USER MANUAL

Video Wall Solution
R4N SERIES

<All contents of this document may change without prior notice, and actual product appearance may differ from that depicted herein>

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1. SAFETY INSTRUCTION

- Follow this safety instruction to use the monitor properly and prevent the damage.

*** This safety instruction has "Warning" & "Caution" as below**

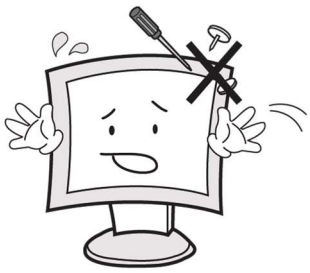
Warning - If the user does not follow this instruction, it may cause the serious damage to the user.

Caution - If the user does not follow this instruction, it may cause the slight damage to the user or cause some damages to the monitor.

- Keep this user's guide book for later use.

Warning

Never remove the back cover and touch the inside of the monitor.
If you need a service, please contact the service center.



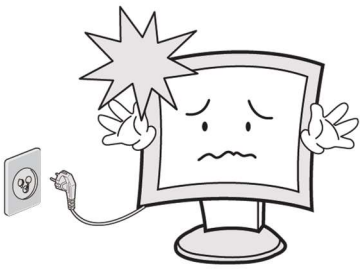
Keep away the monitor from the direct sunlight and a heating appliance.



Never put objects of any kind into this product as they may result in a risk of fire or electric shock.



Connect the power cord to the wall outlet tightly. If the power cord or plug are defective and the wall outlet is not tight, please do not use them.

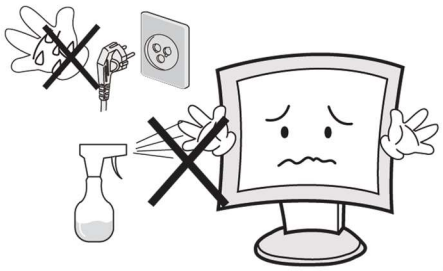


Warning

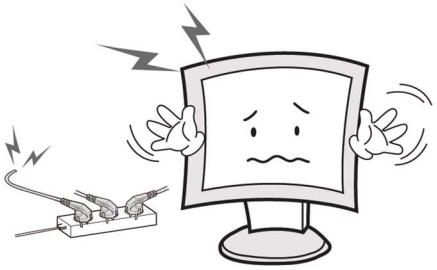
Do not install this monitor on the outside and near water. It may cause damage to the product, electric shock and fire.



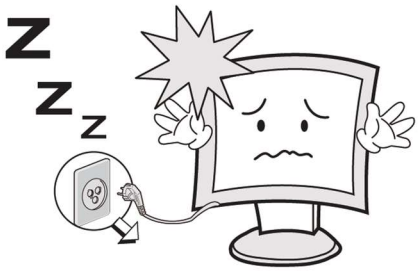
For cleaning do not use liquid cleaners. Never touch the power plug with wet-hands.



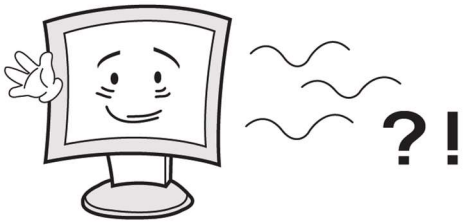
When lightning and thundering, unplug the monitor from the wall outlet and never touch it.



Unplug this product from the wall outlet, when it does not operate for a long time.



When smoking and noising from the monitor, unplug the product from the wall outlet and contact a service center.



WARNING : How to fix

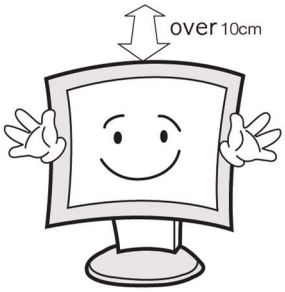
Do not open this product as it contains high voltage inside.

It may create an electric shock.

If the user disassembles and remove the back cover, it does not make sure to make up for the damage and do a service and exchange the monitor.

Cautions

Install this monitor some distance from the wall and do not install unless proper ventilation is provided.



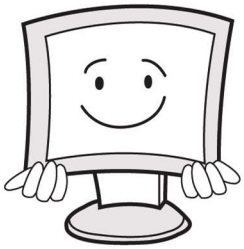
Place this product on a stable place.
If not, it may fall, causing serious damages to the monitor and people.



The openings must not be blocked by curtain, rug or other similar surface.



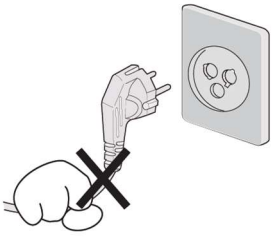
When carrying this monitor, be careful not to damage the panel and drop it
It may cause some trouble.



Before carrying the monitor, turn it off and unplug the signal cables and the power cord from the wall outlet.

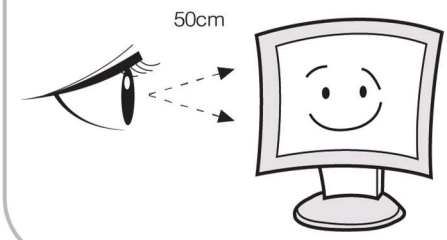


Take the power plug out from the wall outlet.
Do not pull the cable. It may snap the inner-wires and cause overheating and fire.



Cautions

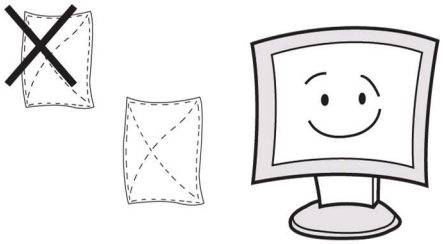
Install this monitor about 50cm far from the eyes and an angle of 0~15 degrees below eyes. Too close installation may cause having weak sight.



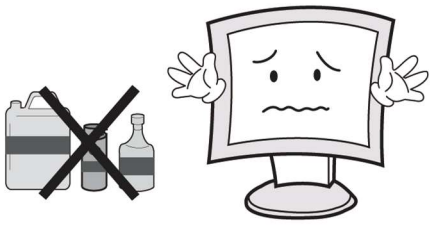
Do not press the LCD panel with hands or the sharpened material hardly.



For cleaning, unplug the monitor from the wall outlet. Do net use the liquid cloth. Use the soft cloth.



Do not use the chemical liquid for cleaning. It may cause fading and breakage.



WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR WATER.

Instructions for Disposal of Electrical and Electronic Equipment in Private Households



Disposal of used Electrical and Electronic Equipment
(Applicable in the European Union and other European countries with garbage separate disposal and collection methods)

This symbol on the product, or in the related documents in the package, indicates that this product shall not be treated as normal household waste. Instead, it should be taken to a proper applicable collection point or depot for the recycling of electrical and electronic equipment.
By ensuring this product is disposed of correctly, you will help prevent possible negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources.
For more detailed information about recycling of this product, please contact your local city authority, your household waste disposal service or the place where you purchased the product.

