65.3	60
27	VESA 1680x1050	75	75
28	VESA 1920x1080	67.5	60

**** Display Resolution depends on panel spec.

2. Specification

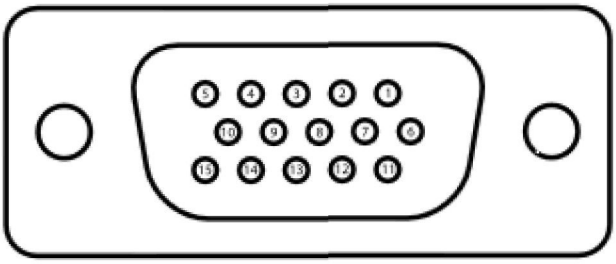
Model	**GTRxx (VGA+DVI)**
Panel Compatibility	Compatible with XGA, SVGA, VGA resolution TFT LCD panel from various panel manufactures by Changing some jumpers setting and specified BIOS.
Maximum Resolution	Up to 8 bits per color, total 16.7M Colors
Vertical Refresh Rate	VGA、SVGA ,XGA AND UXGA VESA standard up to 75Hz
Input Source	VGA analog (15 pin D-Sub) , DVI (24 pin) ,
Audio Input	3.5Ø Earphone 1 Vp-p
Audio Output	2W+2W at 8 Ohm speaker
Dot Clock Maximum **(pixel clock)**	VGA : 165 / 210 MHz DVI : 165MHz
User Controls	Power On/Off OSD Menu Adjust － Adjust ＋ Auto VOL. ＋ (OPTIONAL) VOL. － (OPTIONAL)
Board Dimension	110 mm x 56 mm
Voltage for LCD Panel	12V, 5V, 3.3V DC (Jump Select)
Storage Temperature Limits	Temperature -40C~70C
Operation Temperature Limits	Temperature 0C~40C Humidity：Less than 85%

Signal input connections

4-1 VGA Signal Input

Location CN1 : 15 pin Hi-Density Female D-SUB

Pin Assign and Definition

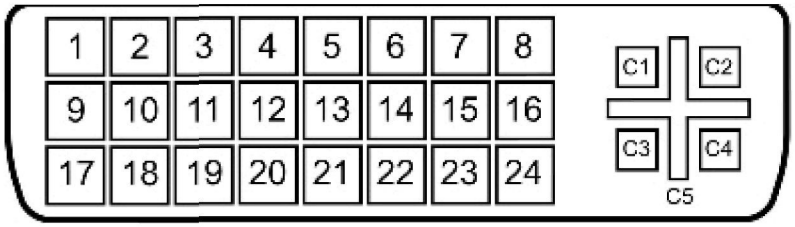


Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	RED IN	6	R-GND	11	GND
2	GREEN IN	7	G-GND	12	SDA DDC
3	BLUE IN	8	B-GND	13	SYNC. H
4	GND	9	PC 5V	14	SYNC. V
5	GND	10	DET	15	SCL DDC

4-2 DVI Input

Location CN2 : 24 pin DVI CONNECTOR

Pin Assign and Definition



PIN	FUNCTION	PIN	FUNCTION
1	TMDS Data 2-	2	TMDS Data 2+
3	TMDS data 2/4 shield	4	TMDS Data 4-
5	TMDS Data 4+	6	DDC clock
7	DDC data	8	Analog vertical sync
9	TMDS Data 1-	10	TMDS Data 1+
11	TMDS data 1/3 shield	12	TMDS Data 3-
13	TMDS Data 3+	14	+5V
15	Ground	16	**Hot plug detect**
17	TMDS Data 0-	18	TMDS Data 0+
19	TMDS data 0/5 shield	20	TMDS Data 5-
21	TMDS Data 5+	22	TMDS clock shield
23	TMDS clock+	24	TMDS clock-

4-3 Key Output Connector

Location – CN3 : 8PIN WAFER PITCH 2.0mm 180D
All Key Active Low Level., All LED Active HI Level , Output Current 10mA MAX

Pin assign and definition

PIN	FUNCTION
1	GREEN-LED
2	GND
3	RED-LED
4	POWER-KEY
5	AUTO
6	MENU
7	LEFT
8	RIGHT
9	UP-KEY
10	DOWN-KEY

4-4 Remote

Location – CN4 : WAFER 3pin 2.0mm

PIN	FUNCTION	PIN	FUNCTION
1	+5V	2	IR
3	GND		

4-5 Power DC

Location – CN5: **WAFER 2pin 2.0mm**

PIN	FUNCTION	PIN	FUNCTION
1	+12V	2	GND

4-6 Power Input

Location – CN6 : DC JACK DC=2.0mm
12V / 2A For 2 Light Inverter or 12V / 3A for 4 Light Inverter

