



# Operating Instructions

LCM-4K Series Monitors

**LCM-4K Series**

**LCM-149-4K**

**LCM-184-4K**



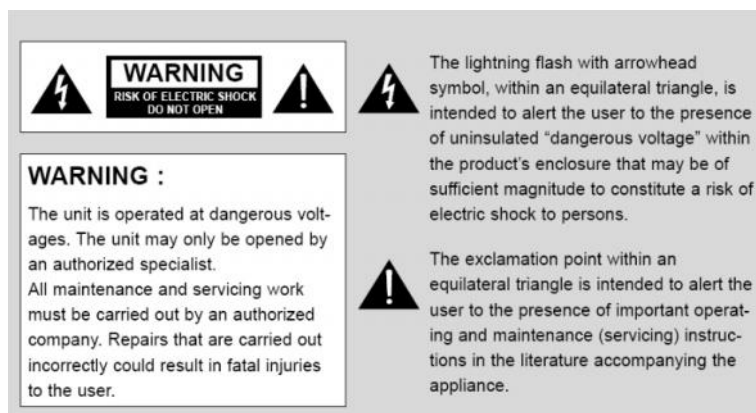
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## Precaution

*Before operating this unit, please read this manual carefully.*



### **WARNING:**

To reduce the risk of any electric shock, please do not remove the back cover. No user serviceable parts inside. Refer any service matters to qualified service personnel. To prevent fire or shock hazard, do not expose the rear of the set to rain or moisture. Do not rub, clean or hit the Active Matrix LCD with object that may scratch, mark, or damage the Active Matrix LCD permanently.

### **CAUTION:**

Unauthorized tampering with the inside of the monitor invalidates the warranty.

The manufacturer shall not warrant for any damage caused by improper maintenance and/or repair or work by third parties.

Important safeguards for you and your new product:

Your product has been manufactured and tested with your safety in mind. However, improper use can result in potential electrical shock or fire hazards. Please read and observe the following safety points when installing and using your new product and save them for future reference.

1. *Read Instructions*
2. *Follow Instructions*  
*All operating and use instructions should be followed.*
3. *Retain Instructions*  
*The safety and operating instructions should be retained for future reference.*
4. *Notice Warnings*

*All warnings on the product and in the operating instructions should be adhered to.*

**5. Cleaning**

*Disconnect the unit from the mains before cleaning the unit. Do not use abrasive cleaners. Use a damp cloth ONLY for cleaning.*

**6. Water and Moisture**

*Do not use this product near water.*

**7. Transporting Product**

*This product should be moved with care. Quick stops, excessive force and uneven surfaces may cause the product damages.*

**8. Accessories**

*Do not use accessories not recommended by **PLURA Inc.** as they may cause hazards.*

**9. Ventilation**

*Do not block any of the ventilation openings.*

*Install in accordance with the manufacturer's instructions.*

**10. Power Sources**

*This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply, consult your power supply company.*

**11. Power Lead Polarization**

*This product is equipped with a three-wire grounding-type cord. This is a safety feature. Do not use any other type power cord.*

**12. Power Cord Protection**

*Power-supply cords should be dressed so that they are not likely to be pulled or pinched by items placed upon or against them.*

**13. Lightning**

*For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent possible damage to the product due to lightning and power-line surges.*

**14. Grounding the product**

*This product must be grounded properly to comply with the safety regulations in the country of use. If you are unsure of these regulations, please consult a qualified electrician.*

**15. Servicing**

*Do not attempt to service this product by yourself as opening or removing covers may*

*expose you to dangerous voltages or other hazards. Refer all servicing to qualified service personnel.*

#### **16. Damage Service Required**

*Isolate this product from the mains and refer to qualified service personnel under the following conditions:*

- A. If the power-supply cord or plug is damaged.*
- B. If the front LCD front has been damaged.*
- C. If the product does not operate correctly by following the operating instructions. Use only the user control buttons any improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.*
- D. If the product has been dropped.*
- E. If the product exhibits a distinct change in performance.*

#### **17. Safety Check**

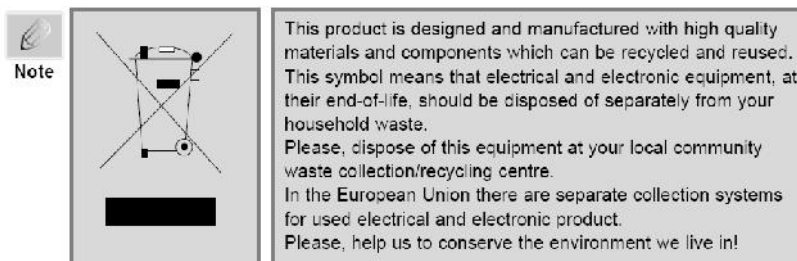
*Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition and the warranty seal is provided.*

#### **18. Mounting**

*The product should be mounted on a wall as recommended in the instructions.*

#### **19. Power**

*This set operates on an AC supply; the voltage is as indicated on the label on the Manual. This appliance must be earthed at all times through the chassis as well as through the power lead.*



## ● REMOTE CONTROL KEY ARRANGEMENTS



## ● Front panel LED Operations

Status	Color	Operation
Power Off	Red	On
Normal	Green	On
No signal	Green	Blink
DPMS	Red	Blink
Download	Green	Fast Blink

## ● IR-Remote controller Descriptions

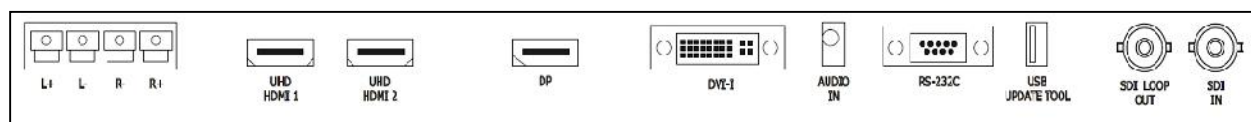
Key Name	Operation
POWER	Power On/Off
SOURCE	Same as "INPUT" on keypad
ZOOM	Activates OSD of aspect ratio control.
STILL	Toggles picture status between motion and still image.
SLEEP	Power control by time setting. (30min/60/90/120/150/180/off)
ECO	Brightness adjustment for the reduction in power consumption.
PSM (Picture Standard Mode)	Activates OSD of picture standard mode. Deactivates OSD of picture standard mode.
SSM (Sound Standard Mode)	Not supported
SET ID	Active SET ID CONTROL .(Only Video wall function)
EXIT ID	Exit SET ID CONTROL. (Only Video wall function)
INFO	Displays input source information
MUTE	Toggles sound status of speaker.
	Navigates upper menu in main OSD menu. Navigates input source.
	Decreases sound volume of speaker Same as "- Key" on keypad
	Increases sound volume of speaker Same as "+ Key" on keypad
	Navigates down menu in main OSD menu Navigates input source.
OK	Changes input source by selecting. Executes functions (by OSD help commands) in main OSD menu.
MENU	Activates main OSD menu. Go to time play mode
EXIT	Escapes main OSD menu.
PC/DVI	Selects input source between PC and DVI.
HDMI	Selects input source HDMI1, HDMI 2, HDMI3.
DP	Selects input source DP.
	Not supported
	Not supported
	Not supported
	Not supported
	Not supported
	Not supported
F1	User Function 1
F2	User Function 2
F3	User Function 3



## ● 7 Key Descriptions

Key Name	Operation
STAND BY Key	▶Power On/Off.
MENU Key	▶Activates main OSD menu. ▶Navigates higher menu in main OSD menu. ▶Stops auto frequency searching. ▶Exits OSD menu.
SELECT/INPUT Key	▶Activates OSD menu of input source. ▶Change input select source. ▶Executes functions (by OSD help commands) in main OSD menu.
Right Key	▶Increases speaker/headphone audio volume. ▶Executes function by OSD help commands in main OSD menu. ▶Increases values of user menu in main OSD menu.
Left Key	▶Decreases speaker/headphone audio volume. ▶Executes function (by OSD help commands) in main OSD menu. ▶Decreases values of user menu in main OSD menu.
Down Key	▶Navigates input source. ▶Executes function (by OSD help commands) in main OSD menu. ▶Navigates next menu in main OSD menu.
UP Key	▶Navigates input source. ▶Executes function (by OSD help commands) in main OSD menu. ▶Navigates previous menu in main OSD menu.