2. FCC RF INTERFERENCE STATEMENT

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio, TV technician for help.
- Only shielded interface cable should be used.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the users authority to operate such equipment.

DOC COMPLIANCE NOTICE

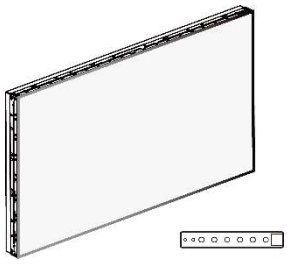
This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the radio interference regulation of Canadian Department of communications.

3. INSTALLATION

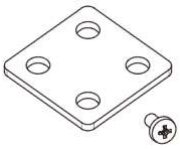
3.1 UNPACKING

Remove the package cover and place the product on a flat and secure surface or in the installation location. This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper immediately. Check whether all the following device and accessories are included with the main system. If any items are missing, notify your Sales or Customer Service Representative.

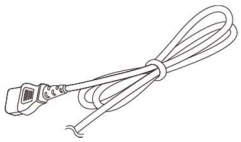
3.2 PARTS



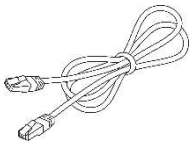
LCD Monitor &
Keypad



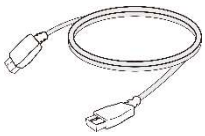
Joint Bracket(2EA) &
BHMS M4x8 BK(8EA)



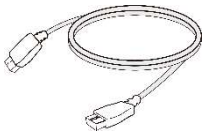
Power Cable



UTP Cable



DP Cable



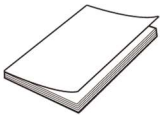
HDMI Cable



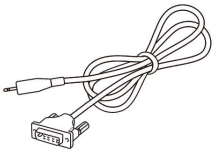
Battery



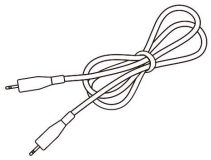
Remote Controller



User Manual



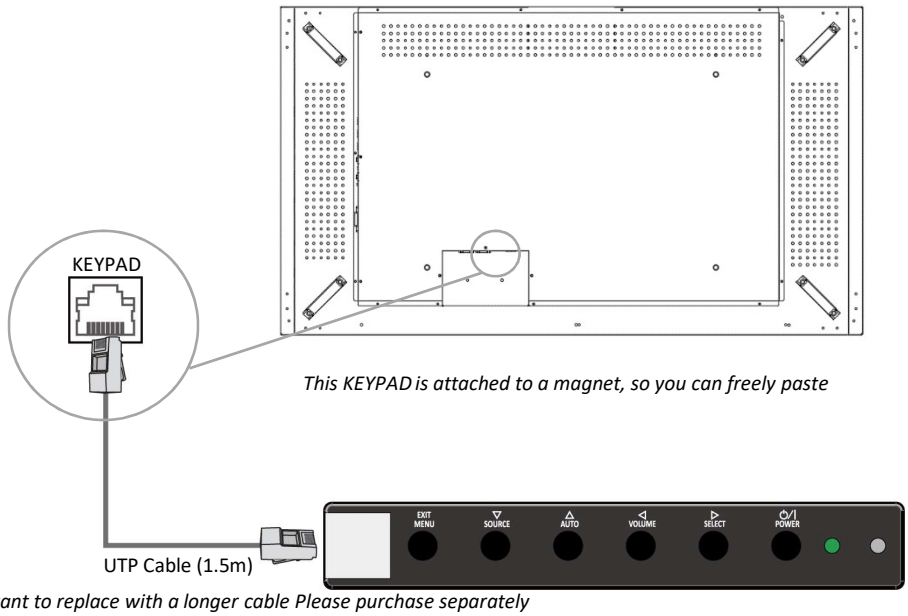
Serial Cable
(M/F, Straight cable)



Serial Cable
(Aux ,Straight cable)

3.3 KEYPAD

1) KEYPAD CONTROLLER



If you want to replace with a longer cable Please purchase separately

**Depending on the product model type, there may be variations in appearance.*

OSD KEY	FUNCTION
EXIT MENU	On/Off the OSD menu or exit the source selection menu
▼ SOURCE	Move the cursor the choose on the OSD menu
	Select the source on the INPUT menu
▲ AUTO	Move up the cursor to choose on the OSD menu
	Activate the auto adjustment of RGB source
	Return to normal mode from power saving mode
◀ VOLUME	Control down the OSD menu or move to the previous menu
	Volume down
▶ SELECT	Select the OSD menu
	Control up on the OSD menu
	Volume up
⏻/I POWER	Turn the power ON or OFF. There will be a few seconds delay before the display appears. The power LED(next the power switch) lights with green when the power is turned ON. The power is turned off by pressing the power switch again and power LED goes red.

3.4 CONNECTION

1) 46”

- SIDE



① ② ③ ④ ⑤ ⑥ ⑦

- BOTTOM



⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

①	RS-232 IN	RS-232 Control signal Input
②	RS-232 OUT	RS-232 Control signal Loop Output
③	KEYPAD	UTP cable Input for Keypad
④	Rotary Switch	SET-ID High-decimal(Left) / Low-decimal(Right)
⑤	DVI	DVI signal input
⑥	VGA	VGA signal input
⑦	AC Power	AC Power Input
⑧	HDMI1	HDMI signal Input
⑨	HDMI2	HDMI signal Input
⑩	HDMI3	HDMI signal Input
⑪	DP IN	DP signal input
⑫	USB	FW Update Input
⑬	DP OUT	DP signal output
⑭	Audio	Audio Line Output

※ In case of using cables of HDMI, DP, LAN and AUDIO Port, the cable length should be less than 3m.