4-7.LVDS OUTPUT

Location – CN7 : 2x16 PIN, PITCH 2.0mm

Pin Assign and Definition

Pin No.	SYMBOL	Pin No.	SYMBOL	Pin No.	SYMBOL
1	VLCD for Panel	12	RXOCKIN+	23	GND
2	VLCD for Panel	13	RXOIN3-	24	GND
3	RXOIN0-	14	RXOIN3+	25	RXECKIN-
4	RXOIN0+	15	GND	26	RXECKIN+
5	RXOIN1-	16	GND	27	RXEIN3-
6	RXOIN1+	17	RXEIN0-	28	RXEIN3+
7	RXOIN2-	18	RXEI1N0+	29	GND
8	RXOIN2+	19	RXEIN1-	30	GND
9	GND	20	RXEIN1+	31	NC
10	GND	21	RXEIN2-	32	NC
11	RXOCKIN-	22	RXEIN2+		

4-8 Inverter Connector

Location – CN8 : 5 PIN WAFER PITCH 2.0mm 180D

Pin assign and definition

Pin No.	SYMBOL	Pin No.	SYMBOL
1	+12V	4	GND
2	GND	5	ON /Off
3	Adjust		

Note 1.: Inverter Current Adjust : Range 0 (Inverter Current Max) to 5V (Inverter Current Min) or PWM (100% Current Max) (10% Current Min) Frequency : 200HZ

2.: Inverter ON/Off : 5V (Inverter ON) or 0V (Inverter OFF)

4-9 RS232 Output Connector

Location – CN9 : 4 PIN WAFER PITCH 2.0mm 180D

PIN	FUNCTION
1	+5VDC
2	TX
3	RX
4	GND

4-10 Audio Input –

Location –CN10 : SCJ368R0NXS0G04G 3P Green or equv.

Audio Input 1Vp-p Max.

4-11 Speaker Output :

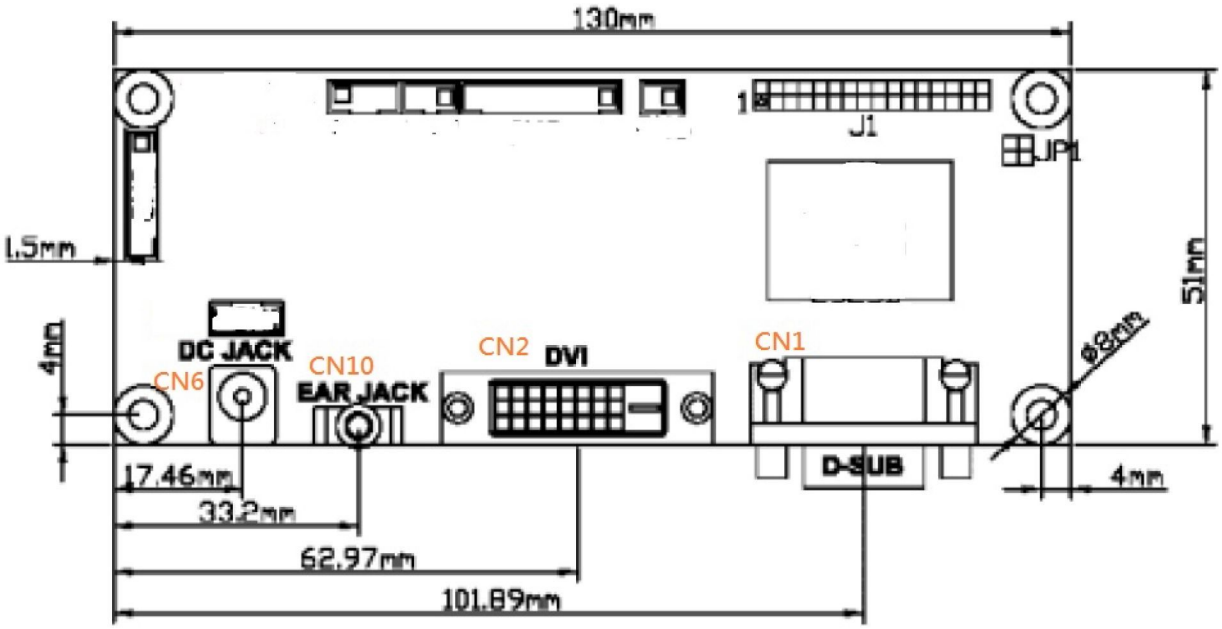
Location –CN 11 : 4 PIN WAFER PITCH 2.0mm 180D

