4K Resolution

Digital Video Image Processor Board

User's Manual

All manual are subject to change without notification.

WARNING

Before operating the set, please read this manual carefully.

WARNING	
WARNING **RISK OF ELECTRIC SHOCK** **DO NOT OPEN**	The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
WARNING : The unit is operated at dangerous voltages. The unit may only be opened by an authorized specialist. All maintenance and servicing work must be carried out by an authorized company. Repairs that are carried out incorrectly could result in fatal injuries to the user.	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING :
To reduce the risk of electric shock does not remove cover (or back). No user serviceable parts inside. Refer servicing 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 or strike the Active Matrix LCD with anything hard as this 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 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. To avoid defeating the safeguards that have been built into your new product, 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. Heed Warnings
All warnings on the product and in the operating instructions should be adhered to.

5. Cleaning
Disconnect the unit from the electricity supply before cleaning. Do not use abrasive cleaners. Use a damp cloth for cleaning.

WARNING (cont)

6. Water and Moisture
Do not use this apparatus near water.

7. Transporting Product
A product and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the product and cart combination to overturn.

8. Attachments
Do not use attachments not recommended by Wrecbue.,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 to your home, consult your supplying dealer.

11. Power Lead Polarization
This product is equipped with a three-wire grounding-type cord. This is a safety feature. Do not defeat the safety purpose of the grounding-type cord.

12. Power Cord Protection
Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles and the point where they exit from the product.

13. Outdoor Antenna Grounding
If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. A "face plate" also needs to be installed with an isolating capacitor to prevent any damage from static.

14. 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 and disconnect the antenna or cable system. This will prevent possible damage to the product due to lightning and power-line surges.

15. Power Lines
An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to avoid contact with such power lines or circuits, as contact with them might be fatal.

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

WARNING (cont)

17. Servicing
Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltages or other hazards. Refer all servicing to qualified service personnel. If the Set does not operate properly, switch it off and call your dealer.

18. Damage Requiring Service
Isolate this product from the mains supply and refer servicing to qualified service personnel under the following conditions:
a. If the power-supply cord or plug is damaged.
b. If the glass front has been damaged.
c. If there is ingress of water between the glass and the LCD screen.
d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an 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.
e. If the product has been dropped or the cabinet has been damaged.
f. If the product exhibits a distinct change in performance.

19. 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 front seal is intact.

20. Mounting
The product should be mounted on a wall only as recommended in the instructions.
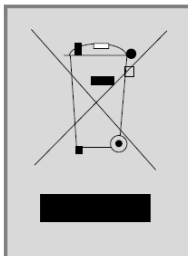
21. Power
This set operates on an AC supply; the voltage is as indicated on the label on the Manual. This appliance must be earthed at all times through the chassis as well as through the power lead.

22. Location
Do not install on an unstable location with support area smaller than the DID SET.
Please secure enough space for safety use.

WARNING (cont)

Note

This product is designed and manufactured with high quality materials and components which can be recycled and reused. This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste.
Please, dispose of this equipment at your local community waste collection/recycling centre.
In the European Union there are separate collection systems for used electrical and electronic product.
Please, help us to conserve the environment we live in!

Contents

● **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

● 7 Key Descriptions

Key Name	Operation
Power 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 Key	► Activates OSD menu of input source selecting. ► Changes input source by selecting. ► Executes functions (by OSD help commands) in main OSD menu.
Up Key	► Increases program number & tune channel. ► Navigates input source. ► Executes function (by OSD help commands) in main OSD menu. ► Navigates previous menu in main OSD menu.
Down Key	► Decreases program number & tune channel. ► Navigates input source. ► Executes function (by OSD help commands) in main OSD menu. ► Navigates next menu in main OSD menu.
Left Key	► Decreases sound volume of speaker/headphone. ► Executes function (by OSD help commands) in main OSD menu. ► Decreases values of user menu in main OSD menu.
Right Key	► Increases sound volume of speaker/headphone. ► Executes function by OSD help commands in main OSD menu. ► Increases values of user menu in main OSD menu.

● IR-Remote controller Descriptions

Key Name	Description
Power	► Power On/Off
Menu	► Same as "Menu key" on keypad.
Up	► Same as "Up key" on keypad
Down	► Same as "Down key" on keypad
Right	► Same as "Right key" on keypad
Left	► Same as "Left key" on keypad
Enter	► Same as "Select key" on keypad
EXIT	► Exit OSD menu
Info	► Displays input source information
Sleep	► Set minimum sleep timer value more than current sleep timer value when sleep timer OSD activated ► If sleet timer is maximum value, disables sleep timer
Mute	► Toggles sound status of speaker/headphone in mute.
Source	► Activates OSD of source change. ► Deactivates OSD of source change.
ARC	► Activates OSD of aspect ratio control. ► Deactivates OSD of aspect ratio control.
STILL	► Toggles picture status between motion and still image.
0~9	► Enter digit value to Active SET ID
BLUE	► Set Active SET ID
RED	► Delete Active SET ID

UHD Commercial Display

● Input Source Diagram

1) BASIC MODEL

| HDMI OUT | HDMI IN | DP IN | RS-232C IN | RS-232C OUT | USB D/L |

2) HD-SDI MODEL
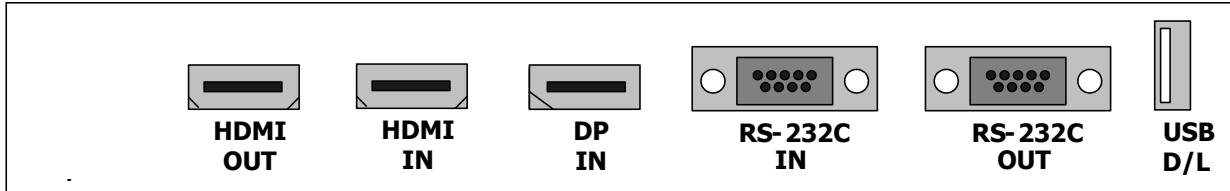
| HD-SDI IN / OUT | HDMI OUT | HDMI IN | DP IN | RS-232C IN | RS-232C OUT | USB D/L |
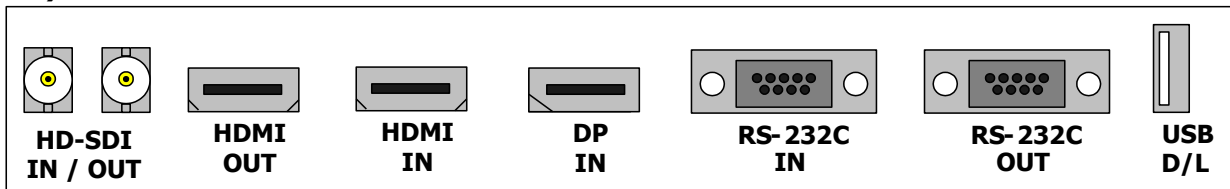
3) BASIC + ETHERNET (RS232C) MODEL

| HDMI OUT | HDMI IN | DP IN | RS-232C IN | RS-232C OUT | USB D/L | ETHERNET RS-232C |
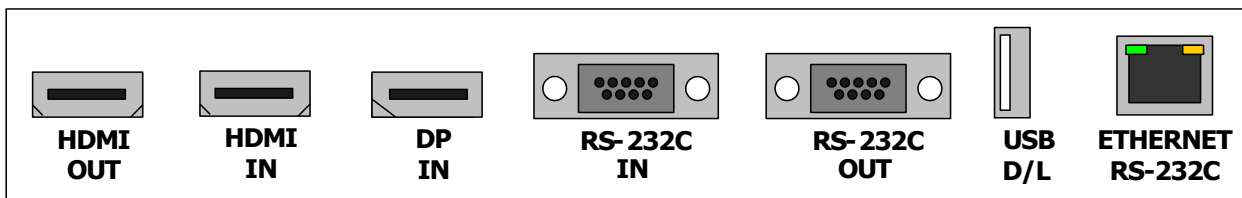
3) HD-SDI + ETHERNET (RS232C) MODEL