2) 55”

- SIDE



① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

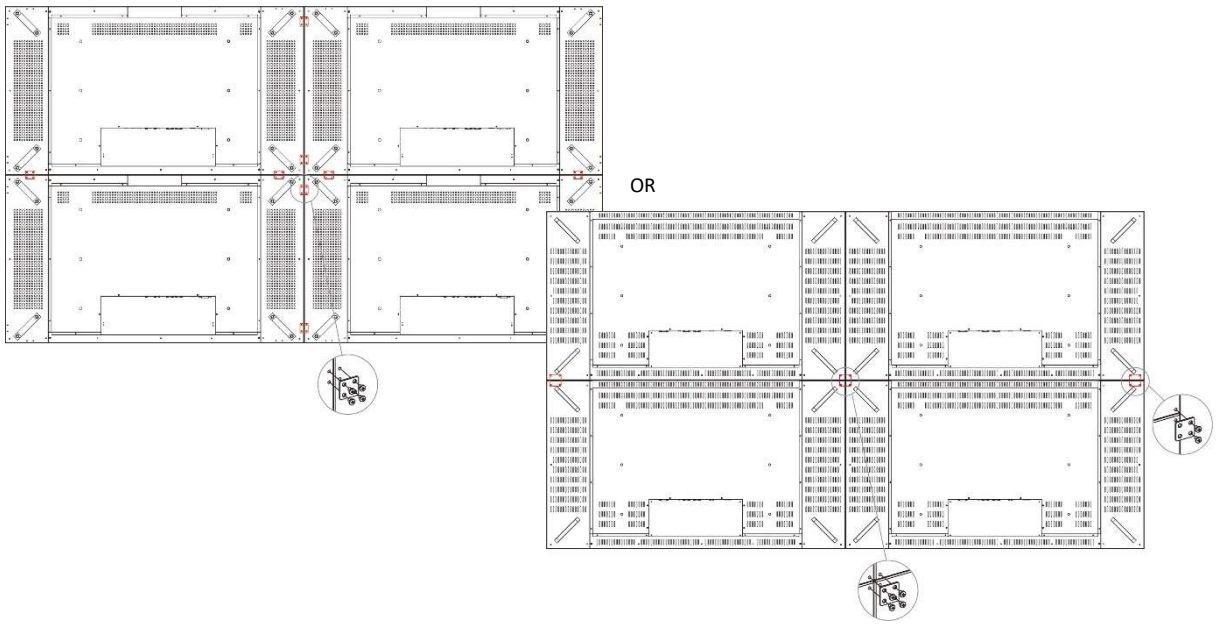
①	DVI	DVI signal input
②	VGA	VGA signal input
③	HDMI1	HDMI signal Input
④	HDMI2	HDMI signal Input
⑤	HDMI3	HDMI signal Input
⑥	DP IN	DP signal input
⑦	USB	FW Update Input
⑧	DP OUT	DP signal output
⑨	Audio	Audio Line Output
⑩	RS-232 IN	RS-232 Control signal Input
⑪	RS-232 OUT	RS-232 Control signal Loop Output
⑫	KEYPAD	UTP cable Input for Keypad
⑬	Rotary Switch	SET-ID High-decimal(Left) / Low-decimal(Right)
⑭	AC Power	AC Power Input

※ In case of using cables of HDMI, DP, LAN and AUDIO Port, the cable length should be less than 3m.

3.5 CONFIGURE THE VIDEO WALL

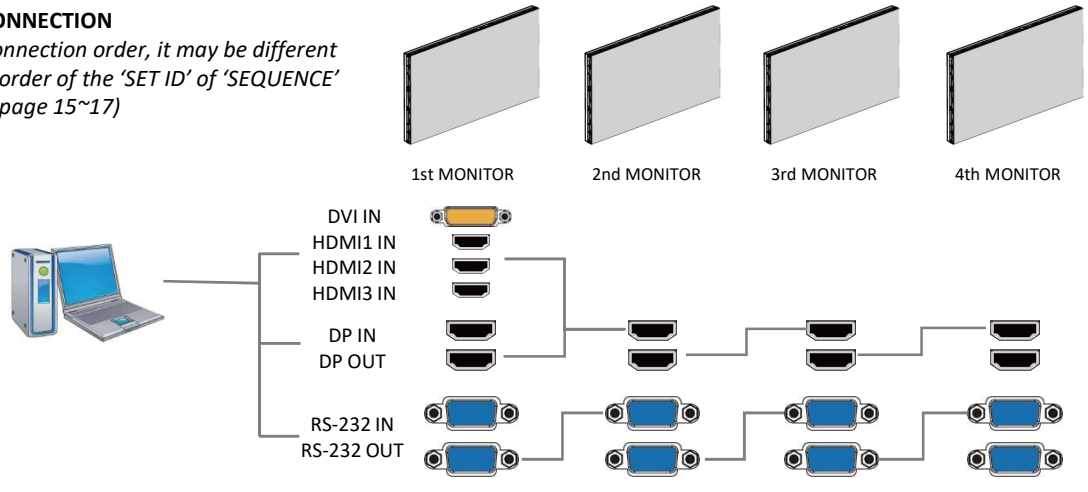
1. You can combine two or more monitors, and configure the VIDEO WALL.
2. If you want to configure VIDEO WALL, please contact your dealer or a professional installer.
3. JOINT BRACKET helps to easily adjust the VIDEO WALL. (Supplied with monitor)
4. Using a JOINT BRACKET can help to prevent distortion or sagging due to weight, But may not be available in an installation environment where there is no space behind the product.

* Assemble the JOINT BRACKET using four M4 screws.



CABLE CONNECTION

**Cable connection order, it may be different from the order of the 'SET ID' of 'SEQUENCE' (Refer to page 15~17)*



**Please install COMMANDER(Video Wall Control Program) for remote control of the monitors through the computer.*
For information about installing and using COMMANDER, please refer to the Manual that came with the monitor.
** DP daisy chain only operates with R4N products.*