Audio Output 1.6W + 1.6W at 8 Ohm

Pin	Signal
1	R+
2	R-
3	L+
4	L-

PCB DIMENSION

2.1 Dimension: 85mm (L) *100 mm (W)* 14.2mm (H)



6.OSD MENU

1. Main Menu :
   If push the " MENU" key the screen will appear this main menu page, you can use the "UP" or"ADJ. +" AND "Down" or "ADJ. -" key (Shown in Pic1) to select the function you need.

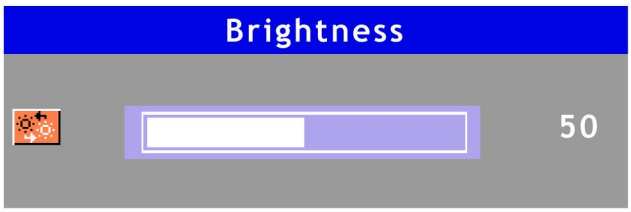
The end of this page will be shown the working resolution and frequency.

a. Auto Adjust

If select this function on OSD MAIN MENU and push the MENU key.
In this function, that will be activated the auto adjusting for the picture.

b-1. Brightness

If select Brightness function, you can push ADJ+ or ADJ- key to increase or decrease offset setting.

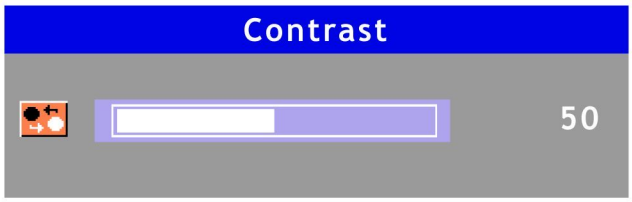


c.Contrast

If select CONTRAST function on OSD MAIN MENU and push the MENU key.

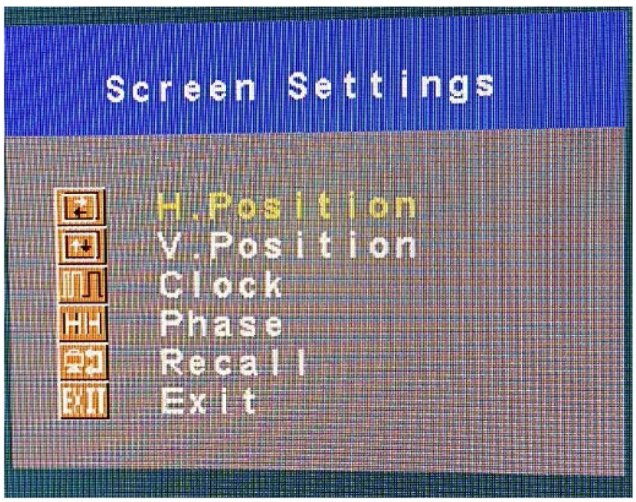
Contrast

If select the Contast function, you can push ADJ+ or ADJ- key to increase or decrease video gain of the picture.



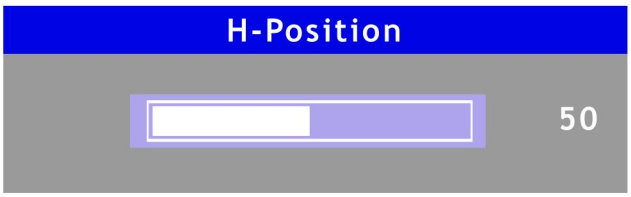
d. Screen Setting

If select Screen Setting function , that will into the sub-page to adjust display's function of the picture.



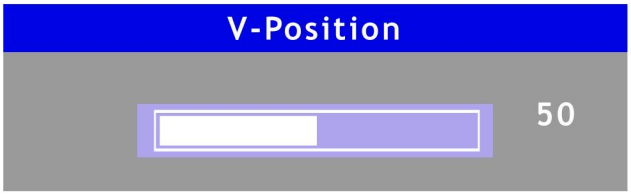
5-1 H-Position

If select H Position function, you can push ADJ+ or ADJ- key to shift to Right or Left of the picture.