## ● Input Source Diagram



## ● Interface Description

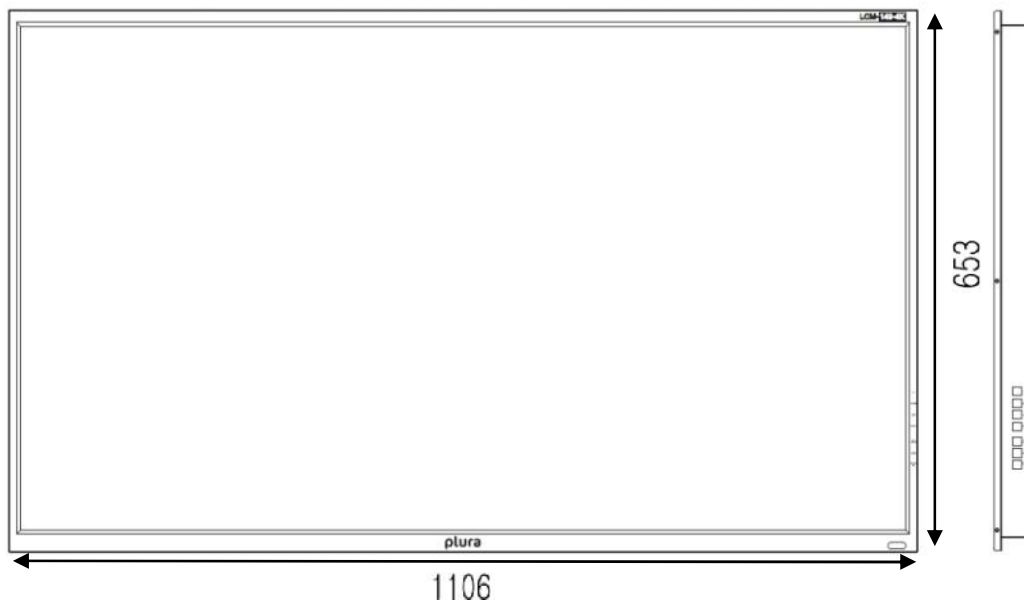
Interface	Description
L+, L-, R+, R-	• EXTERNAL SPEAKER INTERFACE (STEREO MAX 7W)
UHD HDMI1	• High Definition Multimedia Input 1– up to 3840x2160@60Hz (HDMI2.0)
UHD HDMI2	• High Definition Multimedia Input 2– up to 3840x2160@60Hz (HDMI2.0)
DP	• DISPLAYPORT Input – up to 3840x2160@60Hz (v1.2a)
DVI - I	• Digital Video Interactive Input - up to 1920x1080@60Hz (v1.0)
Audio IN	• Audio IN for DVI and PC source
RS-232	• External control via RS232 protocol
USB	• Download - software update
SDI LOOP OUT	• SDI BYPASS OUT – up to 12G
SDI IN	• 12G SDI INPUT



LCM-149-4K

- **Set Dimension – front**

- **LCM-149**



- **LCM-184**



## ● Supports Input Modes

Items		Specifications
Supported Signals	Analog PC	H Frequency Range : 20~82 kHz
		V Frequency Range : 55 ~ 90 Hz (VESA standard)
		Maximum resolution : 1920x1080 60Hz
		Maximum pixel rate : 162 MHz
		DTV mode support : 720P, 1080i, 1080p
		Separate / Composite / SOG sync support
	Digital PC (DE Mode) DVI	H Frequency Range : 20~82 kHz
		V Frequency Range : 55 ~ 90 Hz (VESA standard)
		Maximum resolution : 1920x1080 60Hz
		Maximum pixel rate : 162 MHz
		DTV mode support: 720P/1080i/1080p
	Digital PC UHD INTERFACE	H Frequency Range : 20~82 kHz
		V Frequency Range : 55 ~ 90 Hz (VESA standard)
		Maximum resolution : 3840x2160 30Hz
		Maximum pixel rate : 297 MHz
		DTV mode support: 720P/1080i/1080p

### 1) Supported Timing – PC

Section	Resolution	H Frequency ( kHz )	V Frequency ( Hz )	Pixel Frequency ( MHz )	Comment
	640x480	31.469	59.94	25.175	
	640x480	37.500	75.0	31.5	
	800x600	37.879	60.317	40.0	
	800x600	46.875	75.0	49.5	
	1024x768	48.780	60.001	64.11	
	1024x768	60.030	75.029	78.75	
	1280x768	60.150	75.0	102.977	
	1280x1024	63.600	60.0	108.883	

	1600x1200	75.000	60.0	162.000	
	1920x1080	56.3	50	148.5	
	1920x1080	67.5	60	148.5	

2) Supported Timing – DVI

Section	Resolution	H Frequency ( kHz )	V Frequency ( Hz )	Pixel Frequency ( MHz )	Comment
	640x480	31.469	59.94	25.175	
	640x480	37.500	75.0	31.5	
	800x600	37.879	60.317	40.0	
	800x600	46.875	75.0	49.5	
	1024x768	48.780	60.001	64.11	
	1024x768	56.476	70.069	75.0	
	1024x768	60.030	75.029	78.75	
	1280x720	47.760	60.0	74.481	
	1280x720	52.500	70.0	89.040	
	1280x768	60.150	75.0	102.977	
	1280x1024	63.600	60.0	108.883	
	1360x768	47.700	60.0	84.700	
	1600x1200	75.000	60.0	162.000	
	720x576	15.735	50.0	13.595	
	720x480	31.469	59.94	25.175	
	1280x720	44.964	59.94	74.176	
	1920x1080	33.750	60.0	74.25	
	1920x1080	31.250	50.0	72.000	
	1920x1080	56.3	50	148.5	
	1920x1080	67.5	60	148.5	

3) Supported Timing – UHD (HDMI, DP)

Section	Resolution	H Frequency ( kHz )	V Frequency ( Hz )	Pixel Frequency ( MHz )	Comment
	640x480	31.469	59.94	25.175	
	640x480	37.500	75.0	31.5	
	800x600	37.879	60.317	40.0	

	800x600	46.875	75.0	49.5	
	1024x768	48.780	60.001	64.11	
	1024x768	56.476	70.069	75.0	
	1024x768	60.030	75.029	78.75	
	1280x720	47.760	60.0	74.481	
	1280x720	52.500	70.0	89.040	
	1280x768	60.150	75.0	102.977	
	1280x1024	63.600	60.0	108.883	
	1360x768	47.700	60.0	84.700	
	1600x1200	75.000	60.0	162.000	
	720x576	15.735	50.0	13.595	
	720x480	31.469	59.94	25.175	
	1280x720	44.964	59.94	74.176	
	1920x1080	33.750	60.0	74.25	
	1920x1080	31.250	50.0	72.000	
	1920x1080	56.3	50	148.5	
	1920x1080	67.5	60	148.5	
	3840x2160	67.5	30	297	
	3840x2160	135	60	594	

4) Supported Timing – SDI (12G/3G/1.5G/570M)

SMPTE ST 2082	3840x2160(23.98/24/25/29.97/30/50/59.94/60p)
SMPTE-428.1M	2048x1080P(24/25)
SMPTE-425M(3G)	1920x1080P(50/60)
SMPTE-260M	1920x1035i(60/59.94)
SMPTE-372M	1080P (50/59.94/60)
	1080P (30/29.97/25/24/23.98)
	1080i (29.97/25/24/23.98)
	720P (50/59.94/60)
SMPTE-259M/C	480i(59.94)
	576i(50)

# 1. MENU OVERVIEW

In this menu system, there are several ways to customize the menu settings provided. Most menus consist of three levels to set up the options, but some require greater depth for the variety of settings. If you press the **MENU** button, up to the third level of the menu system will appear on the monitor screen. The fourth level can be displayed by pressing **OK** button

## 1) To show and remove the Menu:

Press the **MENU** button on the Remote Control to display the menu. A second press of the **MENU** button or a press of the **EXIT** button will take you out of the **MENU**.