3.6 REMOTE CONTROLLER

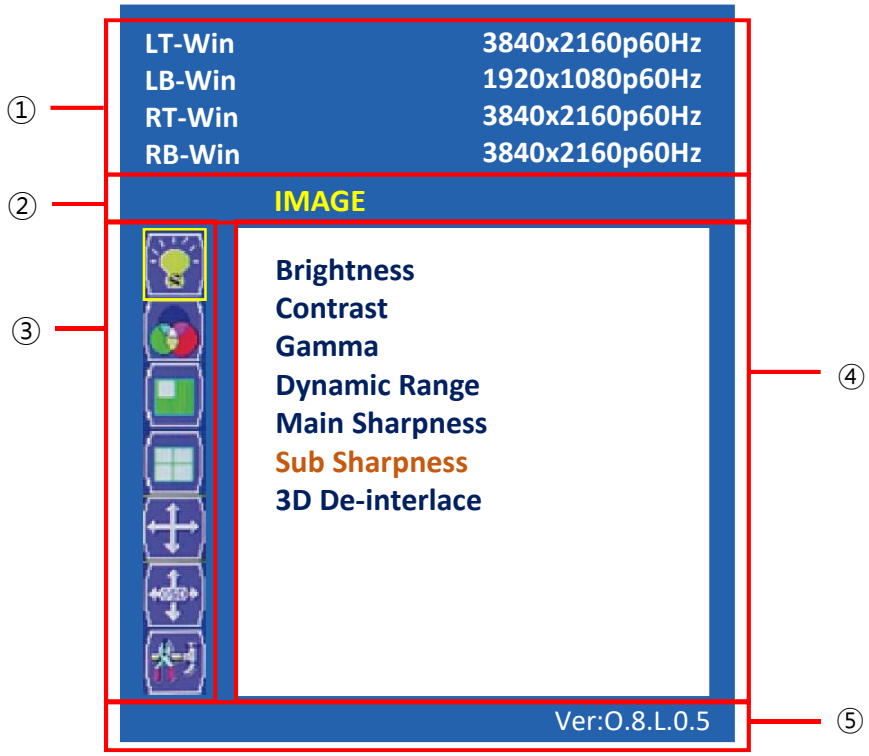


POWER	Power On or Off
MUTE	Turn on or off the speaker
VIDEO1/CVBS1	Not functional
VIDEO2/CVBS2	Not functional
BRIGHTNESS	Not functional
VGA	Select VGA signal
AUTO	Auto adjustment of VGA source
COLOR TEMP	Select color temperature of screen
DVI	Select DVI signal
HDMI	Select HDMI signal (HDMI1→HDMI2→HDMI3)
DP	Select DP signal
HDMI2/CAMERA	Not functional
SDI	Select SDI signal(Not functional)
S.SET	Not functional
SCAN MODE	Select scan mode of screen
PIP	Activate PIP mode
VOL-/VOL+	Adjust volume
MENU/EXIT	Activate or exit of OSD menu
KEYLOCK	Look of release the OSD control
P.INPUT	Select an input source for PIP
P.LOC	Select a location for PIP
P.SIZE	Select a screen size of PIP
P.SWAP	Swap between Main / Sub screen
STILL	Not functional
ROTATE	Select Rotation for OSD menu

4. OSD MENU

4.1 Main OSD Menu

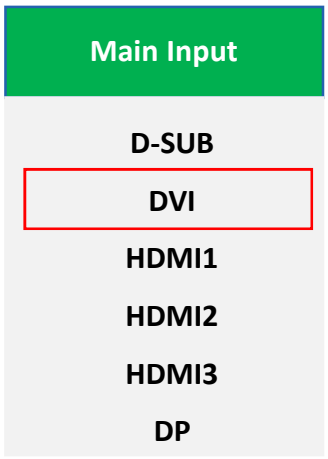
Press a menu button “MENU/EXIT” on a KEYPAD or a remote controller to display this menu on the screen.



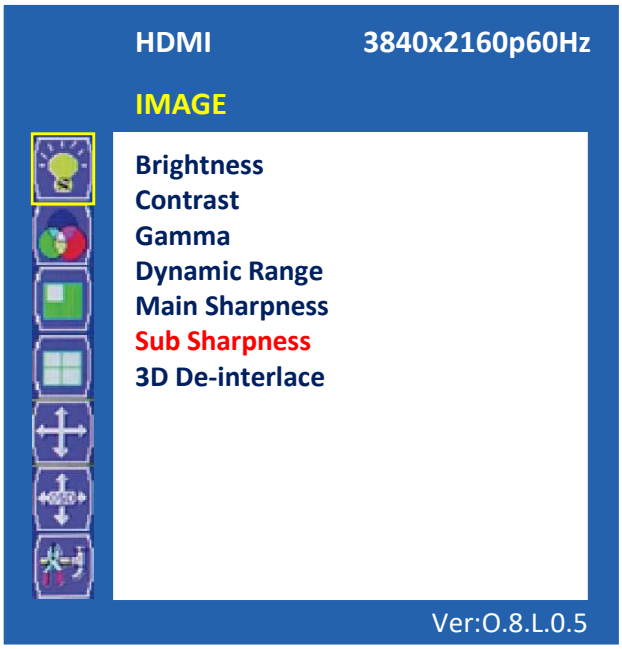
① Information of Windows
② Title of Main Menu
③ Icon of Main Menu
④ Sub Menu
⑤ Version of FW

4.2 Input OSD Menu

Press a down direction button “▼” on a KEYPAD or a remote controller to display this menu on the screen.

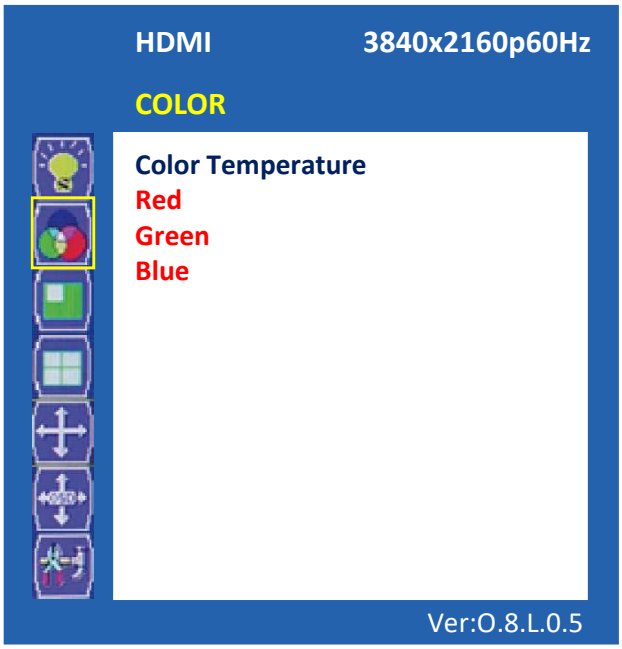


4.3 Image



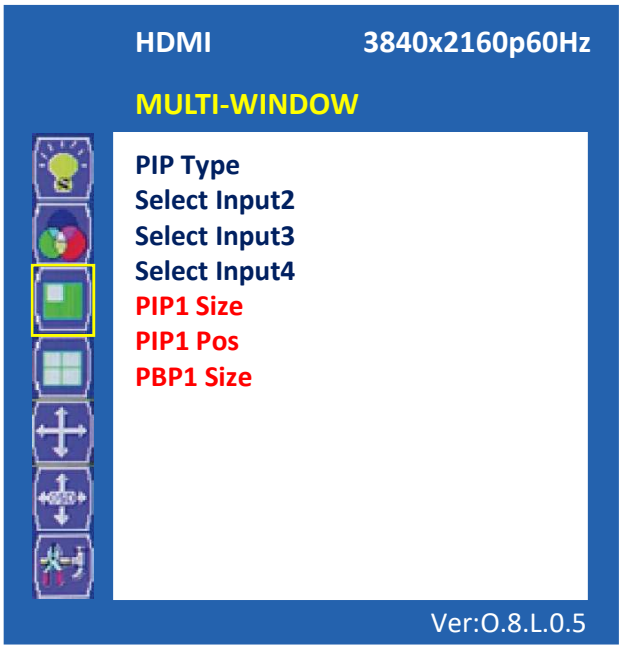
ITEM	FUNCTION	Default Value	Available Mode
Brightness	Adjust a bright value between 0 ~ 100	80	All
Contrast	Adjust a contrast value between 0 ~ 100	50	
Gamma	Select a 2.2 gamma Off or ON	Off	
Dynamic Range	Select a dynamic range mode Off, DCR (Dynamic Contrast Ratio), or DBC(Dynamic Brightness Control)	Off	
Main Sharpness	Select a sharpness mode Off, Weak, Median, Strong, Strongest on the main channel	Off	
Sub Sharpness	Select a sharpness mode Off, Weak, Median, Strong, Strongest on the 2nd sub channel	Off	PIP ON
3D De-interlace	Select the de-interlace function On or Off at an interlace signal entered.	On	Interlace Signal