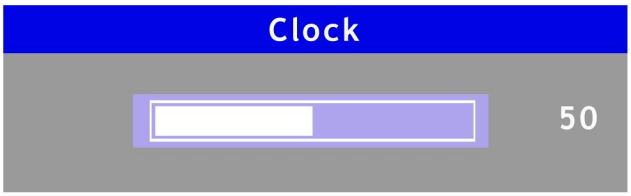
5-2 V-Position

If select V Position function, you can push ADJ+ or ADJ- key to shift to Up or Down of the picture.



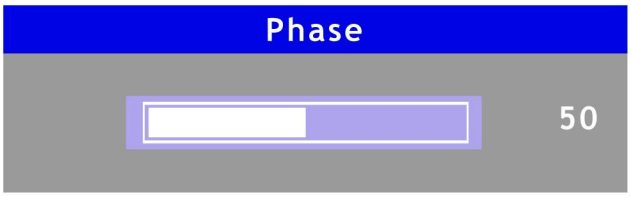
5-3 Clock

If select Clock function,you can push ADJ+ or ADJ- key to increase or decrease video H Size of the picture.



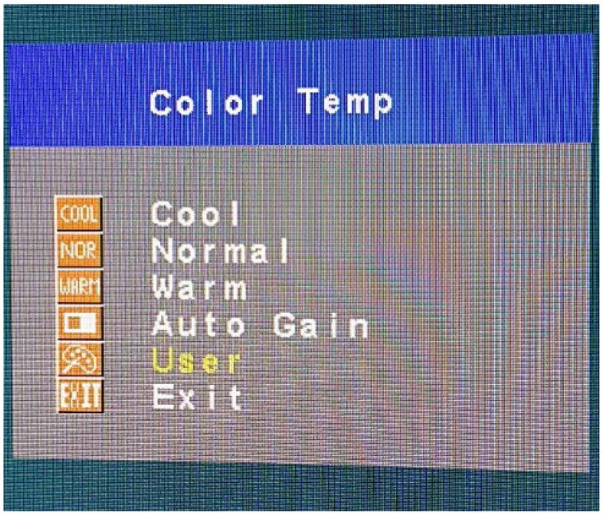
5-4 Phase

If select Phase function, you can push ADJ+ or ADJ- key to increase or decrease video Quality of the picture.



e.Color Temperature

If select COLOR TEMPERTURE function, that will into the sub-page to adjust the display color of the picture



6-1 9300K

If select 9300K function, you can select color temperature 9300K of the picture

6-2 7500K

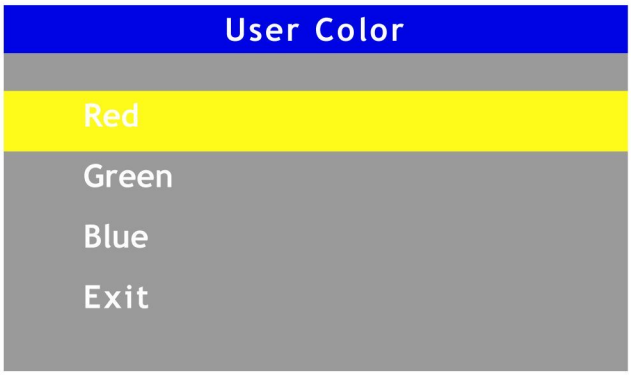
If select 7500K function, you can select color temperature 7500K of the picture

6-3 6500K

If select 6500K function, you can select color temperature 6500K of the picture

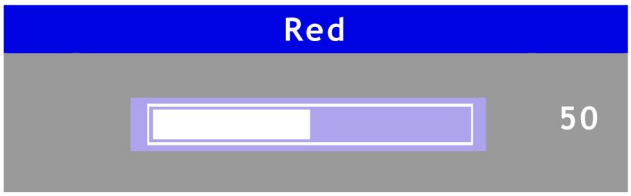
6-4 User Color

If You select User Color function, that will into the sub-page to adjust the display user
color of the picture



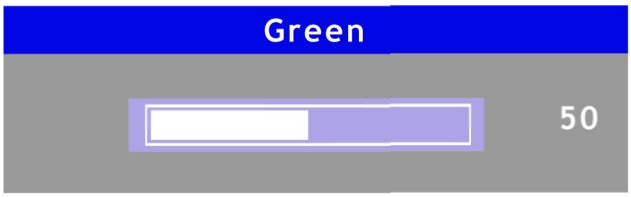
6-4-1 Red

If select Red function, you can push ADJ+ or ADJ- key to increase or decrease video Red contrast of the picture.