## 2) To go to the next level:

Press **OK** (or **Right arrow** button) on the Remote Control.

## 3) To go back to the previous level:

Press **MENU** (or **Left arrow** button) on the Remote Control.

## 4) To go to the next menu:

Press **Down arrow** button on the Remote Control.

## 5) To go to the previous menu:

Press **Up arrow** button on the Remote Control.

DP		Resolution : 3840x2160@60Hz
Picture Settings	Contrast	80
Color Settings	Sharpness	50
Video Wall Settings	Aspect Ratio	Full Screen
PC-RGB Settings	Auto Brightness Mode	Off
Audio Settings	Brightness	100
Heat Control Settings	Max Ambient	2000
Timer Settings	Min Ambient	200
Other Settings	Ambient	XX.



DP		Resolution : 3840x2160@60Hz
Picture Settings	Contrast	80 <span style="color: yellow;">■■■■■■■■■</span>
Color Settings	Sharpness	50
Video Wall Settings	Aspect Ratio	Full Screen
PC-RGB Settings	Auto Brightness Mode	Off
Audio Settings	Brightness	100
Heat Control Settings	Max Ambient	2000
Timer Settings	Min Ambient	200
Other Settings	Ambient	XXX.



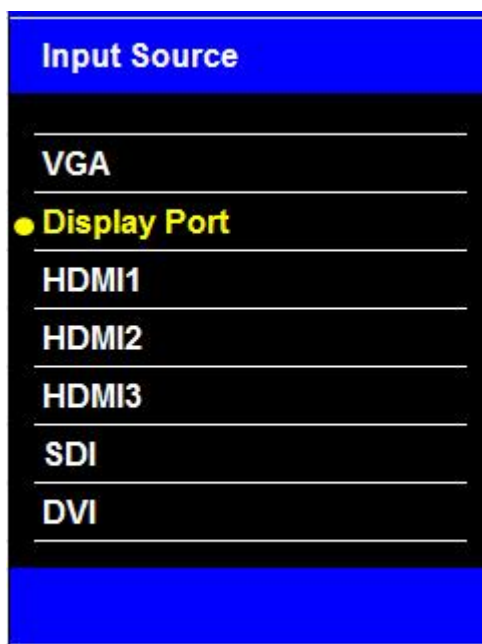
DP		Resolution : 3840x2160@60Hz
Picture Settings	Color Modes	Standard
Color Settings	Color Temperature	9300K
Video Wall Settings	Red Gain	220
PC-RGB Settings	Green Gain	220
Audio Settings	Blue Gain	220
Heat Control Settings	Gamma	2.2
Timer Settings	Hue/Saturation	
Other Settings	Input Color Format	Auto Select
	Color Domain	RGB Domain

## 2. SELECT VIDEO INPUT

### 1) How to Select Video Source by OSD

- Default source: VGA, Display Port, HDMI1, HDMI2, SDI, DVI

1. Press the **SOURCE** button and then ▲/▼ button to select each video source.
2. Press the **OK** button to select desired video source





### 3. PICTURE Settings

#### 1) Contrast / Sharpness

DP		Resolution : 3840x2160@60Hz
Picture Settings	Contrast	80
Color Settings	Sharpness	50
Video Wall Settings	Aspect Ratio	Full Screen
PC-RGB Settings	Auto Brightness Mode	Off
Audio Settings	Brightness	100
Heat Control Settings	Max Ambient	2000
Timer Settings	Min Ambient	200
Other Settings	Ambient	xx.



DP		Resolution : 3840x2160@60Hz
Picture Settings	Contrast	80
Color Settings	Sharpness	50
Video Wall Settings	Aspect Ratio	Full Screen
PC-RGB Settings	Auto Brightness Mode	Off
Audio Settings	Brightness	100
Heat Control Settings	Max Ambient	2000
Timer Settings	Min Ambient	200
Other Settings	Ambient	xxx

- Adjust the picture appearance to suit your preference and viewing conditions.

1. Press the MENU button to select the **PICTURE** mode.
  2. Press the OK button or ► button to select **Contrast** menu.  
(Press the ▲ / ▼ button to select **Sharpness** menu.)
  3. Press the OK button or ► button to select **Adjustment** menu.
  4. Press the ▲ / ▼ button to make appropriate adjustments.
  5. Press **MENU** button or ◀ button to return to the previous menu.
- Or to exit the **MENU**, press the **EXIT** button.

## 2) Aspect Ratio

DP		Resolution : 3840x2160@60Hz
Picture Settings	Contrast	Full Screen
Color Settings	Sharpness	Auto
Video Wall Settings	Aspect Ratio	4:3
PC-RGB Settings	Auto Brightness Mode	5:4
Audio Settings	Brightness	16:9
Heat Control Settings	Max Ambient	1:1
Timer Settings	Min Ambient	
Other Settings	Ambient	

- Selects the aspect ratio to display the video input.

1. Press the MENU button to select the **PICTURE** mode.
2. Press the OK button (or ► button) and then ▼ button to select **Aspect Ratio** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option:

**[ Full Screen, Auto, 4:3, 5:4, 16:9, 1:1 ]**

5. Press MENU button or ◀ button to return to the previous menu.

Or to exit the **MENU**, press the **EXIT** button.

### 3) Brightness - Dimming

#### 3-1) Auto Brightness

DP		Resolution : 3840x2160@60Hz
Picture Settings	Contrast	Off
Color Settings	Sharpness	On
Video Wall Settings	Aspect Ratio	ECO
PC-RGB Settings	Auto Brightness Mode	
Audio Settings	Brightness	
Heat Control Settings	Max Ambient	
Timer Settings	Min Ambient	
Other Settings	Ambient	

- Automatic dimming controls by light sensor in Dimming menu.

1. Press the MENU button to select the **PICTURE** mode.
2. Press the OK button (or ► button) and then ▼ button to select **Auto Brightness Mode** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option:
  - Off** : Adjust the dimming level by the manual operation.
  - On** : Adjust the dimming level by the data of light sensor.  
(Light Ambient Sensor Option only)
  - ECO** : Adjust the dimming level of 50.
5. Press MENU button or ◀ button to return to the previous menu.

Or to exit the **MENU**, press the **EXIT** button.

### 3-2) Brightness Level - Dim Level

DP		Resolution : 3840x2160@60Hz	
Picture Settings	Contrast	80	
Color Settings	Sharpness	50	
Video Wall Settings	Aspect Ratio	Full Screen	
PC-RGB Settings	Auto Brightness Mode	Off	
Audio Settings	Brightness	100	■■■■■■■■■■
Heat Control Settings	Max Ambient	300	
Timer Settings	Min Ambient	100	
Other Settings	Ambient	0	

- Manually adjust the brightness of the screen. (Auto Brightness – Off)

1. Press the MENU button to select the **PICTURE** mode.
  2. Press the OK button (or ► button) and then ▼ button to select **Dim Level** menu.
  3. Press the OK button or ► button to select **Adjustment** menu.
  4. Press the ▲ / ▼ button to select desired option:
  5. Press MENU button or ◀ button to return to the previous menu.
- Or to exit the **MENU**, press the **EXIT** button.