4.4 Color



ITEM	FUNCTION	Default Value	Available Mode
Color Temperature	Select the color Temperature Warm/Normal/Cool/User	Normal	All
Red	Adjust red gain value between 0 ~ 255	255	User mode
Green	Adjust green gain value between 0 ~ 255	255	
Blue	Adjust blue gain value between 0 ~ 255	255	

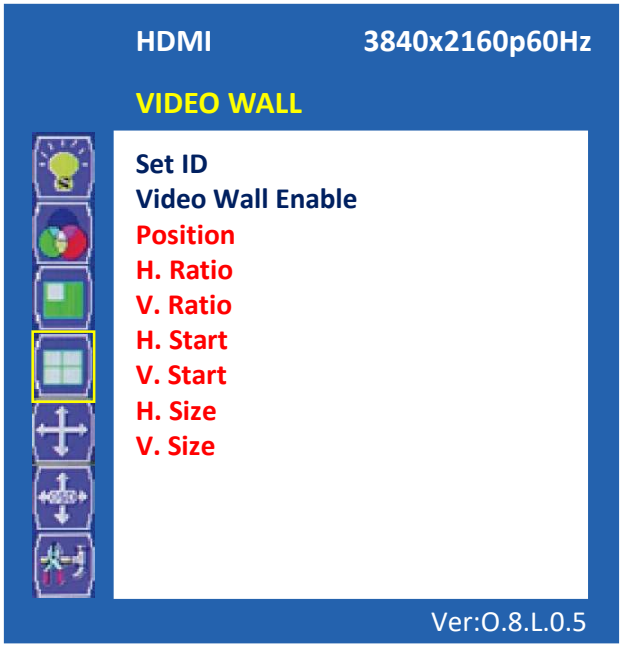
4.5 Multi-Window



Please note that while using Multi-Window function, HDMI1 and HDMI3 can't be selected simultaneously. (In this case, an error may occur)

ITEM	FUNCTION	Default Value	Available Mode
PIP Type	Select a PIP mode Off, PIP, PBP, 3 Window or 4 Window	Off	All
Select Input2	Select an input port of the Sub 1st Channel. (D-SUB/HDMI/DVI/DP)	DVI	PIP mode, PBP mode
Select Input3	Select an input port of the Sub 2nd Channel. (D-SUB/HDMI/DVI/DP)	DP	3 Window mode, 4 Window mode
Select Input4	Select an input port of the Sun 3rd Channel. (D-SUB/HDMI/DVI/DP)	D-SUB	4 Window mode
PIP1 Size	Select a window's size of the Sub 1st Channel (Large/Median/Small)	Large	PIP mode
PIP1 Pos	Select a window's position of the Sub 1st Ch. (Left Top/Right Top/Right Bottom/Left Bottom)	Left Top	PIP mode
PBP1 Size	Select a window's size of the Sub 1st Channel (100%/75%/50%)	100%	PBP mode

4.6 Video Wall

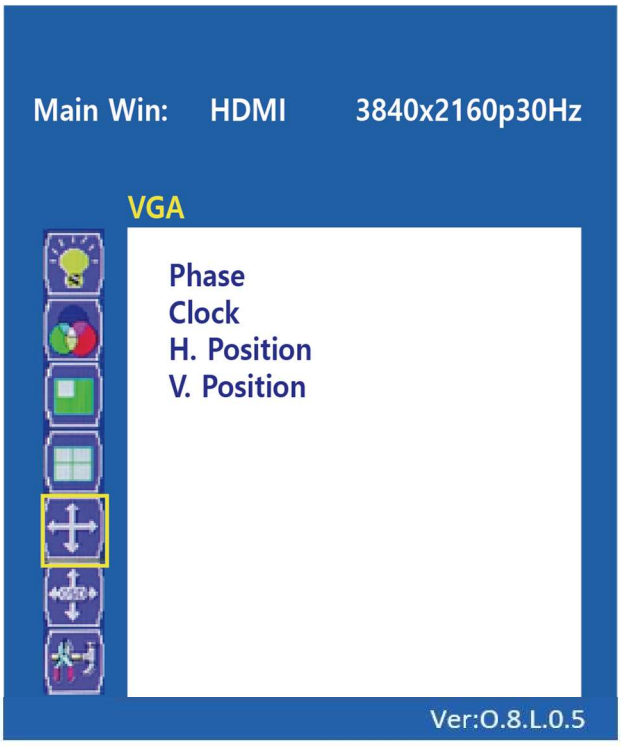


ITEM	FUNCTION	Default Value	Available Mode
Set ID	Adjust the Set ID value between 1 ~ 99	99	All
Video Wall Enable	Set Off or On to enable a video wall mode	ON	
Position	Set the sequence of installed monitors on the video wall situation(1 ~ 81)	1	PIP Off and Video Wall Enable On
H Ratio	Set the total number of horizontally installed monitors on the video wall situation(1 ~ 9)	1	
V Ratio	Set the total number of vertically installed monitors on the video wall situation(1 ~ 10)	1	
H Start	Set start position of horizontal	0	
V Start	Set start position of vertical	0	
H Size	Set increment size of horizontal	0	
V Size	Set increment size of vertical	0	

4.6.1 Position numerical order

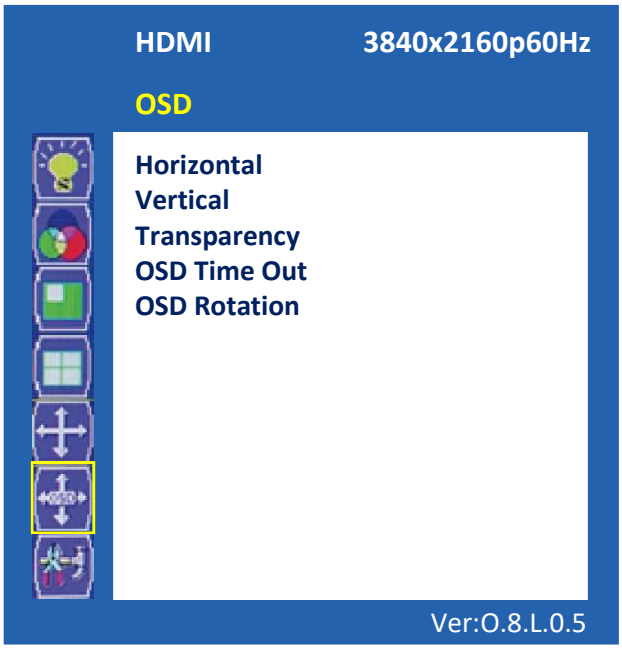
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