| HD-SDI IN / OUT | HDMI OUT | HDMI IN | DP IN | RS-232C IN | RS-232C OUT | USB D/L | ETHERNET RS-232C |
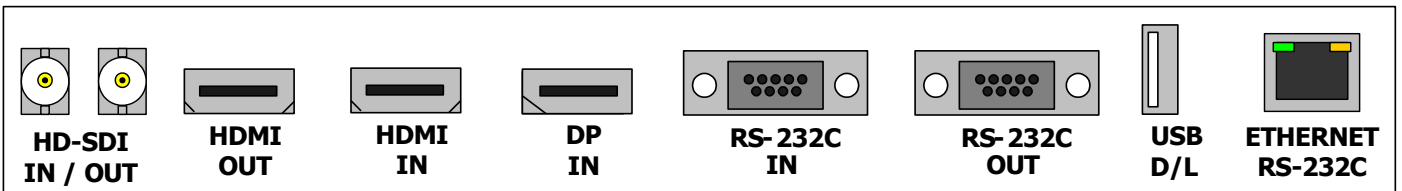
• Interface Description

Interface	Description
HDMI OUT	• High Definition Multimedia Output – only output for the HDMI input.
HDMI IN	• High Definition Multimedia Input 2– up to 3840x2160@60Hz (HDMI2.0)
DP	• DISPLAYPORT Input – up to 3840x2160@60Hz (v1.2a)
RS-232 IN	• Facility to control the screen via RS232 protocol Input
RS-232 OUT	• Facility to control the screen via RS232 protocol Output – Please control by using the SET ID.
USB	• Download - software update
HD-SDI IN	• Serial digital Interface Input (Optional)
HD-SDI Out	• Serial digital Interface Output(Optional)
ETHERNET (RS-232C)	• RS-232C Communication Port via the Ethernet (Optional)

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 back to monitor viewing.

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.

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	50
Video Wall	Sharpness	50
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	Ambient	0

HDMI 1		Resolution : 3840x2160@60Hz
Picture	**Contrast**	50
Color	Brightness	50
Video Wall	Sharpness	50
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	Ambient	0

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Color Temperature	9300K
Color	Red Gain	169
Video Wall	Green Gain	164
PC-RGB	Blue Gain	153
Audio	Gamma	2.2
Heat Control	Input Color Format	Auto Select
Network	Color Range	Auto Select
Timer		
Other Setting		

2. SELECT VIDEO INPUT

1) How to Select Video Source by OSD

- Default source : Display Port, HDMI (HD-SDI : Optional)

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

Input Source	Input Source
● **Display Port**	● **Display Port**
HDMI	**HDMI**
	HD-SDI
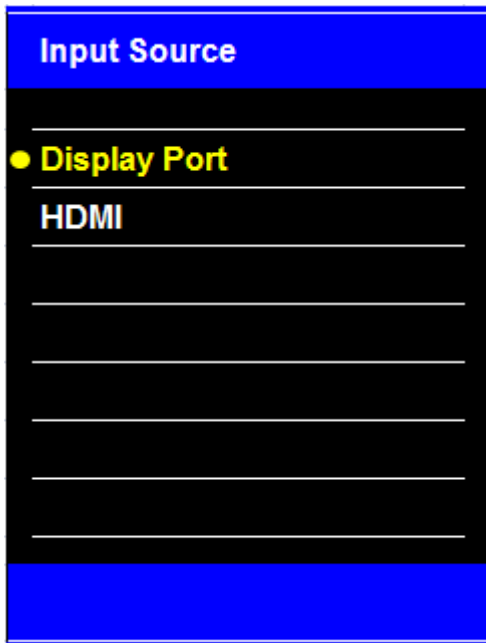
[BASIC MODEL]　　　　　　　　　　　　　[HD-SDI MODEL]

3. PICTURE Settings
1) Contrast / Brightness /Sharpness / Hue_Saturation

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	50
Video Wall	Sharpness	50
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	Ambient	0

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	50
Video Wall	Sharpness	50
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	Ambient	0

Constrast

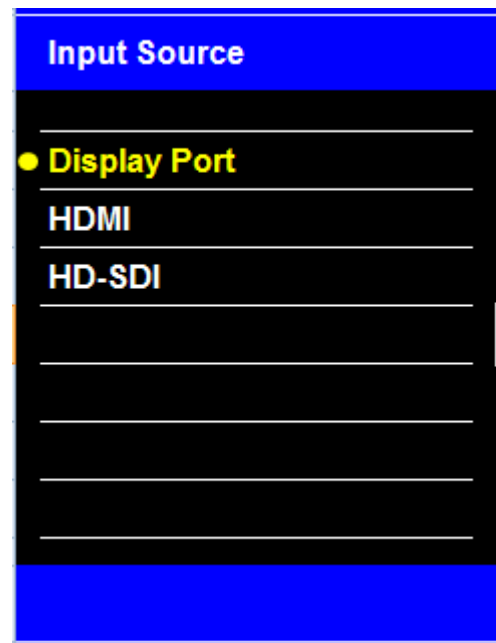| HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	50
Video Wall	Sharpness	50
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	Ambient	0

Brightness

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	50
Video Wall	Sharpness	20
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	Ambient	0

Sharpness

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	Saturation
Video Wall	Sharpness	
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	
Heat Control	Auto Dimming Mode	
Network	Dimming	
Timer	Max Ambient	
Other Setting	Min Ambient	
	Ambient	

Hue

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	Hue
Color	Brightness	50
Video Wall	Sharpness	
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	
Heat Control	Auto Dimming Mode	
Network	Dimming	
Timer	Max Ambient	
Other Setting	Min Ambient	
	Ambient	

Saturation

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

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

   – Hue /Saturation : Only becomes effective in YCbCr input.

2) Aspect Ratio

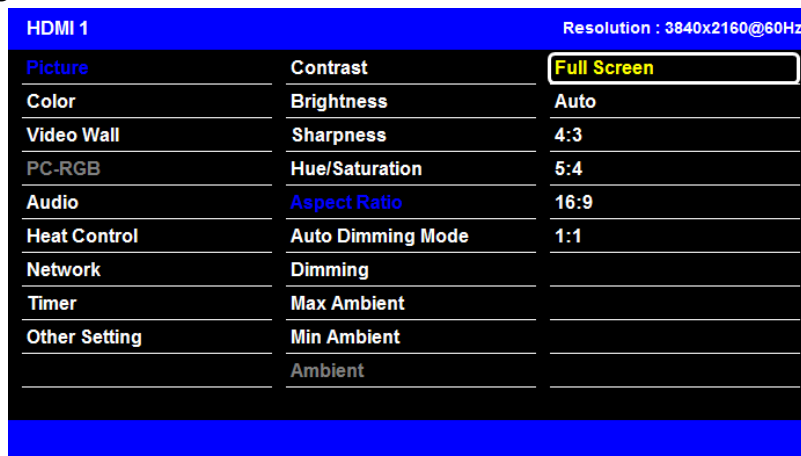| HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	Full Screen
Color	Brightness	Auto
Video Wall	Sharpness	4:3
PC-RGB	Hue/Saturation	5:4
Audio	Aspect Ratio	16:9
Heat Control	Auto Dimming Mode	1:1
Network	Dimming	
Timer	Max Ambient	
Other Setting	Min Ambient	
	Ambient	

- Selects the screen size.