### 3-3) Max/Min Dim Ambient

DP		Resolution : 3840x2160@60Hz
Picture Settings	Contrast	80
Color Settings	Sharpness	50
Video Wall Settings	Aspect Ratio	Full Screen
PC-RGB Settings	Auto Brightness Mode	Off
Audio Settings	Brightness	100
Heat Control Settings	Max Ambient	300
Timer Settings	Min Ambient	100
Other Settings	Ambient	0

DP		Resolution : 3840x2160@60Hz
Picture Settings	Contrast	80
Color Settings	Sharpness	50
Video Wall Settings	Aspect Ratio	Full Screen
PC-RGB Settings	Auto Brightness Mode	Off
Audio Settings	Brightness	100
Heat Control Settings	Max Ambient	300
Timer Settings	Min Ambient	100
Other Settings	Ambient	0

- Adjusts detected light ambient to set the maximum (minimum) dimming

1. Press the MENU button to select the **PICTURE** mode.
2. Press the OK button (or ► button) and then ▼ button to select **Max(Min) Dim Ambient** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option:

**Max Ambient** : The maximum dimming is changed to 100 units.

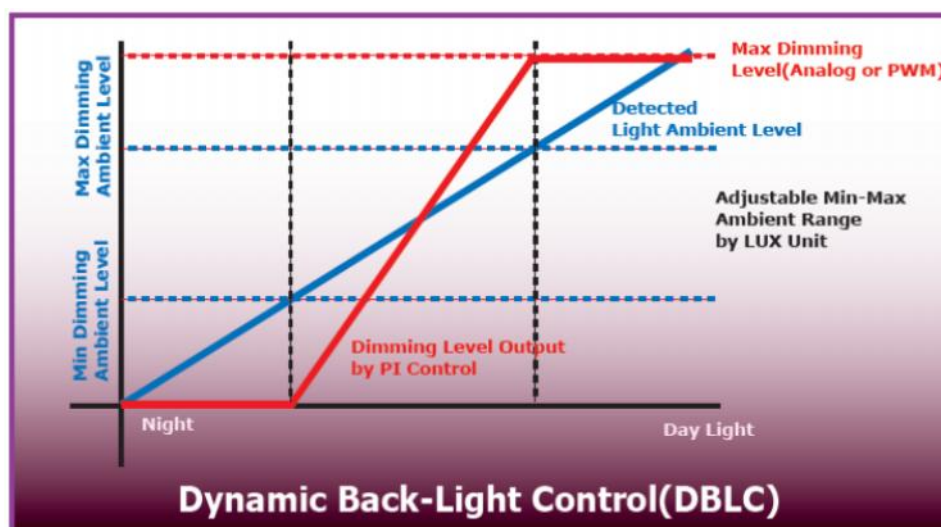
**Min Ambient** : The minimum dimming is changed to 10 units.

5. Press MENU button or ◀ button to return to the previous menu.

Or In order to come out at a time, press the **EXIT** button.

◆ Ambient

- It displays the ambient brightness data. (If the light sensor is connected.)



## 4. Color Settings

### 1) Color Modes

DP		Resolution : 3840x2160@60Hz
Picture Settings	Color Mode	Standard
Color Settings	Color Temperature	Vivid
Video Wall Settings	Red Gain	Game
PC-RGB Settings	Green Gain	Movie
Audio Settings	Blue Gain	
Heat Control Settings	Gamma	
Timer Settings	Hue/Saturation	
Other Settings	Input Color Format	
	Color Domain	

- Select the picture appearance to suit your preference and viewing conditions.

1. Press the MENU button and then ▼ button to select the **Color Settings**.
2. Press the OK button (or ► button) to select **Color modes** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option:

[ **Standard, Vivid, Game, Movie** ]

5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the **MENU**, press the **EXIT** button.

## 2) Color Temperature

DP		Resolution : 3840x2160@60Hz
Picture Settings	Color Mode	5700K
Color Settings	Color Temperature	6500K
Video Wall Settings	Red Gain	9300K
PC-RGB Settings	Green Gain	User
Audio Settings	Blue Gain	
Heat Control Settings	Gamma	
Timer Settings	Hue/Saturation	
Other Settings	Input Color Format	
	Color Domain	

- Choose one of four automatic color adjustments. Set to adjust and enhance colors warmer or cooler color temp.

1. Press the MENU button and then ▼ button to select the **Color Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Color Temperature** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option:  
[ 5700K, 6500K, 9300K, User ]
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the **MENU**, press the **EXIT** button.

### 3) Red/Green/Blue Gain

DP		Resolution : 3840x2160@60Hz
Picture Settings	Color Mode	Standard
Color Settings	Color Temperature	9300K
Video Wall Settings	Red Gain	238 
PC-RGB Settings	Green Gain	242
Audio Settings	Blue Gain	235
Heat Control Settings	Gamma	2.2
Timer Settings	Hue/Saturation	
Other Settings	Input Color Format	Auto Select
	Color Domain	YUV Domain

– Adjust the color on the screen.

1. Press the MENU button and then ▼ button to select the **Color Settings**.
2. Press the MENU button and then ▼ button to select the **Red/Blue/Green Gain**.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
  - If you change the value of the item, the contents of the Color Temperature is, will automatically change to User.
5. Press **MENU** button or ◀ button to return to the previous menu.
  - Or to exit the MENU, press the EXIT button.



#### 4) Gamma

DP		Resolution : 3840x2160@60Hz
Picture Settings	Color Mode	2.0
Color Settings	Color Temperature	2.2
Video Wall Settings	Red Gain	2.35
PC-RGB Settings	Green Gain	2.4
Audio Settings	Blue Gain	2.6
Heat Control Settings	Gamma	
Timer Settings	Hue/Saturation	
Other Settings	Input Color Format	
	Color Domain	

- Adjust the gamma on the screen.

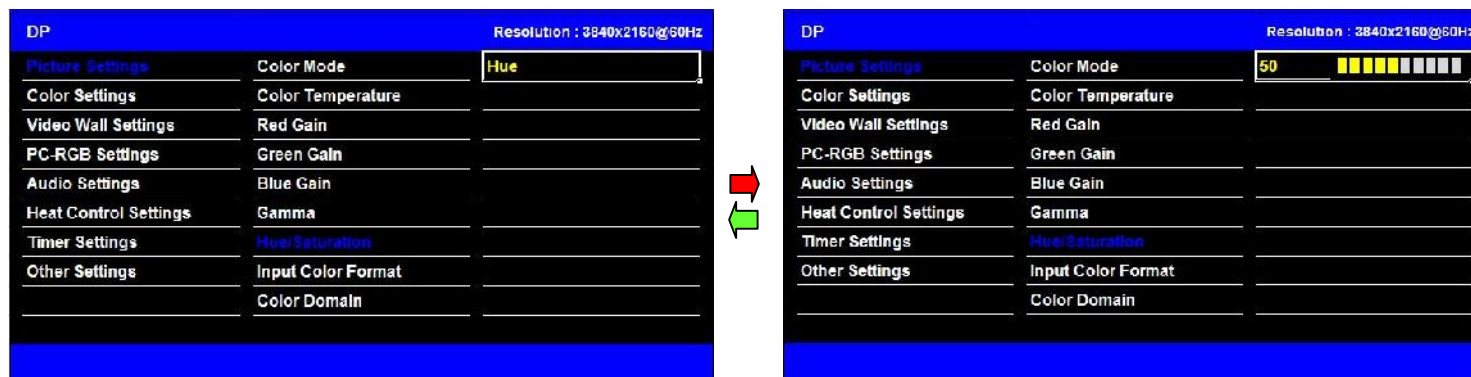
1. Press the MENU button and then ▼ button to select the **Color Settings**.
2. Press the MENU button and then ▼ button to select the **Gamma**.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option. [2.0, 2.2, 2.35, 2.4, 2.6]

→ To set the correct gamma value, please complete the calibration

5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the EXIT button.