4.7 VGA



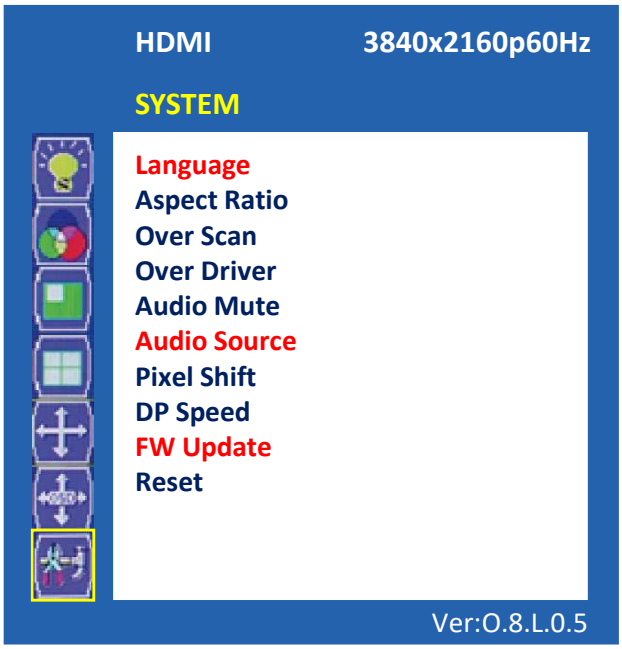
ITEM	FUNCTION	Default Value	Available Mode
Phase	Adjust a phase to clear the screen between 0 ~ 100	50	D-SUB input only
Clock	Adjust a clock to correct the screen between 0 ~ 10	50	
H. Position	Adjust a horizontal position of the screen between 0 ~ 100	50	
V. Position	Adjust a vertical position of the screen between 0 ~ 100	50	

4.8 OSD



ITEM	FUNCTION	Default Value	Available Mode
Horizontal	Adjust a horizontal position of the main menu between 0 ~ 100	95	All
Vertical	Adjust a vertical position of the main menu between 0 ~ 100	5	
Transparency	Adjust a transparency of the main menu between 0 ~ 10	0	
OSD Time Out	Set a displayed time of the main menu between 0 ~ 60	15	
OSD Rotation	Set rotation of menu	Off	

4.9 SYSTEM



ITEM	FUNCTION	Default Value	Available Mode
Language	Select a language type of OSD Menu. But now, English only	English	All
Aspect Ratio	Select an aspect ratio mode of the main window (Full Screen/4:3/Smart View)	Full Screen	
Over Scan	Select OFF or ON to zoom (10%) the screen.	Off	PIP Off
Over Driver	Select OFF or ON to improve the screen speed.	Off	All
Audio Mute	Select OFF or ON to mute the speaker or the line out.	Off	
Audio Source	Select an audio input HDMI (Only HDMI)	HDMI	
Pixel Shift	Select Pixel Shift Off or On	Off	
DP Speed	Select speed for compatibility with DP.(2.7G/5.4G)	5.4G	DP Input
FW Update	To update a FW		All
Reset	Select No or Yes to change the default value of OSD Menu.	No	

5. SPECIFICATION

5.1 General Specifications

Model Name		R4N46UNF/UHF		R4N46ENF/EHF		R4N55UNF/UHF		R4N55ENF/EHF	
Bezel Width	BEZEL to BEZEL	3.5		1.7		3.5		1.7	
Display	Screen Size (inch)	46.0"		46.0"		55.0"		55.0"	
	Resolution	1920 x 1080		1920 x 1080		1920 x 1080		1920 x 1080	
	Pixel Pitch (mm)	0.530 x 0.530		0.530 x 0.530		0.630 x 0.630		0.630 x 0.630	
	Brightness	500 cd/m²	700 cd/m²	500 cd/m²	700 cd/m²	500 cd/m²	700 cd/m²	500 cd/m²	700 cd/m²
	Contrast Ratio	3500:1		4000:1		4000:1		4000:1	
	Aspect Ratio	16:9		16:9		16:9		16:9	
	Viewing Angle (H/V)	178/178		178/178		178/178		178/178	
	Display Color	16.7 million		16.7 million		16.7 million		16.7 million	
	Response Time	8 ms		8 ms		8 ms		8 ms	
	Video System	NTSC/PAL		NTSC/PAL		NTSC/PAL		NTSC/PAL	
Interface	*DP In / Out	1 / 1		1 / 1		1 / 1		1 / 1	
	*HDMI In	3		3		3		3	
	DVI In / VGA In	1/1		1/1		1/1		1/1	
	RS-232 In/Out	1/1		1/1		1/1		1/1	
	USB(FW UPDATE)	1		1		1		1	
	Audio Out	1		1		1		1	
	Remote Control	Y		Y		Y		Y	
Special Features	RS-232 Control	Monitor OSD & Multi Vision		Monitor OSD & Multi Vision		Monitor OSD & Multi Vision		Monitor OSD & Multi Vision	
	Deinterlacing	Y		Y		Y		Y	
	Auto Pixel Shift	Y		Y		Y		Y	
	One Stretch Image by Edge Set	Y		Y		Y		Y	
General	Outline Dimension	1021.98 x 576.57 x 87 (40.24" x 22.7" x 3.43")		1020.02 x 574.61 x 85.4 (40.16" x 22.62" x 3.36")		1213.5 x 684.3 x 87.5 (47.77" x 26.94" x 3.44")		1211.602 x 682.402 x 86.9 (47.7" x 26.866" x 3.42")	
	Net Weight(Kg/lb)	21Kg (46.3 lbs)		21Kg (46.3 lbs)		26Kg (57.32 lbs)		26Kg (57.32 lbs)	
	Cabinet Color	Black		Black		Black		Black	
	Cabinet Material	Electro-Galvanized Steel		Electro-Galvanized Steel		Electro-Galvanized Steel		Electro-Galvanized Steel	
	Power Consumption	< 121 W	< 162 W	< 121 W	< 162 W	< 167 W	< 242 W	< 167 W	< 242 W
	Electrical Ratings	AC 100~240 V (50/60Hz)		AC 100~240 V (50/60Hz)		AC 100~240 V (50/60Hz)		AC 100~240 V (50/60Hz)	
	Storage Temperature	-20 ~ 60°C / -4 ~ 140°F		-20 ~ 60°C / -4 ~ 140°F		-20 ~ 60°C / -4 ~ 140°F		-20 ~ 60°C / -4 ~ 140°F	
	VESA Mounts Size (mm)	600 x 400		600 x 400		600 x 400		600 x 400	
	Video Wall	WFS, WES, WSD, WSR		WFS, WES, WSD, WSR		WFS, WES, WSD, WSR		WFS, WES, WSD, WSR	
	Stand Alone	WB-4063		WB-4063		WB-4063		WB-4063	