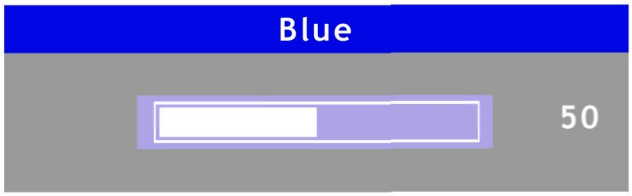
6-4-2 Green

If select Green function, you can push ADJ+ or ADJ- key to increase or decrease video Green contrast of the picture.



6-4-3 Blue

If select Blue function, you can push ADJ+ or ADJ- key to increase or decrease video Blue contrast of the picture.



6-5 Auto Gain

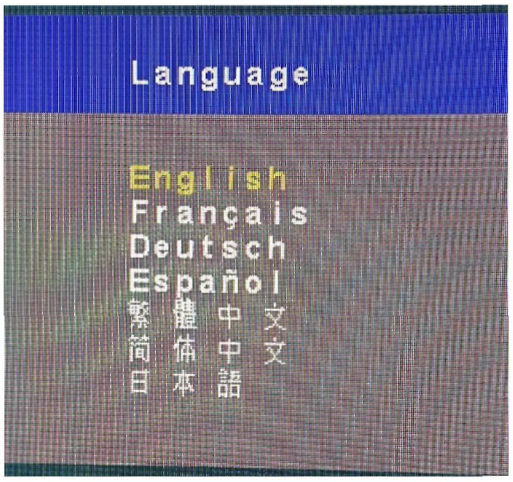
If select Auto Gain function, that will be activated the auto adjusting input video color level for the picture.

6-6 sRGB

If select sRGB function,you can run sRGB function.

f. Language

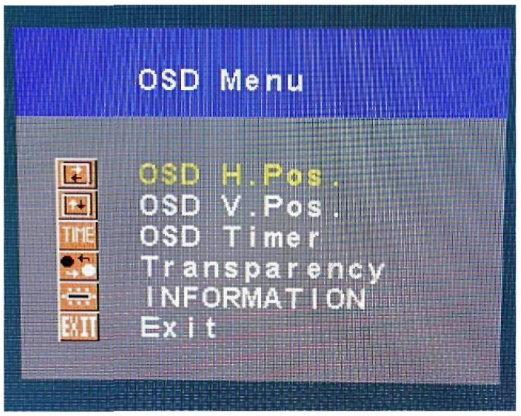
In this mode, that could into the sub-page (Shown in Pic7) to select the language for display



g. OSD Setting

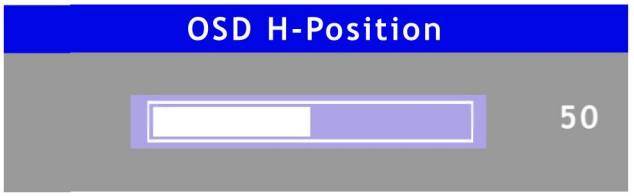
If select OSD Setting function, that will into the sub-page to adjust the display's function

for OSD.



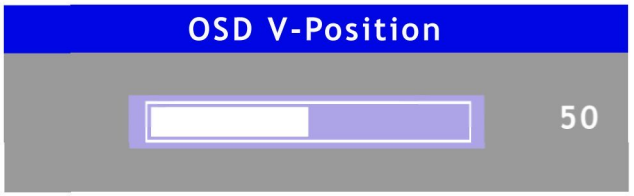
g-1 OSD H-Position

If select OSD H Position function, you can push ADJ+ or ADJ- key to shift to Right or Left OSD menu of the screen.



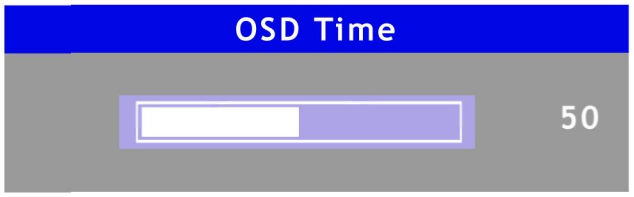
g-2 OSD V-Position

If select OSD V Position function, you can push ADJ+ or ADJ- key to shift to Up or Down OSD menu of the screen.