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

3) Auto Dimming

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	Off
Color	Brightness	On
Video Wall	Sharpness	ECO
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	
Heat Control	Auto Dimming Mode	
Network	Dimming	
Timer	Max Ambient	
Other Setting	Min Ambient	
	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 Dimming 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 In order to come out at a time, press the **EXIT** button.

4) Dimming

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	50
Video Wall	Sharpness	20
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100 ████████
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	Ambient	0

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

  (The ability to adjust the Backlight of Panel)

1. Press the MENU button to select the **PICTURE** mode.

2. Press the OK button (or ▶ button) and then ▼ button to select **Dimming** 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 In order to come out at a time, press the **EXIT** button.

5) Max Ambient / Min Ambient

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	50
Video Wall	Sharpness	20
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	Ambient	0

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Contrast	50
Color	Brightness	50
Video Wall	Sharpness	20
PC-RGB	Hue/Saturation	
Audio	Aspect Ratio	Full Screen
Heat Control	Auto Dimming Mode	Off
Network	Dimming	100
Timer	Max Ambient	300
Other Setting	Min Ambient	100
	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.
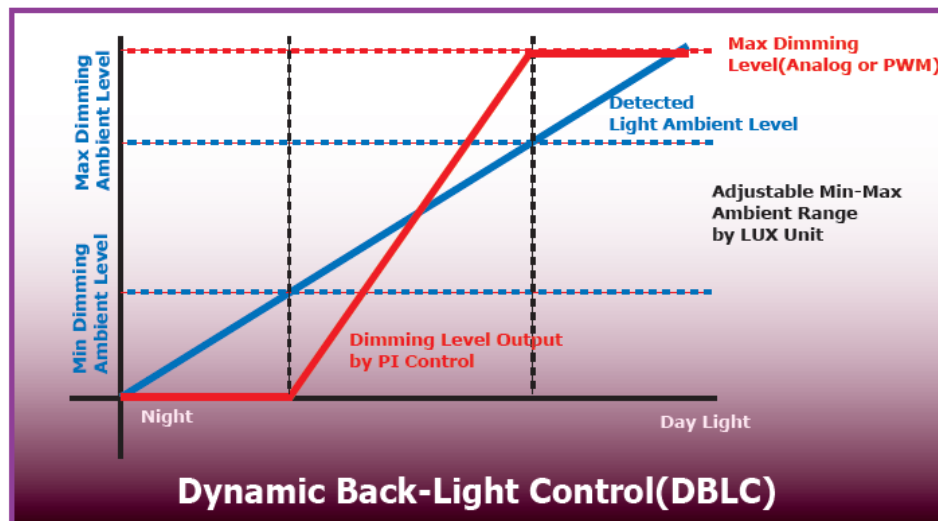
      Min Ambient   : The minimum dimming is changed to 10 units.

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.)

Dynamic Back-Light Control(DBLC)

4. Color Settings
1) Color Temperature

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Color Temperature	9300K
Color	Red Gain	169
Video Wall	Green Gain	164
PC-RGB	Blue Gain	153
Audio	Gamma	2.2
Heat Control	Input Color Format	Auto Select
Network	Color Range	Auto Select
Timer		
Other Setting		

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Color Temperature	5700K
Color	Red Gain	6500K
Video Wall	Green Gain	9300K
PC-RGB	Blue Gain	User
Audio	Gamma	
Heat Control	Input Color Format	
Network	Color Range	
Timer		
Other Setting		

- – Choose one of four automatic color adjustments. Set to warm to enhance hotter colors such as red, or set to cool to see less intense colors with more blue.
1. Press the MENU button and then ▼ button to select the **Color**.
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 In order to come out at a time, press the **EXIT** button.
   - – If you change the GAIN value, automatically switches to the User mode.

2) Red/Green/Blue Gain

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Color Temperature	User
Color	Red Gain	255
Video Wall	Green Gain	255
PC-RGB	Blue Gain	255
Audio	Gamma	2.2
Heat Control	Input Color Format	Auto Select
Network	Color Range	Auto Select
Timer		
Other Setting		
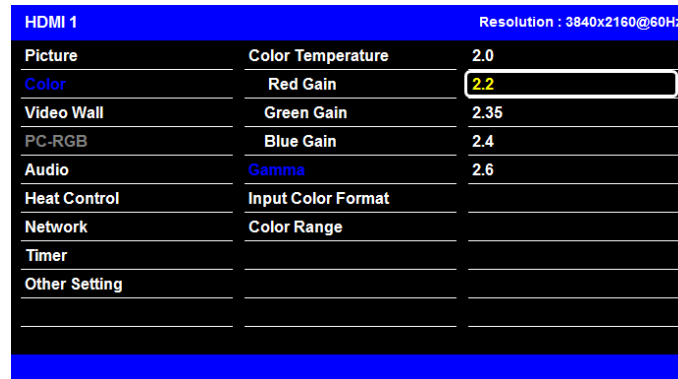
HDMI 1		Resolution : 3840x2160@60Hz
Picture	Color Temperature	User
Color	Red Gain	255
Video Wall	Green Gain	255
PC-RGB	Blue Gain	255
Audio	Gamma	2.2
Heat Control	Input Color Format	Auto Select
Network	Color Range	Auto Select
Timer		
Other Setting		

- – Adjust the color on the screen.

1. Press the MENU button and then ▼ button to select the **Color**.
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 will automatically change to User.
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.

5) Color Range

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Color Temperature	Auto Select
Color	Red Gain	0-255
Video Wall	Green Gain	16-235
PC-RGB	Blue Gain	
Audio	Gamma	
Heat Control	Input Color Format	
Network	Color Range	
Timer		
Other Setting		

- Check the color space of the input signal, to adjust the screen. [0~255, 16~235]
- This function is internally automatically converted, please do not be adjusted without special reason.
-

1. Press the MENU button and then ▼ button to select the **Color.**

2. Press the OK button (or ▶ button) and then ▼ button to select **Color Range** menu.

3. Press the OK button or ▶ button to select **Adjustment** menu.

4. Press the ▲ / ▼ button to select desired option.

   [Auto Select, 0-255, 16-235]

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

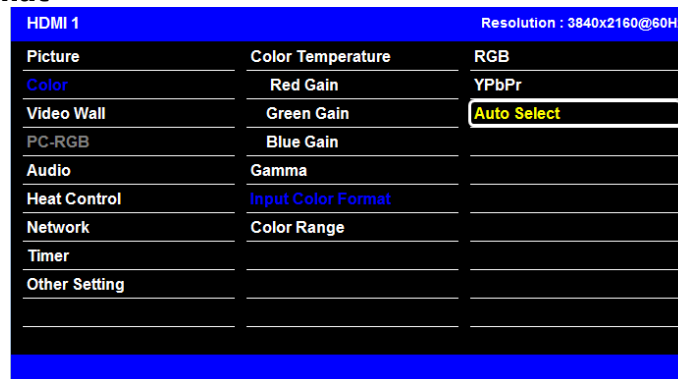   Or In order to come out at a time, press the **EXIT** button.

5. Video Wall Settings

- This menu item is for MULTI VISION model.