## 5) Hue/Saturation



### HUE

- Adjust the HUE on the screen. [ 0 level (Greenish) - 100 level (red) ]
- Increasing (or reducing) the value along axis of the Pr (Cr).

### Saturation

- Adjust the depth of color on the screen. [ 0 level (black – and white picture) ]

1. Press the MENU button and then ▼ button to select the **Color Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Hue or Saturation** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

➔ If the Color Domain setting is the RGB Domain, this item is not available.

## 6) Input Color Format

DP		Resolution : 3840x2160@60Hz
Picture Settings	Color Mode	RGB
Color Settings	Color Temperature	YPbPr
Video Wall Settings	Red Gain	Auto Select
PC-RGB Settings	Green Gain	
Audio Settings	Blue Gain	
Heat Control Settings	Gamma	
Timer Settings	Hue/Saturation	
Other Settings	Input Color Format	
	Color Domain	

- Check the color space of the input signal, to adjust the screen.  
[ RGB / YPbPr422 (YPbPr444)]

1. Press the MENU button and then ▼ button to select the **Color Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Input Color Format** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.

**[ RGB, YPbPr, Auto Select ]**

5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

## 7) Color Domain



- Check the color space of the input signal, to adjust the screen. [0~255, 16~235]
- This function is internally executed; please do not be adjust without technical assistance.

1. Press the MENU button and then ▼ button to select the **Color Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Color Domain** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.

**[ RGB Domain, YUV Domain ]**

5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

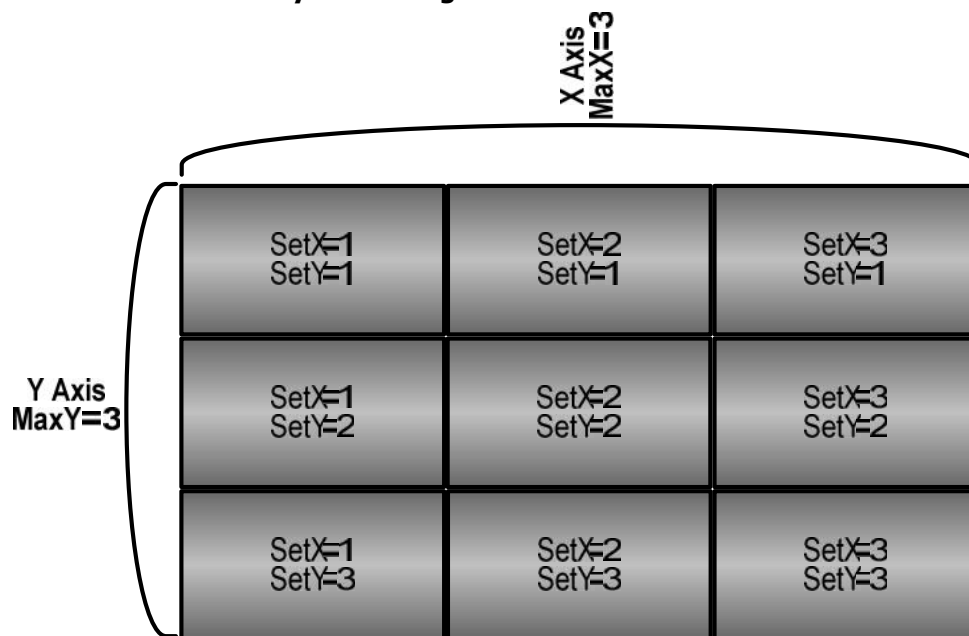
## 5. Video Wall Settings

- This menu item is for VIDEO WALL APPLICATION.

DP		Resolution : 3840x2160@60Hz
Picture Settings	X MAX	1
Color Settings	Y MAX	1
Video Wall Settings	X Position	1
PC-RGB Settings	Y Position	1
Audio Settings	X Gap	0
Heat Control Settings	Y Gap	0
Timer Settings	Set ID	0
Other Settings		

1. Press the MENU button and then ▼ button to select the **Video Wall Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Second Settings**.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.  
Or to exit the MENU, press the **EXIT** button.

### ● Video Wall Layout Settings



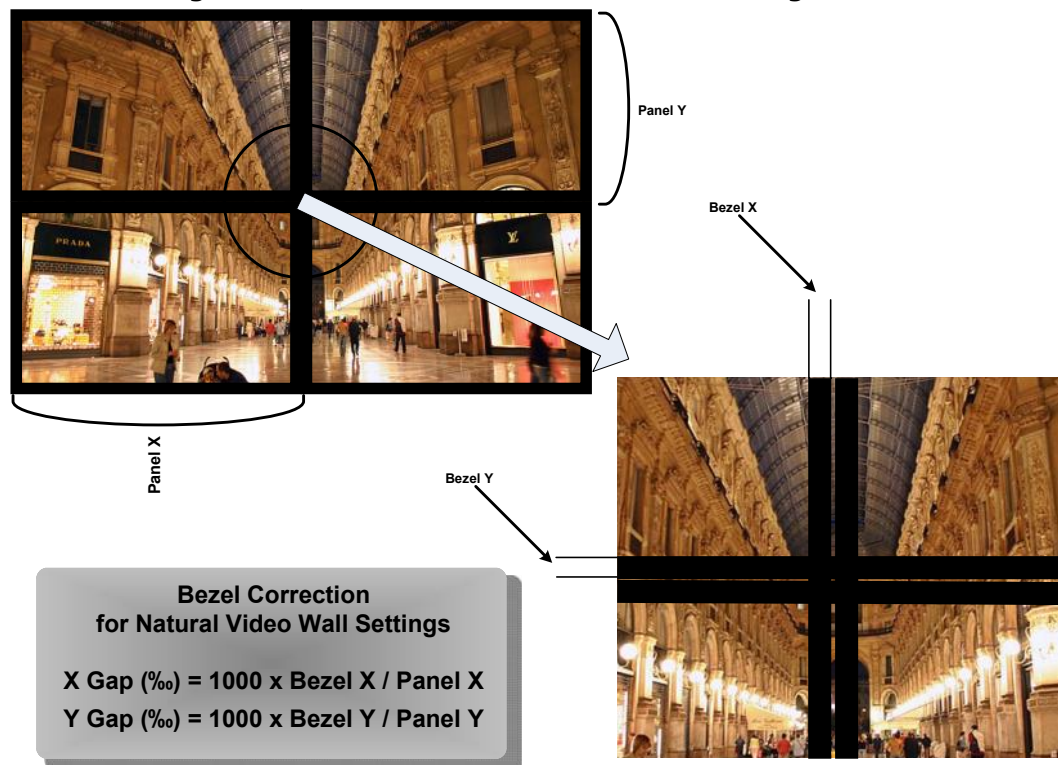
**X Max** : Maximum number of column tiles for the entire video image.

**Y Max** : Maximum number of row tiles for the entire video image.

**X position** : Coordinate of video image's column position.

**Y position** : Coordinate of video image's row position.

## ● Setting the Bezel Corrections for Natural Tiled Image



**X Gap** : Proportional Value of Vertical Bezel to Panel size by Per-mil unit.

**Y Gap** : Proportional Value of Horizontal Bezel to Panel size by Per-mil unit.

## ● Set ID & Active Set ID



- Set Active SET ID number is necessary with RS-232 Remote control
- ex...If you need to control the 15<sup>th</sup> unit, Active SET ID must set 15.