**HDMI In / Out, DP In: Not support the HDCP*
***Specifications and design are subject to change without notice.*

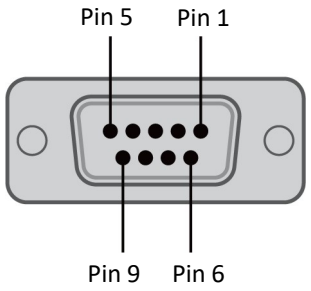
Model Name		R4N55RNF/RHF	
Bezel Width	BEZEL to BEZEL	0.88	
Display	Screen Size (inch)	55.0"	
	Resolution	1920 x 1080	
	Pixel Pitch (mm)	0.630 x 0.630	
	Brightness	500 cd/m²	700 cd/m²
	Contrast Ratio	1100:1	
	Aspect Ratio	16:9	
	Viewing Angle (H/V)	178/178	
	Display Color	1.07 billion	
	Response Time	8 ms	
	Video System	NTSC/PAL	
Interface	*DP In / Out	1 / 1	
	*HDMI In	3	
	DVI In / VGA In	1/1	
	RS-232 In/Out	1/1	
	USB(FW UPDATE)	1	
	Audio Out	1	
	Remote Control	Y	
Special Features	RS-232 Control	Monitor OSD & Multi Vision	
	Deinterlacing	Y	
	Auto Pixel Shift	Y	
	One Stretch Image by Edge Set	Y	
General	Outline Dimension	1210.51 x 681.22 x 91.6 (47.66" x 26.82" x 3.606")	
	Net Weight(Kg/lb)	26Kg (57.32 lbs)	
	Cabinet Color	Black	
	Cabinet Material	Electro-Galvanized Steel	
	Power Consumption	< 167 W	< 242 W
	Electrical Ratings	AC 100~240 V (50/60Hz)	
	Storage Temperature	-20 ~ 60°C / -4 ~ 140°F	
	VESA Mounts Size (mm)	600 x 400	
	Video Wall	WFS, WES, WSD, WSR	
	Stand Alone	WB-4063	

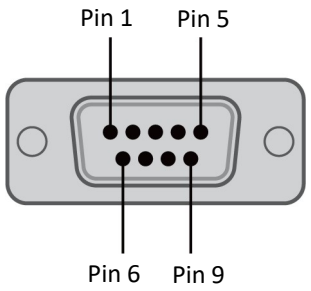
**HDMI In / Out, DP In: Not support the HDCP*
***Specifications and design are subject to change without notice.*

5.2 Timing Mode Table

MODE	Resolution	Vertical Frequency(Hz)	Input	Standards
EDTV 480p	720x480	59.94	D-SUB/HDMI/DP	EIA-861B
EDTV 576p	720x576	50.00		
HDTV720p	1280x720	50/60		
HDTV1080i	1920x1080	50/60	HDMI/DP	
HDTV1080p	1920x1080	24/25/30/50/60	D-SUB/HDMI/DP	
UHDTV2160p	3840x2160	24/25/30	HDMI/DP	
UHDTV2160p	3840x2160	50/60	DP	
VGA	640x480	60/72/75	D-SUB/HDMI/DP	VESA
SVGA	800x600	56/60//72/75	D-SUB/HDMI/DP	VESA
XGA	1024x768	60/75	D-SUB/HDMI/DP	VESA
WXGA	1280x720	60	D-SUB/HDMI/DP	VESA
WXGA	1280x800	59.9	D-SUB/HDMI/DP	VESA
WXGA	1366x768	59.8	D-SUB/HDMI/DP	VESA
SXGA	1280x1024	60/75	D-SUB/HDMI/DP	VESA
FHD	1920x1080	60	D-SUB/HDMI/DP	VESA
UXGA	1600x1200	60	D-SUB/HDMI/DP	VESA
UHD	3840x2160	60	DP	VESA

5.3 Video Wall RS232 Assignment / Specification

	Pin No.	Name	
- D-SUB 9 pin - Input: Female, bottom position	1	n/c	 Input
	2	Tx	
	3	Rx	
	4	NC	
	5	GND	
	6	n/c	
	7	n/c	
	8	n/c	
	9	5V(option)	

	Pin No.	Name	
- D-SUB 9 pin - Output: Male, top position	1	n/c	 Output
	2	Rx	
	3	Tx	
	4	NC	
	5	GND	
	6	n/c	
	7	n/c	
	8	n/c	
	9	n/c	

6. R4N COMMANDER (Video Wall Communication Protocol)

This document defines all the command and messages exchanged between the Master (a PC or the other controller) and the Slave (the displays). It also describes the ways to send or read the commands or the messages.

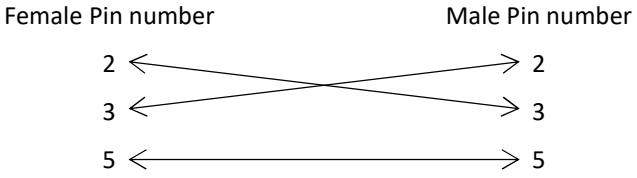
6.1 Protocol definition

VWCP stands for “Video Wall Communication Protocol”.
The protocol is specifically designed to allow data communication in half duplex multi-point environments, but it can also be used for full duplex point-to-point RS-232C communication.

6.2 Communication characteristics

A half-duplex communication is implemented starting from the concept of a master-slave structure, where the display is supposed to be the slave. The first action is always taken by the master, which can be either a PC or any controlling device (acting as server) interfaced to the monitor. After sending a command or a request in the appropriate format the master receives from the slave an acknowledgement, which tells the transmitter whether the command is not valid (or not executable, anyway) or it is accepted.
In case of a request, the requested information is sent back and it becomes the acknowledgement by itself.

6.3 How to connect an external equipment(PC ↔ Monitor)



6.4 Hardware Protocol

Baud rate: 19200 bps
Data bits: 8 bit
Parity bits: None
Stop bits: 1 bit
Handshake: None

6.5 Transmission Formats

This is the format that the computer will send to the display to execute commands.