HDMI 1		Resolution : 3840x2160@60Hz
Picture	X MAX	1
Color	Y MAX	1
Video Wall	X Position	1
PC-RGB	Y Position	1
Audio	X Gap	0
Heat Control	Y Gap	0
Network	Set ID	11
Timer		
Other Setting		

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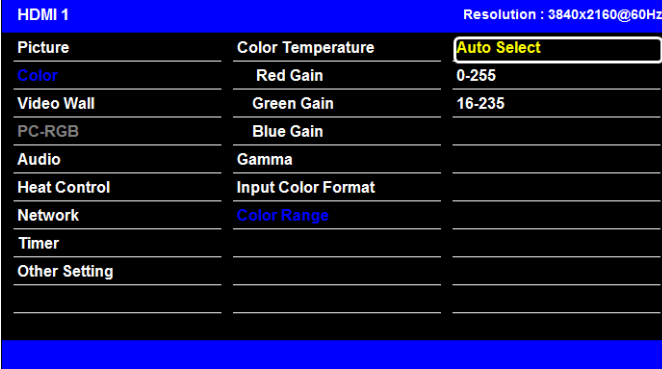   Or In order to come out at a time, press the **EXIT** button.

● **Video Wall Layout Settings**
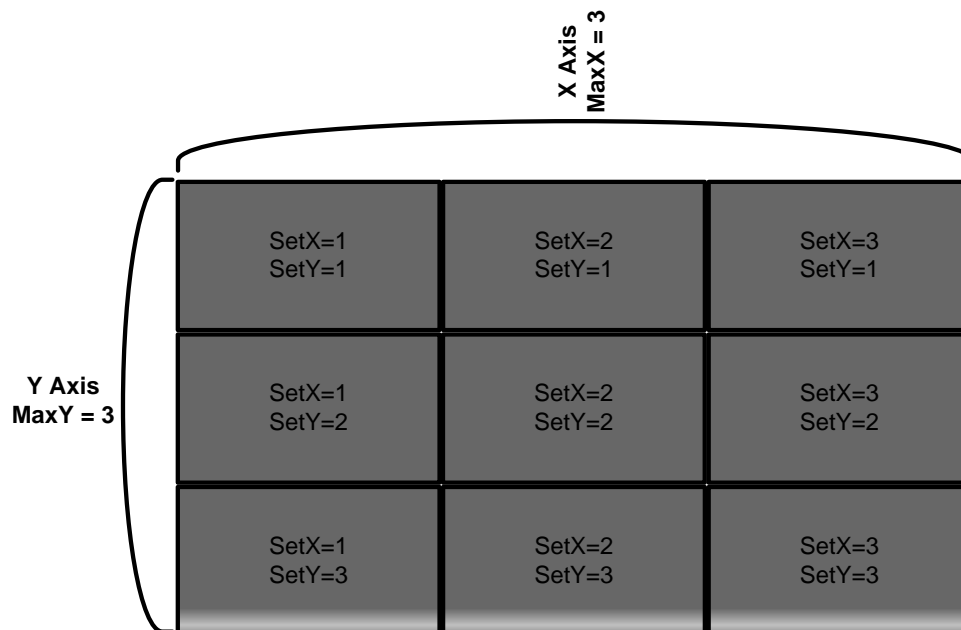
X Max : Maximum number of column tiles to divide video image. (Support up to 11step)
Y Max : Maximum number of row tiles to divide video image. (Support up to 11step)
X position : Coordinate of video image's column position.
Y position : Coordinate of video image's row position.

● **Setting the Bezel Corrections for Natural Tiled Image**

Panel Y

Bezel X

Panel X

Bezel Y

**Bezel Correction
for Natural Video Wall Settings**

X Gap (‰) = 1000 x Bezel X / Panel X
Y Gap (‰) = 1000 x Bezel Y / Panel Y

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 ID

Current : 11   Active : 15

- Set Active SET ID number Before Control each Board by Remote control or RS-232 (TCP/IP)
- If control only 15th Board, Active SET ID must set 15.

1. Press the **BLUE** button and then use 0~9 button to select the **Active SET ID**.
2. If Press the **RED** button, delete ID number.

6. Audio

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Mute	Off
Color	Volume	30
Video Wall		
PC-RGB		
Audio		
Heat Control		
Network		
Timer		
Other Setting		
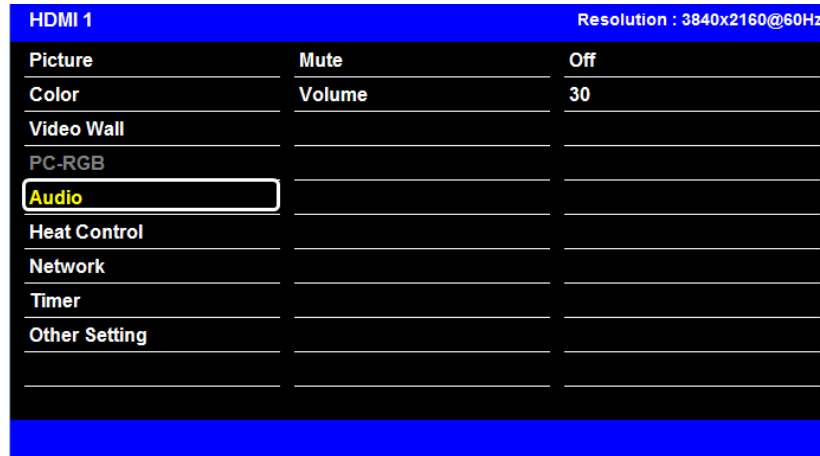
1. Press the MENU button and then ▼ button to select the **Audio Settings.**

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

7. Heat Control Settings
1) Fan Control

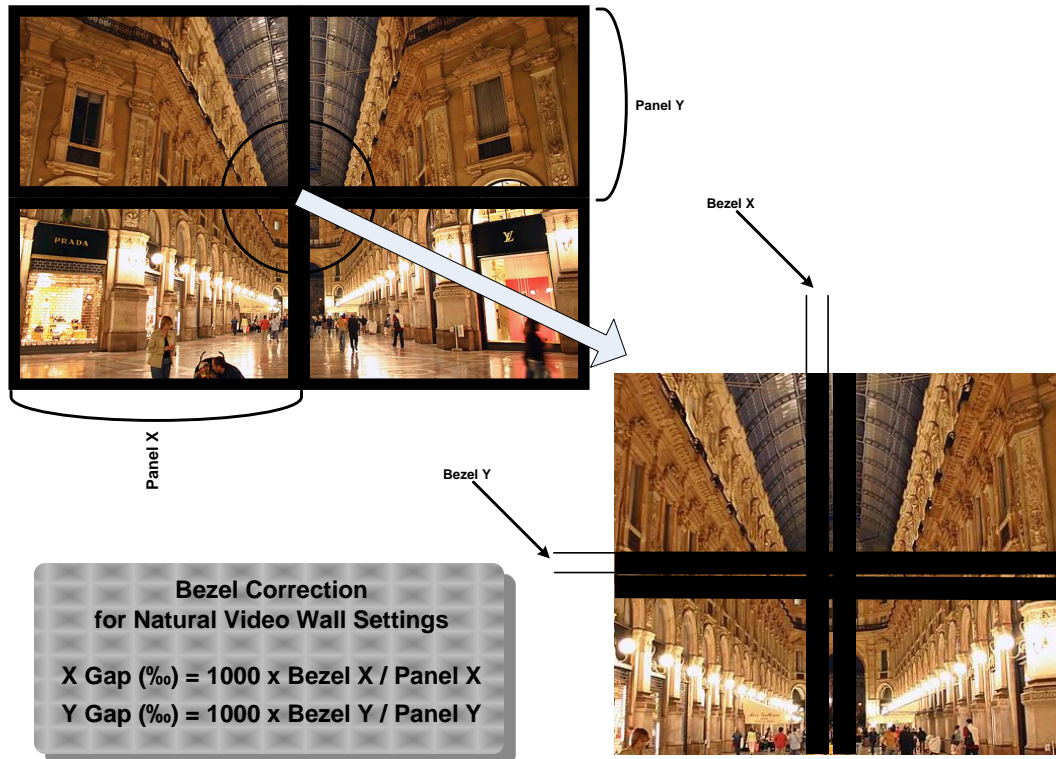| HDMI 1		Resolution : 3840x2160@60Hz
Picture	Fan Control	Off
Color	Fan Active Temperature	On
Video Wall	Hysteresis	Auto
PC-RGB	Shutdown	
Audio	Temperature	
Heat Control		
Network		
Timer		
Other Setting		