1. Press the **SET ID** button and then use ▲ / ▼ , ► / ◄ button to select the **Active SET ID**.

▲ : Change(right) 1 unit numbers

▼ : Change(left) 1 unit numbers

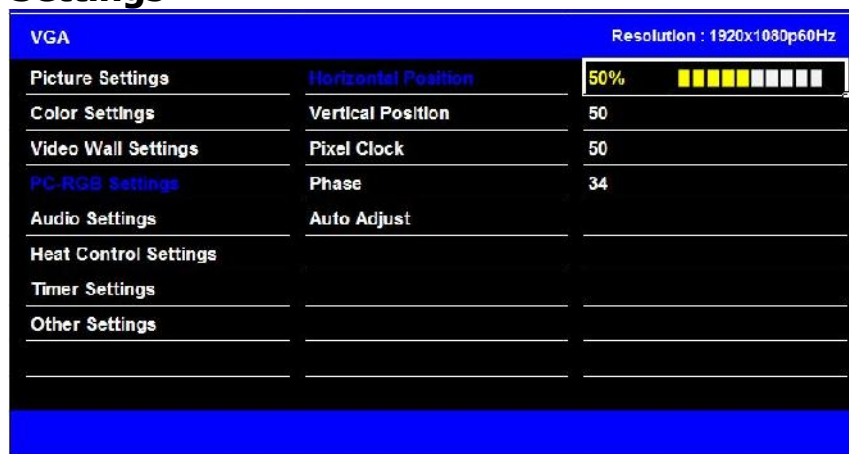
► : Change(up) 10 unit numbers

◄ : Change(down) 10 unit numbers

(ex. 35 : Press the upward button three times and then press the right button five times.)

2. If you Press the **EXT ID** button, ID number won't be stored.

## 6. PC-RGB Settings



1. Press the MENU button and then ▼ button to select the **PC-RGB Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Second Settings**.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

- Please use Automatic Adjustments when you need to adjustment below parts of the screen.

**Horizontal Position**: Use when adjustments to left and right positions are required.

**Vertical Position** : Use when adjustments to top and bottom positions are required.

**Pixel Clock** : Use to adjust panel pixel clock.

**Phase** : Use to adjust focus.

## 7. Audio Settings



1. Press the MENU button and then ▼ button to select the **Audio Settings**.
  2. Press the OK button (or ► button) and then ▼ button to select **Second Settings**.
  3. Press the OK button or ► button to select **Adjustment** menu.
  4. Press the ▲ / ▼ button to select desired option.
  5. Press **MENU** button or ◀ button to return to the previous menu.
- Or to exit the MENU, press the **EXIT** button.



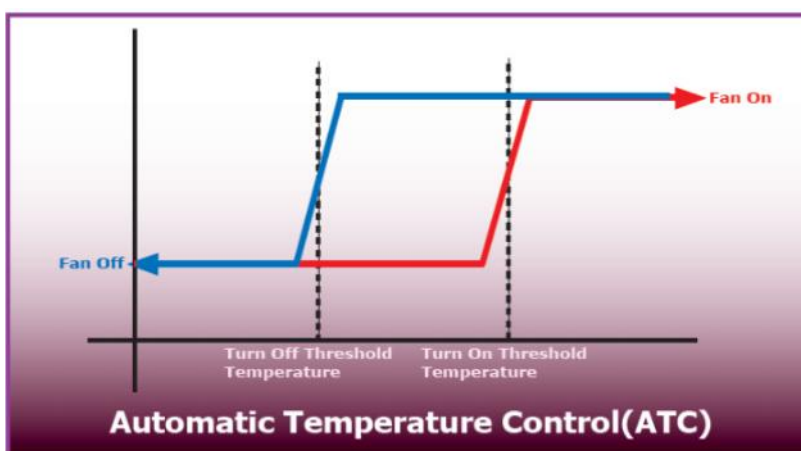
## 8. Heat Control Settings

### 1) Fan Control

DP	Resolution : 3840x2160@60Hz	
Picture Settings	Fan Control	Off
Color Settings	Fan Active Temperature	On
Video Wall Settings	Hysteresis	Auto
PC-RGB Settings	Shutdown	
Audio Settings	Temperature	
Heat Control Settings		
Timer Settings		
Other Settings		

1. Press the MENU button and then ▼ button to select the **Heat Control Settings**.
  2. Press the OK button (or ► button) to select **Fan Control** menu.
  3. Press the OK button or ► button to select **Adjustment** menu.
  4. Press the ▲ / ▼ button to select desired option.
  5. Press **MENU** button or ◀ button to return to the previous menu.
- Or to exit the MENU, press the **EXIT** button.

**Off** : Fan is always off, regardless of the value of the temperature sensor.  
**On** : Fan is always on, regardless of the value of the temperature sensor.  
**Auto** : Fan is automatically driven according to the temperature setting.



## 2) Heat Control



1. Press the MENU button and then ▼ button to select the **Heat Control Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Second Settings**.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

**Fan Active Temperature:** Adjusts fan temperature by Celsius degree. It works only when the **Fan Control** setting is set to **Auto**.

**Hysteresis:** Variable range of Fan on/off interval.

**Shutdown:** Adjust shutdown mode; temperature is set by Celsius degree. When current temperature reaches the shutdown temp, the monitor enters power down mode.

**Temperature:** The internal temperature data by the temperature sensor.

## 9. Timer Settings

### 1) Current Time

DP		Resolution : 3840x2160@60Hz
Picture Settings	Current Time	10:35
Color Settings	On time	00:00 off
Video Wall Settings	Off time	00:00 off
PC-RGB Settings		
Audio Settings		
Heat Control Settings		
Timer Settings		
Other Settings		



DP		Resolution : 3840x2160@60Hz
Picture Settings	Current Time	Hour 10
Color Settings	On time	Min 35
Video Wall Settings	Off time	
PC-RGB Settings		
Audio Settings		
Heat Control Settings		
Timer Settings		
Other Settings		

- If current time setting is incorrect, reset the clock manually
- When the AC POWER is OFF, current time will be initialized.

1. Press the MENU button and then ▼ button to select the **Timer Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Second Settings**.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.  
Or to exit the MENU, press the **EXIT** button.

### 2) Timer Settings

DP		Resolution : 3840x2160@60Hz
Picture Settings	Current Time	Enable off
Color Settings	On time	Hour 0
Video Wall Settings	Off time	Min 0
PC-RGB Settings		
Audio Settings		
Heat Control Settings		
Timer Settings		
Other Settings		

1. Press the MENU button and then ▼ button to select the **Timer Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Second Settings**.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.  
Or to exit the MENU, press the **EXIT** button.

**On Time** : Set the time to start automatically.  
**Off Time** : Set the power off time automatically.

## 10. Other Settings


### 1) Language

DP		Resolution : 3840x2160@60Hz
Picture Settings	Language	English
Color Settings	Menu Transparency	
Video Wall Settings	OSD Timeout	
PC-RGB Settings	Power Save Mode	
Audio Settings	Local Dimming	
Heat Control Settings	MFC	
Timer Settings	Reset	
Other Settings	Software Update (USB)	
	Version	

- Language settings can be changed.

1. Press the MENU button and then ▼ button to select the **Other Settings**.
2. Press the OK button (or ► button) to select **Language** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.  
Or to exit the MENU, press the **EXIT** button.