The format for this command transmission is as follows:

- Data Length: 13 byte

Ex) <STX>001PWRWOFF0<ETX> (Set ID: 1, “Power Off” Send)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F	‘0’	‘0’	‘1’	‘P’	‘W’	‘R’	‘W’	‘O’	‘F’	‘F’	0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- STX: Start of Text (0x0f)
- ID1 ~ ID3: Set ID (001~100)
- CM1 ~ CM3: Command (PWR, MIN, MUT, RML, KPL…)
- R/W: Read/Write
- DA1 ~ DA3: Data (Values)
- IND: Index
- ETX: End of Text (0x0d)

6.6 Command List (Write)(PC ↔ Monitor)

Power On/Off (PWR)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'P'**	**'W'**	**'R'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "-ON": Power On
  "OFF": Power Off

Ex) <STX>001PWRWOFF0<ETX> (Power Off)

Remote Control Lock On/Off (RML) <TBD>

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'R'**	**'M'**	**'L'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "-ON": Lock On
  "OFF": Lock Off

Ex) <STX>001RML-ON0<ETX> (Lock On)

Keypad Control Lock On/Off (KPL)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'K'**	**'P'**	**'L'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "-ON": Lock On
  "OFF": Lock Off

Ex) <STX>001KPLW-ON0<ETX> (Lock ON)

Line Shift On/Off (LIN)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'L'**	**'I'**	**'N'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "-ON": Line shift On
  "OFF": Line shift Off

Ex) <STX>001LINW-ON0<ETX> (Line Shift ON)

Mute On/Off (MUT)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'M'**	**'U'**	**'T'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "-ON": Mute On
  "OFF": Mute Off

Ex) <STX>001MUTW-ON0<ETX> (Line Shift ON)

Source Change (MIN)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'M'**	**'I'**	**'N'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "DVI": DVI
  "HDM": HDMI
  "COM": Component
  "-PC": PC RGB
  "DP": DP
  "SDI": SDI

Ex) <STX>001MINWDVI0<ETX> (Source Change DVI)

Virtual Remote Control (RMT)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'R'**	**'M'**	**'T'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "MEN" (Menu)
  "SOU" (Source)
  "LEF" (Left & Volume-)
  "RIG" (Right & Volume+)
  "ENT" (Enter)
  "-UP" (Up)
  "DOW" (Down)
  "EXI" (Exit)

Ex) <STX>001RMTWSOU0<ETX> (Remote Source Button)

Horizontal Set Count (HSC)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'H'**	**'S'**	**'C'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "001" ~ "100"

Ex) <STX>001HSCW0100<ETX> (H-Set Count 10)

Vertical Set Count (VSC)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'V'**	**'S'**	**'C'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "001" ~ "100"

Ex) <STX>001VSCW0100<ETX> (V-Set Count 10)

Horizontal Edge Adjust (HEG)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'H'**	**'E'**	**'G'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "000" ~ "200"

Ex) <STX>001HEGW0300<ETX> (H-Edge Adjust 30)

Vertical Edge Adjust (VEG)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'V'**	**'E'**	**'G'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "000" ~ "200"

Ex) <STX>001VEGW0400<ETX> (V-Edge Adjust 40)

Display Sequence (SDS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'S'**	**'D'**	**'S'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "001" ~ "100"

Ex) <STX>001SDSW0010<ETX> (Display Sequence 1)

Color Temperature Change (CTC)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'C'**	**'T'**	**'C'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "COL": Cool
  "MED": Medium
  "WAR": Warm
  "USE": User
  "US2": User2
  "US3": User3

Ex) < STX>001CTCWMED0<ETX> (Color Temp Change Medium)

Brightness Adjust (FCB)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'F'**	**'C'**	**'B'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "000" ~ "100"

Ex) <STX>001FCBW0400<ETX> (Brightness Adjust 40)

Contrast Adjust (FCC)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'F'**	**'C'**	**'C'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "000" ~ "100"

Ex) <STX>001FCCW0400<ETX> (Contrast Adjust 40)

Red Gain Adjust (FGR)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'A'**	**'G'**	**'R'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "000" ~ "100"

Ex) <STX>001FGRW0400<ETX> (Red Gain Adjust 40)

Green Gain Adjust (FGG)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'A'**	**'G'**	**'G'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

Blue Gain Adjust (FGB)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'A'**	**'G'**	**'B'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "000" ~ "100"

Ex) <STX>001FGBW0400<ETX> (Blue Gain Adjust 40)

Red Offset Adjust (FOR) <Do not change>

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'F'**	**'O'**	**'R'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "000" ~ "100"

Ex) <STX>001FORW0400<ETX> (Red Offset Adjust 40)

Green Offset Adjust (FOG) <Do not change>

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'F'**	**'O'**	**'G'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

Blue Offset Adjust (FOB) <Do not change>

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'F'**	**'O'**	**'B'**	'W'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

- ID1 ~ ID3: Set ID ("001" ~ "100")
- DA1 ~ DA3: "000" ~ "100"

Ex) <STX>001FOBW0400<ETX> (Blue Offset Adjust 40)

6.7 Command List (Read)

Edge Item Read Command (PC → Monitor)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'S'**	**'D'**	**'S'**	'R'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

Edge Item Read Data (PC ← Monitor)

STX	Set ID	ID	Sequence	H Count	V Count	H Gap	V Gap					ETX
0x0F		**'E'**						0	0	0	0	0x0D
HEX	HEX	ASCII	HEX									

Color Item Read Command (PC → Monitor)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'C'**	**'T'**	**'C'**	'R'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

Color Item Read Data (PC ← Monitor)

STX	Set ID	ID	Bright	Contra	Color Temp	Red Gain	Green Gain	Blue Gain	Red Offset	Green Offset	Blue Offset	ETX
0x0F		**'C'**			0x00~ 0x02							0x0D
HEX	HEX	ASCII	HEX									

* Color Temp value
  - 0x00 : WARM
  - 0x01 : MEDIUM
  - 0x02 : COOL

* Color item read command will return total 52Byte.
* The data after 13Bytes is dummy data.

Model Info Read Command (PC → Monitor)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0F				**'M'**	**'D'**	**'L'**	'R'				0x00	0x0D
HEX	ASCII (capital letter)										HEX	HEX

Model Info Data (PC ← Monitor)

STX	Set ID	ID	MDL1	MDL2	MDL3	PNL1	PNL2	VER1	VER2	VER3	VER4	ETX
0x0F		'I'										0x0D
HEX	HEX	ASCII	HEX									

- MDL1 ~ MDL3: Model Type
- PNL1 ~ PNL2: Panel Size
- VER1 ~ VER4: FW version

7. TROUBLESHOOTING

When the following troubles are occurred, follow the trouble shooting. Before contacting a service center.

Troubleshooting	Troubleshooting Tip
The screen doesn't show up	1. Make sure if the power supply is connected property
	2. Turn on the power.
	3. Select the input signal right for the connected port.
The screen is too light or to dark	Control the BRIGHTNESS
The screen size is not fit for the PC signal	Press the AUTO key among keys in the front. (It's used only in the PC signal)
The screen color shows strange in the PC signal	In the FUNCTION menu of OSD menu, perform the AUTOADJUST

8. LIMITED WARRANTY

All products carry a limited warranty from ship date against defects in materials and workmanship. We are not liable for improper installation that results in damage on mounts, adapters, display equipment or personal injury.