1. Press the MENU button and then ▼ button to select the **Heat Control Settings.**

2. Press the OK button (or ▶ button) to select **Fan Contol** 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 In order to come out at a time, press the **EXIT** button.

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

Automatic Temperature Control(ATC)
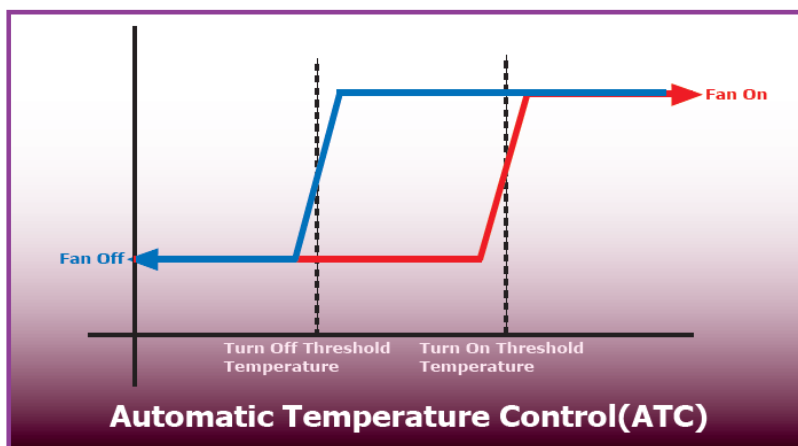
2) Heat Control

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Fan Control	Auto
Color	Fan Active Temperature	50.0°C
Video Wall	Hysteresis	2.0°C
PC-RGB	Shutdown	85.0°C
Audio	Temperature	37.0°C
Heat Control		
Network		
Timer		
Other Setting		

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

Fan Active Temperature : Adjusts fan driving temperature by Celsius degree. It works only when the
Fan Control setting is **Auto**.
Hysteresis : Variable range of Fans on/off interval.
Shutdown : Adjust shutdown mode temperature 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.

8. Network

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Network	Enable
Color	Load Network Setting	
Video Wall	DHCP	On
PC-RGB	IP Address	174.168.10.7
Audio	Gateway	174.168.10.1
Heat Control	Subnet	255.255.255.0
Network	Save Current Setting	
Timer		
Other Setting		

When apply the LAN sub board, it is possible to serial communication by Ethernet.

- LAN to Serial sub board   -

1) Network
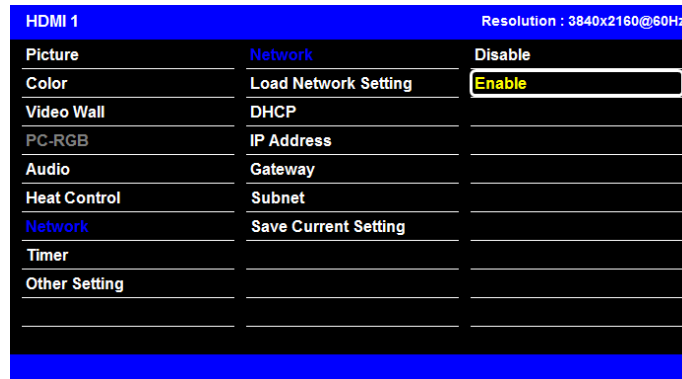
HDMI 1		Resolution : 3840x2160@60Hz
Picture	Network	Disable
Color	Load Network Setting	Enable
Video Wall	DHCP	
PC-RGB	IP Address	
Audio	Gateway	
Heat Control	Subnet	
Network	Save Current Setting	
Timer		
Other Setting		

1. Press the MENU button and then ▼ button to select the **Network.**
2. Press the OK button (or ▶ button) and then ▼ button to select **Network**.
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 In order to come out at a time, press the **EXIT** button.

Disable : Communication connection via a DSUB-9P of Board without the use of a NETWORK.
Enable : Communication connection using a NETWORK.

2) Load Network Setting

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Network	Enter
Color	Load Network Setting	
Video Wall	DHCP	
PC-RGB	IP Address	
Audio	Gateway	
Heat Control	Subnet	
Network	Save Current Setting	
Timer		
Other Setting		

1. Press the MENU button and then ▼ button to select the **Network.**
2. Press the OK button (or ▶ button) and then ▼ button to select **Load Network Setting**.
3. Press the OK button or ▶ button to select **Adjustment** menu.
4. Press **MENU** button or ◀ button to return to the previous menu.
   Or In order to come out at a time, press the **EXIT** button.

Enter : Get the network information that is stored in the LAN sub board.

3) DHCP

1. Press the MENU button and then ▼ button to select the **Network.**
2. Press the OK button (or ▶ button) and then ▼ button to select **DHCP**.
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 In order to come out at a time, press the **EXIT** button.
On : It is possible to get the IP information of monitor from the Server.
   − To avoid IP address conflicts.
Off : The user can enter the IP address directly.

4) Network Infomation

5) Save Current Setting

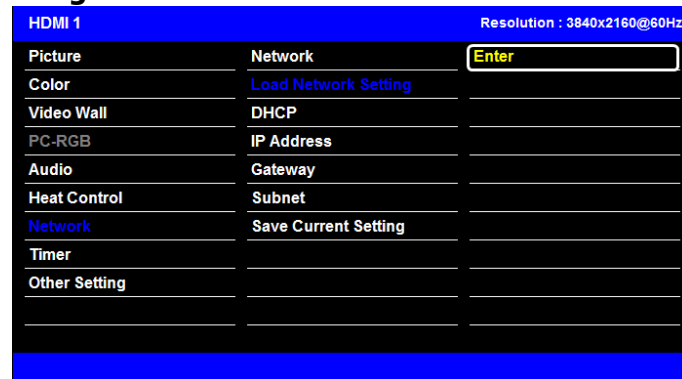| HDMI 1		Resolution : 3840x2160@60Hz
Picture	Network	Enter
Color	Load Network Setting	
Video Wall	DHCP	
PC-RGB	IP Address	
Audio	Gateway	
Heat Control	Subnet	
Network	Save Current Setting	
Timer		
Other Setting		

1. Press the MENU button and then ▼ button to select the **Network.**
2. Press the OK button (or ▶ button) and then ▼ button to select **Save Current Setting**.
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 In order to come out at a time, press the **EXIT** button.

   – To save the current setting to LAN sub board.