### 2) Menu Transparency

DP		Resolution : 3840x2160@60Hz
Picture Settings	Language	English
Color Settings	Menu Transparency	20 
Video Wall Settings	OSD Timeout	Off
PC-RGB Settings	Power Save Mode	Off
Audio Settings	Local Dimming	On
Heat Control Settings	MFC	Off
Timer Settings	Reset	
Other Settings	Software Update (USB)	
	Version	v.002/Dec 24 2015

- Set the OSD transparency.

1. Press the MENU button and then ▼ button to select the **Other Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Menu Transparency** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

### 3) OSD Timeout

DP		Resolution : 3840x2160@60Hz
Picture Settings	Language	Off
Color Settings	Menu Transparency	5Sec
Video Wall Settings	OSD Timeout	10Sec
PC-RGB Settings	Power Save Mode	15Sec
Audio Settings	Local Dimming	20Sec
Heat Control Settings	MFC	60Sec
Timer Settings	Reset	
Other Settings	Software Update (USB)	
	Version	

- Set the OSD screen duration time

1. Press the MENU button and then ▼ button to select the **Other Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **OSD Timeout** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

### 4) Power Save Mode

DP		Resolution : 3840x2160@60Hz
Picture Settings	Language	On
Color Settings	Menu Transparency	Off
Video Wall Settings	OSD Timeout	
PC-RGB Settings	Power Save Mode	
Audio Settings	Local Dimming	
Heat Control Settings	MFC	
Timer Settings	Reset	
Other Settings	Software Update (USB)	
	Version	

- Power save mode allows you to shut-off the panel when NO input source is applied. (15sec, meets 2watt in the sleep mode.)

1. Press the MENU button and then ▼ button to select the **Other Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Power Save Mode** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

## 5) Local Dimming

DP		Resolution : 3840x2160@60Hz
Picture Settings	Language	On
Color Settings	MenuTransparency	Off
Video Wall Settings	OSD Timeout	
PC-RGB Settings	Power Save Mode	
Audio Settings	Local Dimming	
Heat Control Settings	MFC	
Timer Settings	Reset	
Other Settings	Software Update (USB)	
	Version	

- Set the Local dimming for the panel.

1. Press the MENU button and then ▼ button to select the **Other Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **OSD Timeout** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

## 6) MFC (Motion Compensated Frame Rate Conversion)

DP		Resolution : 3840x2160@60Hz
Picture Settings	Language	Off
Color Settings	MenuTransparency	Low
Video Wall Settings	OSD Timeout	Middle
PC-RGB Settings	Power Save Mode	high
Audio Settings	Local Dimming	
Heat Control Settings	MFC	
Timer Settings	Reset	
Other Settings	Software Update (USB)	
	Version	

- MEMC (Motion Estimation & Motion Compensation)
- To improve the jitter phenomenon (Apply to 120Hz model)

1. Press the MENU button and then ▼ button to select the **Other Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **MFC** menu.
3. Press the OK button or ► button to select **Adjustment** menu.
4. Press the ▲ / ▼ button to select desired option.
5. Press **MENU** button or ◀ button to return to the previous menu.

Or to exit the MENU, press the **EXIT** button.

## 7) Reset



- Initialize the unit to factory settings

1. Press the MENU button and then ▼ button to select the **Other Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Reset** menu.
3. Press the OK button or ► button to select **Enter**.
4. Press the OK button to select.



## 8) Software Update

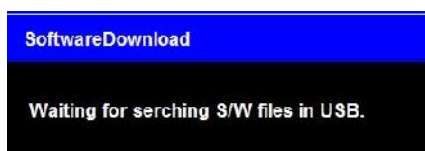


- Software update function using the USB MEMORY.

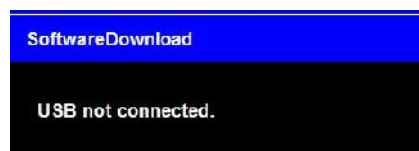
1. Save the update file to a USB stick. (ex) mergy\_151223.bin
2. Insert the USB stick into the socket for download.
1. Press the MENU button and then ▼ button to select the **Other Settings**.
2. Press the OK button (or ► button) and then ▼ button to select **Software Update** menu.
3. Press the OK button to select **Enter**.

4. Normal Progress

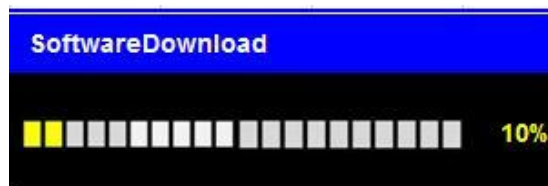
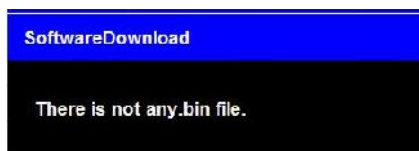
USB stick not plugged or recognized.



Please check the USB stick.



Please check download file.



5. When the update is successfully completed, the unit will automatically reboot and reset.



## 9) Version

DP		Resolution : 3840x2160@60Hz
Picture Settings	Language	English
Color Settings	Menu Transparency	20
Video Wall Settings	OSD Timeout	15Sec
PC-RGB Settings	Power Save Mode	On
Audio Settings	Local Dimming	On
Heat Control Settings	MFC	Off
Timer Settings	Reset	
Other Settings	Software Update (USB)	
	Version	v.002/Dec 24 2015

- Check the information of the current software.

1. Press the MENU button and then ▼ button to select the **Other Settings**.  
(Version / date)

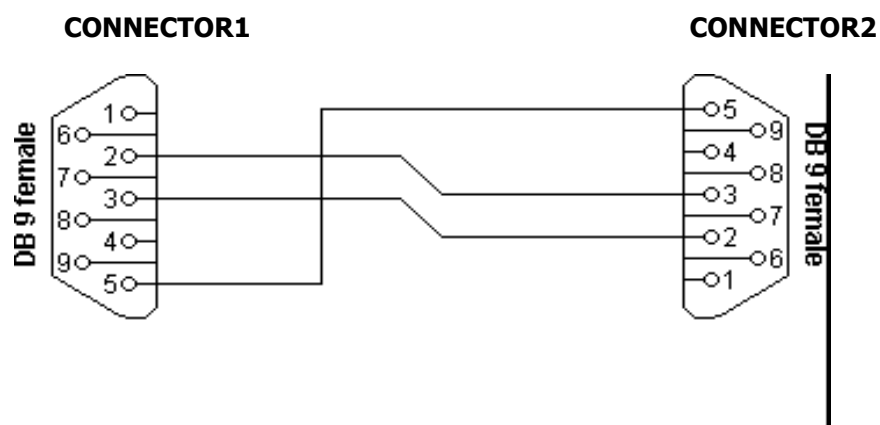
## 11. SERIAL CONTROL PROTOCOL.