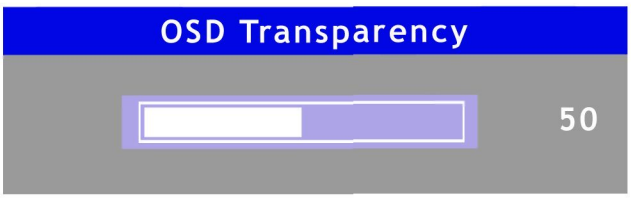
g-3 OSD Time

If select OSD V Position function, you can push ADJ+ or ADJ- key to increase or decrease OSD menu display time of the screen.



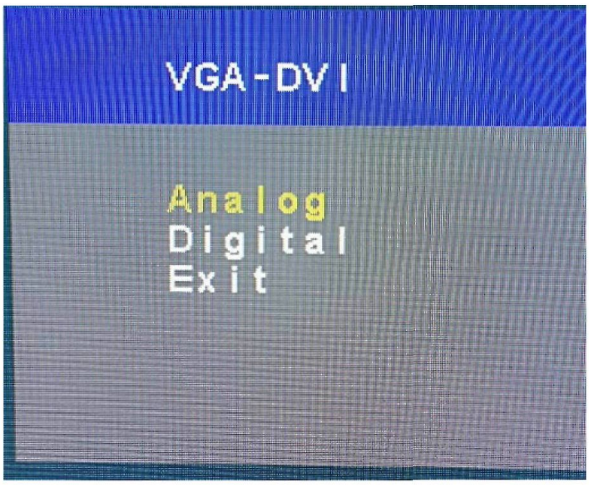
g-4 OSD Transparency

If select OSD V Position function, you can push ADJ+ or ADJ- key to increase or decrease OSD menu Transparency of the screen.



h. VGA/ DVI

If select VGA/DVI function, that will into the sub-page to select input Source



h-1 VGA :

If select VGA function , you can change input source from VGA Connect.

h-2 DVI :

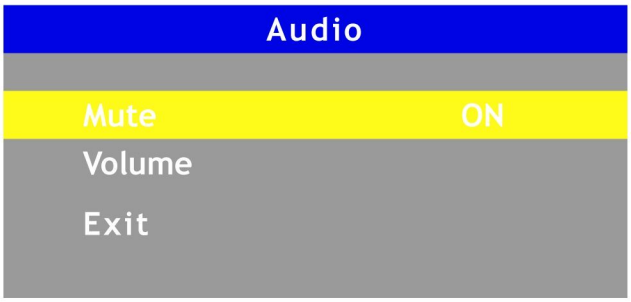
If select DVI function, you can change input source from DVI Connect.

i.Audio

If select AUDIO function, that will into the sub-page (Shown in Pic10) to adjust the audio function.

i-1 Mute

If select Mute function, you can select audio mute is ON or OFF.



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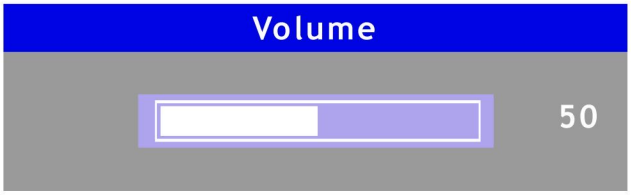
i-2 Volume

If select Volume function, you can push ADJ+ or ADJ- key to shift to increase or decrease Audio volume.



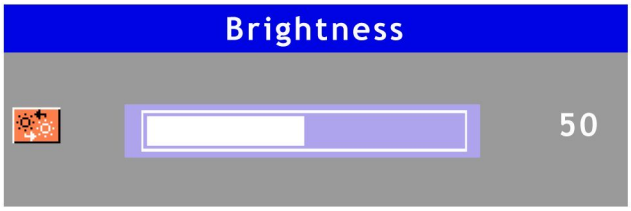
j Recall :

If select Recall function, that could recall all of pre-setting value.

k. Hot Key

k-1. Brightness :

That could push the " UP" or " Down" key to adjust Brightness



k-2. VGA / DVI selection :

That could push the " Auto " key to switch the mode of VGA or DVI.

k-3. All key LOCK selection :

That could push the " Memu" and " UP" keys to Locked all keys.

k-4. Release All key LOCK selection :

That could push the " Memu" and " UP" keys again to Locked all keys.