UHD Commercial Display

9. Timer Settings

1) Current Time

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Current Time	01:40
Color	On Time	00:00 Off
Video Wall	Off Time	00:00 Off
PC-RGB		
Audio		
Heat Control		
Network		
Timer		
Other Setting		

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Current Time	Hour 1
Color	On Time	Min 40
Video Wall	Off Time	
PC-RGB		
Audio		
Heat Control		
Network		
Timer		
Other Setting		

- − If current time setting is wrong, 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 In order to come out at a time, press the **EXIT** button.

2) Timer Settings

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Current Time	Enable Off
Color	On Time	Hour 0
Video Wall	Off Time	Min 0
PC-RGB		
Audio		
Heat Control		
Network		
Timer		
Other Setting		

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 In order to come out at a time, 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 - TBD

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Language	English
Color	Menu Transparency	20
Video Wall	OSD Time	15 sec
PC-RGB	Power Save Mode	Off
Audio	Local Dimming	On
Heat Control	MFC	Off
Network	Reset	
Timer	Software Update(USB)	
Other Setting	Version	v0.02 / Jan 14 2016

- Language might be changed according to the specification of the buyer.

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

2) Menu Transparency

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Language	English
Color	Menu Transparency	20
Video Wall	OSD Time	15 sec
PC-RGB	Power Save Mode	Off
Audio	Local Dimming	On
Heat Control	MFC	Off
Network	Reset	
Timer	Software Update(USB)	
Other Setting	Version	v0.02 / Jan 14 2016

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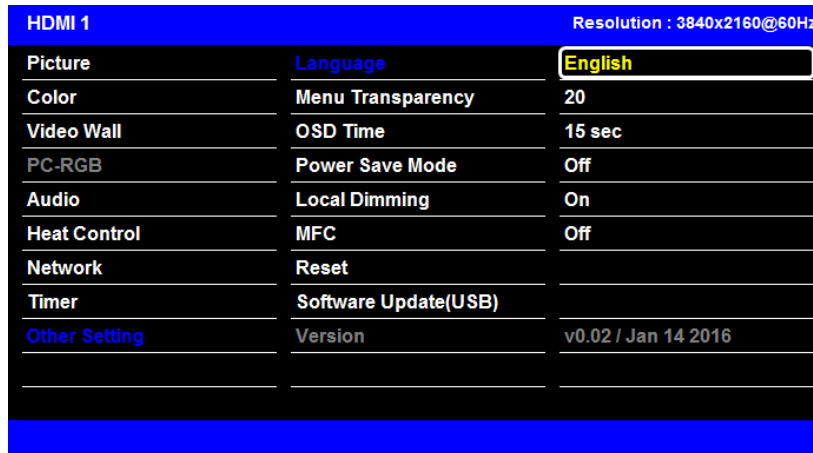   Or In order to come out at a time, press the **EXIT** button.

3) OSD Timeout

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Language	Off
Color	Menu Transparency	5 sec
Video Wall	OSD Time	10 sec
PC-RGB	Power Save Mode	15 sec
Audio	Local Dimming	20sec
Heat Control	MFC	60 sec
Network	Reset	
Timer	Software Update(USB)	
Other Setting	Version	v0.02 / Jan 14 2016

– Set the screen duration time of OSD

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

4) Power Save Mode

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Language	On
Color	Menu Transparency	Off
Video Wall	OSD Time	
PC-RGB	Power Save Mode	
Audio	Local Dimming	
Heat Control	MFC	
Network	Reset	
Timer	Software Update(USB)	
Other Setting	Version	v0.02 / Jan 14 2016

– Shut off the panel power after the input source has been unused for some time, to save power.

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

5) Local Dimming

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Language	On
Color	Menu Transparency	Off
Video Wall	OSD Time	
PC-RGB	Power Save Mode	
Audio	Local Dimming	
Heat Control	MFC	
Network	Reset	
Timer	Software Update(USB)	
Other Setting	Version	v0.02 / Jan 14 2016
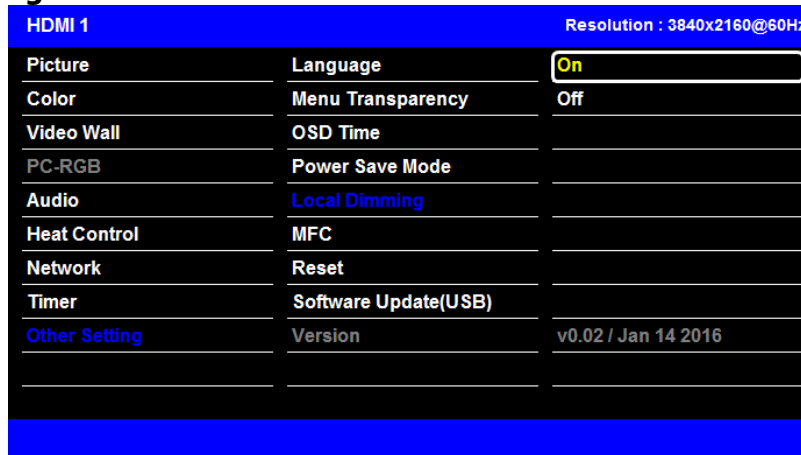
- Set the Local dimming for the particular panel. (LG DISPLAY MODEL – LINKER V03)

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

6) Reset

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Language	Enter
Color	Menu Transparency	
Video Wall	OSD Time	
PC-RGB	Power Save Mode	
Audio	Local Dimming	
Heat Control	MFC	
Network	Reset	
Timer	Software Update(USB)	
Other Setting	Version	v0.02 / Jan 14 2016
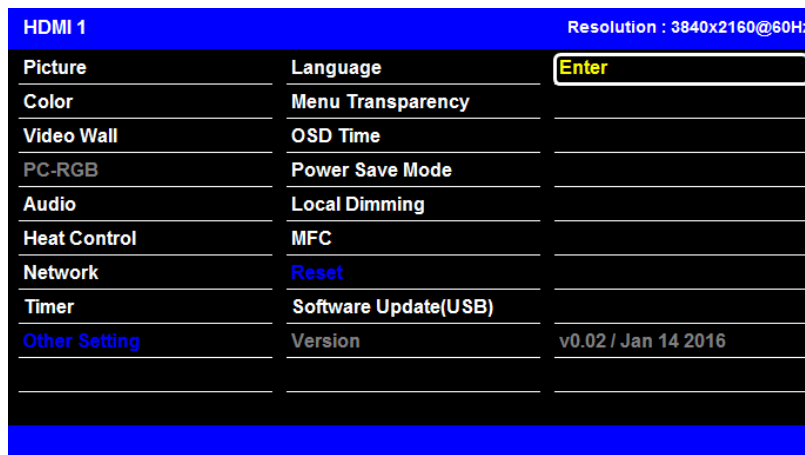
- Initialize that have changed settings on OSD

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.