### 1) Serial Setup

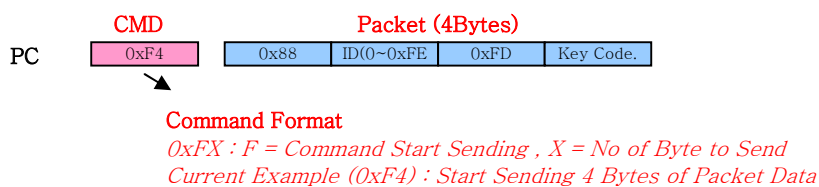
Item	Settings
Baud rate	19200bps
Data Bit	8bit
Stop Bit	1bit
Parity Bit	None
Stream Control	None

### 2) Serial Cable between PC and MINERVA BOARD (simple null modem cable)

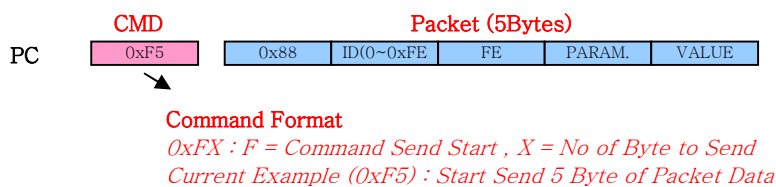
CONNECTOR1	CONNECTOR2	FUNCTION		
2	3	RX		TX
3	2	TX		RX
5	5	SIGNAL GROUND		



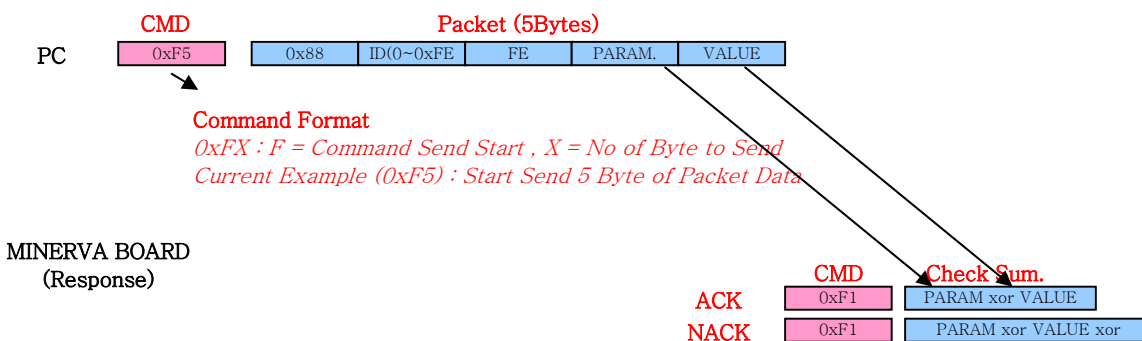
### 3) Protocols Virtual Remote Control



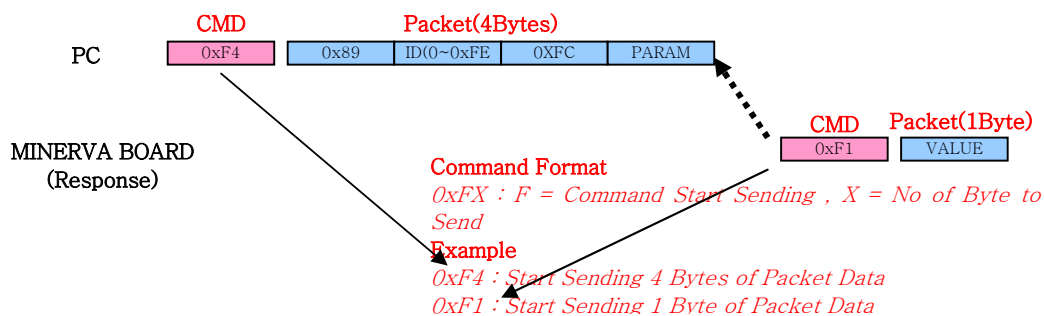
### Setting Parameters to MINERVA BOARD



Data setting only ( Not adjust function for speed)



### Read Parameters from MINERVA BOARD



### 4) Control Command Packet System Parameter Direct Settings/Read Packet

CMD	Data1	Data2	Data3	Data4	Data5	Description	Range (HEX)
-----	-------	-------	-------	-------	-------	-------------	-------------

Command	Target	ID	CMD	Param	Value			
<div>0xF5 (Start Set)</div> <div>0xF4 (Start Get)</div>	<div>0x88(Set)</div> <div>0x89(Get)</div>	<div>0xXX (0x00~0xFE)</div>	<div>0xFE /0xFC Set /Get Param.</div>	0x00	<div>0x00~0xFF (By Min-Max) Not Send in Get Mode</div>	LANGUAGE	0	English
							1	TBD
							2	TBD
							3	TBD
							4	TBD
							5	TBD
				0x01		SOURCE	0	PC-RGB
							1	DVI
							2	HDMI 1
							3	HDMI 2
							4	HDMI 3 (optional)
							5	DP
				0x02		Color Mode	0	Standard
							1	Vivid
							2	Game
							3	Movie
				0x03		COLORTEMP	0	Warm
							1	Normal
							2	Cool
							3	User
				0x04		CONTRAST	0	0
							64	100
				0x05		BRIGHTNESS (Dim LEVEL)	0	0
							64	100
				0x07		SHARPNESS	0	0
							64	100
				0x0F		Aspect Ratio	0	Full Screen
							1	Auto
							2	4:3
							3	5:4
							4	16:9
							5	1:1
0x10	Red Gain	0	0					
		64	100					
0x11	Green Gain	0	0					
		64	100					
0x12	Blue Gain	0	0					
		64	100					
0x17	Mute	0	MUTE OFF					
		1	MUTE ON					
0x1B	VOLUME	0	0					



				0x43	Y POSITION	1	
				0x44	X MAX	9	
				0x45	Y MAX	1	
				0x46	X GAP <sup>(9)</sup>	9	
				0x47	Y GAP <sup>(9)</sup>	0	
				0x48	TEMP_SHUTDOWN <sup>(5)</sup>	200	
				0x68	Local Dim	0	Off
				0x69	PC AUTO ADJUST	1	On
				0x6A	MFC	1	OFF
				0x6B		2	LOW
				0x6C		3	MIDDLE
				0xFE		0	HIGH
					POWER SAVE MODE	1	Off
					RESET	0	On
					POWER	1	Off
						0	On

Notice

**(1) CURSOURCE Setting Value**

AV1:1, AV2:2, SVIDEO:4, COMP1:7, HDIM:11, DVI12, DSUB:10, MMP:15

**(2) MAX\_ILLUMINANCE Settings**

Setting Value = Ambient Level (by LUX) / 100

Ex) Desired Ambient is 10000 Lux, Setting is 100 (= 10000 / 100)

**(3) MIN\_ILLUMINACE Settings**

Setting Value = Ambient Level (by LUX) / 10

Ex) Desired Ambient is 200 Lux, Setting is 20 (= 200 / 10)

**(4) DIM\_LEVEL Settings**

Dimming is controlled by Brightness Settings. Not working even set.

**(5) TEMPERATURE Settings**

Setting Value = Desired temperture(by Celsius) x 2 + 60

Ex) Desired temperature is 60°C, Setting is 180 (= 60 x 2 + 60)

**(6) TEMP\_HYSTERESIS Settings**

Setting Value = Desired Hysteresis(by Celsius) x 2

Ex) Desired Hysteresis is 2°C, Setting is 4 (= 2 x 2)

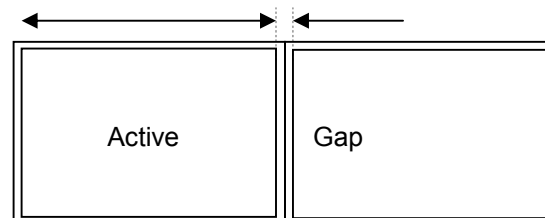
**(7) ILLUMINACE**

Current lux/10. If Cur\_lux>2550 then Value=255

**(8) Read only Command**

**(9) Gap Settings**

Setting Value =(int) (1000 \* Gap / Active)



5) Control Command Packet  
5-1)Set Input Source to RGB Input

CMD		Packet (5Bytes)			
0xF5	Start	0x88	0	0xFE	0x01
		Target	ID	Set Param CMD	CURRENT SOURCE
					0
					RGB(=0)

5-2)Read Power State

CMD		Packet(4Bytes)		
0xF4	Start	0x89	0	0xFE
		Target	ID	Set Param CMD
				POWER STS

MINERVA  
(Response)

CMD		Packet(1Byte)
0xF1	Start Send	1(on) or 0(Off)
		Value



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