7) Software Update

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Language	Enter
Color	Menu Transparency	
Video Wall	OSD Time	
PC-RGB	Power Save Mode	
Audio	Local Dimming	
Heat Control	MFC	
Network	Reset	
Timer	Software Update(USB)	
Other Setting	Version	v0.02 / Jan 14 2016
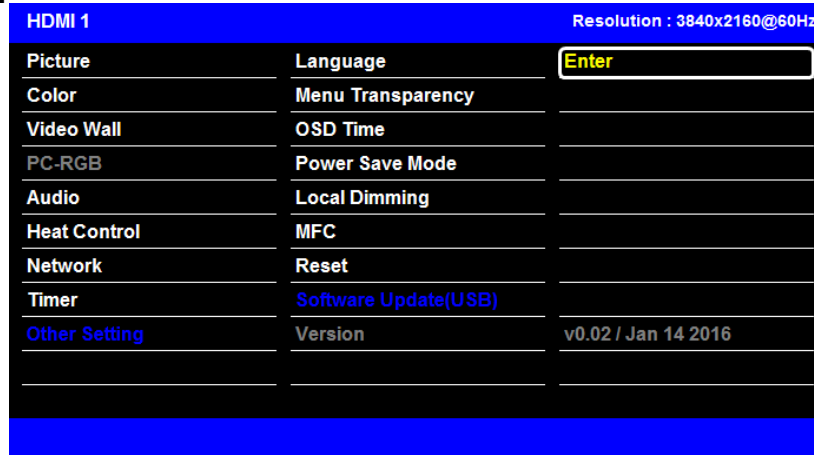
  − Software update function using the USB MEMORY.

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 do not plugged in the socket.
  (Not be recognized.)

Please check the USB stick.

File for download is not in the USB stick.
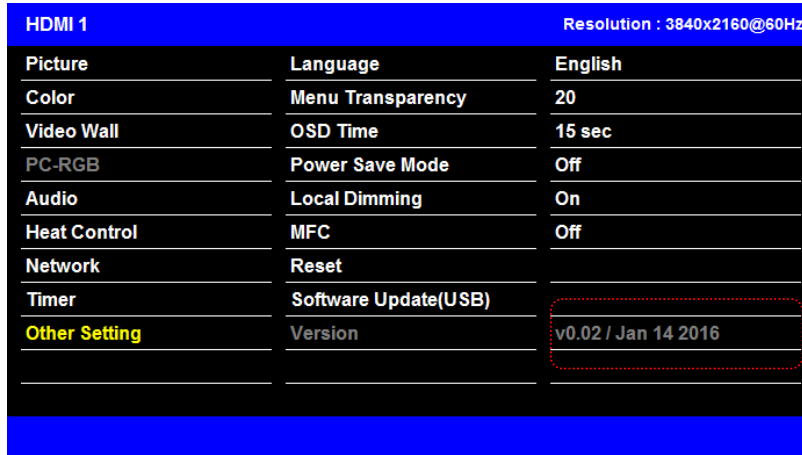
Please check download file.
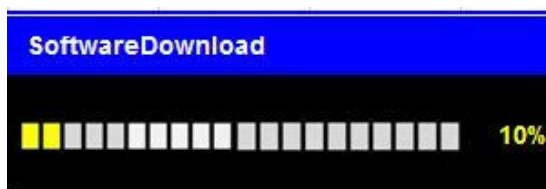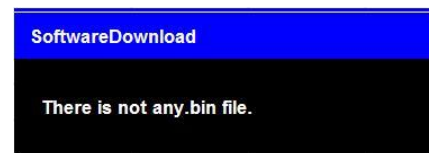
5. When the update is successfully completed, the set is automatic reset.

8) Version

HDMI 1		Resolution : 3840x2160@60Hz
Picture	Language	English
Color	Menu Transparency	20
Video Wall	OSD Time	15 sec
PC-RGB	Power Save Mode	Off
Audio	Local Dimming	On
Heat Control	MFC	Off
Network	Reset	
Timer	Software Update(USB)	
Other Setting	Version	v0.02 / Jan 14 2016

- Check the information of the current software.

1. Press the MENU button and then ▼ button to select the **Other Settings.**

(Version / Generated 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 AD BOARD (simple null modem cable)

CONNCTOR1	CONNCTOR2	FUNCTION		
2	3	RX		TX
3	2	TX		RX
5	5	SIGNAL GROUND		
9	9	IR BYPASS SIGNAL		

CONNECTOR1   CONNECTOR2
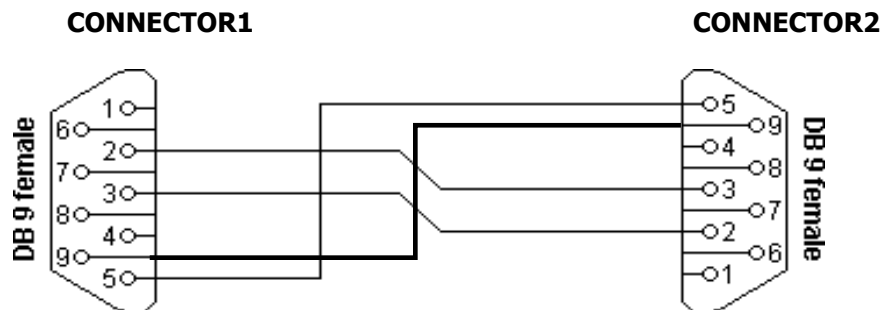
3) Protocols

Virtual Remote Control

CMD   **Packet (4Bytes)**

PC | 0xF4 | | 0x88 | ID(0~0xFE | 0xFD | Key Code. |

Command Format
0xFX : F = Command Start Sending , X = No of Byte to Send
Current Example (0xF4) : Start Sending 4 Bytes of Packet Data
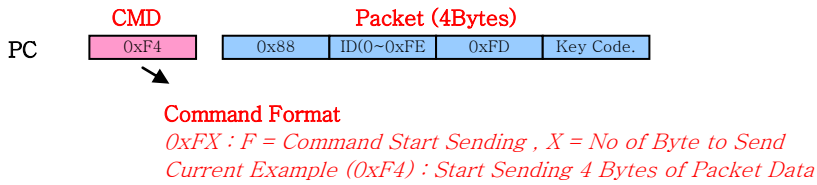
Setting Parameters to AD BOARD

CMD   **Packet (5Bytes)**

PC | 0xF5 | | 0x88 | ID(0~0xFE | FE | PARAM. | VALUE |

Command Format
0xFX : F = Command Send Start , X = No of Byte to Send
Current Example (0xF5) : Start Send 5 Byte of Packet Data
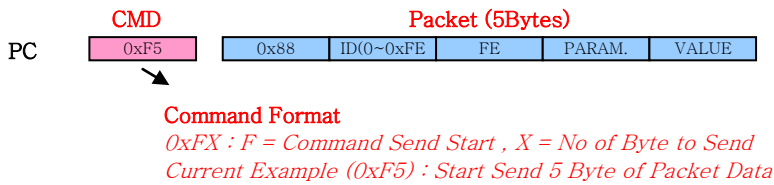
Data setting only (Not adjust function for speed)

CMD   **Packet (5Bytes)**

PC | 0xF5 | | 0x88 | ID(0~0xFE | FE | PARAM. | VALUE |

Command Format
0xFX : F = Command Send Start , X = No of Byte to Send
Current Example (0xF5) : Start Send 5 Byte of Packet Data

AD BOARD
(Response)

             CMD   **Check Sum.**

ACK | 0xF1 | PARAM xor VALUE |

NACK | 0xF1 | PARAM xor VALUE xor |
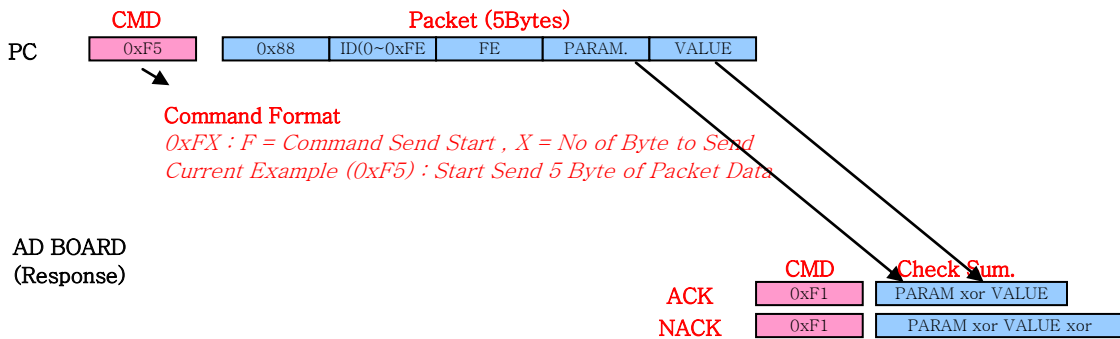
Read Parameters from AD BOARD

CMD   **Packet(4Bytes)**

PC | 0xF4 | | 0x89 | ID(0~0xFE | 0XFC | PARAM |

AD BOARD
(Response)

          CMD   **Packet(1Byte)**

| 0xF1 | VALUE |

Command Format
0xFX : F = Command Start Sending , X = No of Byte to Send
Example
0xF4 : Start Sending 4 Bytes of Packet Data
0xF1 : Start Sending 1 Byte of Packet Data
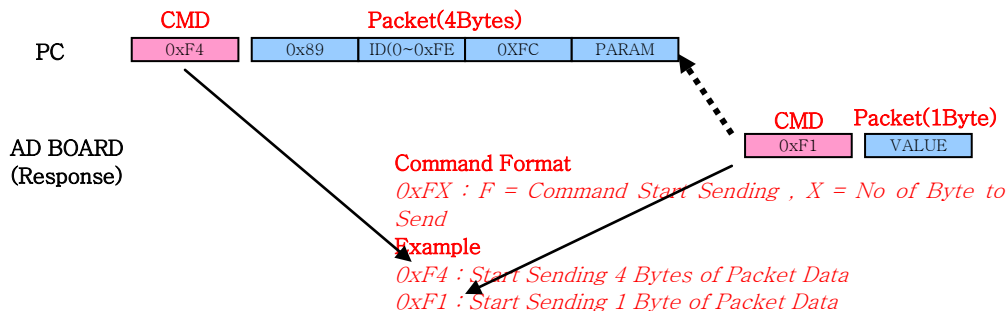
4) Control Command Packet
System Parameter Direct Settings/Read Packet

CMD	Data1	Data2	Data3	Data4	Data5	Description	Range (HEX)	
Command	Target	ID	CMD	Param	Value			
0xF5 (Start Set) 0x88(Set) 0xF4 (Start Get) 0x89(Get)	0x88(Set) 0x89(Get)	0xXX (0x00~0xFE)	0xFE /0xFC Set /Get Param.	0x00	0x00~0xFF (By Min-Max) **Not Send in Get Mode**	LANGUAGE	0	English
							1	TBD
							2	TBD
							3	TBD
							4	TBD
							5	TBD
				0x01		SOURCE *Linker spec → DP HDMI 1	0	VGA
							1	DP
							2	HDMI1
							3	HDMI2
							4	HDMI3
							5	DVI
				0x03		COLORTEMP	0	5700K
							1	6500K
							2	9300K
							3	User
				0x04		CONTRAST	0	0
							64	100
				0x05		BRIGHTNESS	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
							FF	255
				0x11		Green Gain	0	0
							FF	255
				0x12		Blue Gain	0	0
							FF	255
				0x17		Mute	0	MUTE ON
							1	MUTE OFF
				0x1B		VOLUME	0	0

								64	100
					0x23		ON HOUR	0	0
								17	23
					0x24		ONMINUTE	0	0
								3B	59
					0x25		ON TIME ONOFF	0	Off
								1	On
					0x27		OFF HOUR	0	0
								17	23
					0x28		OFFMINUTE	0	0
								3B	59
					0x29		OFF TIME ONOFF	0	Off
								1	On
					0x2A		SETID	0	0
								63	99
					0x32		CURRENT HOUR	0	
								23	
					0x33		CURRENT MINUTE	0	
								59	
					0x36		REMOTE LOCK	0	Off
								1	On
					0x37		ILLUMINANCE[7][8]		
					0x38		MAX_ILLUMINANCE[2]	2	200
								FF	25000
					0x39		MIN_ILLUMINANCE[3]	1	10
								FF	2550
					0x3A		AUTO_DIM	0	Off
								1	On
					0x3B		DIM_LEVEL[4]	0	0
								64	100
					0x3C		CURTEMP_MAIN[5][8]		
					0x3E		FAN ACTIVE TEMP[5]	3C	0
								B4	60
					0x40		FAN_CONTROL	0	Off
								1	On
								2	Auto
					0x42		X POSITION	1	1
								0B	11
					0x43		Y POSITION	1	1
								0B	11
					0x44		X MAX	1	1
								0B	11
					0x45		Y MAX	1	1

								0B	11
					0x46	X GAP(9)		0	0
								64	100
					0x47	Y GAP(9)		0	0
								64	100
					0x48	TEMP_SHUTDOWN(5)			TBD
									TBD
					0x6C	Local Dim			TBD
									TBD
					0x69	PC AUTO ADJUST		1	
					0x6A	MFC		0	OFF
								1	LOW
								2	MIDDLE
								3	HIGH
					0x6B	POWER SAVE MODE			TBD
									TBD
					0x68	RESET		1	
					0xFE	POWER		0	Off
								1	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.

(5) TEMPERATURE Settings
Setting Value = Desired temperture(by Celsius) x 2 + 60
Ex) Desired temperature is 60℃, Setting is 180 (= 60 x 2 + 60)

(6) TEMP_HYSTERESIS Settings
Setting Value = Desired Hysteresis(by Celsius) x 2
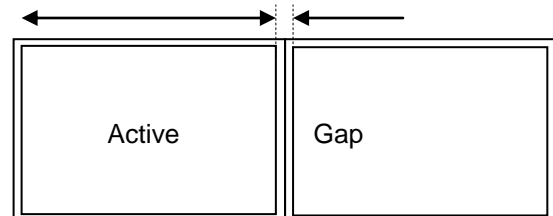Ex) Desired Hysteresis is 2℃, Setting is 4 (= 2 x 2)

(7) ILLUMINACE
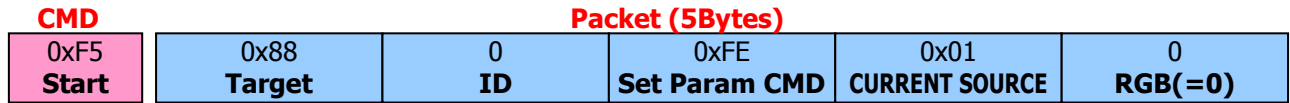Current lux/10. If Cur_lux>2550 then Value=255

(8) Read only Command
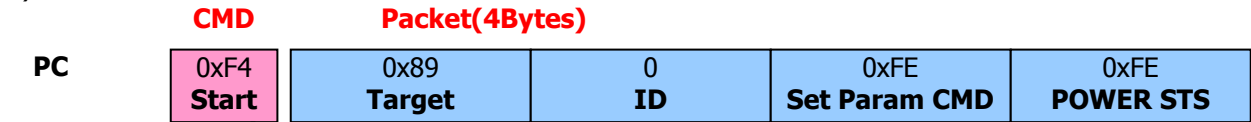
(9) Gap Settings
Setting Value =(int) (1000 $*$ Gap $/$ Active)

Active	Gap

5) Control Command Packet

5-1)Set Input Source to RGB Input

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

5-2)Read Power State

PC

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

**AD
(Response)**

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