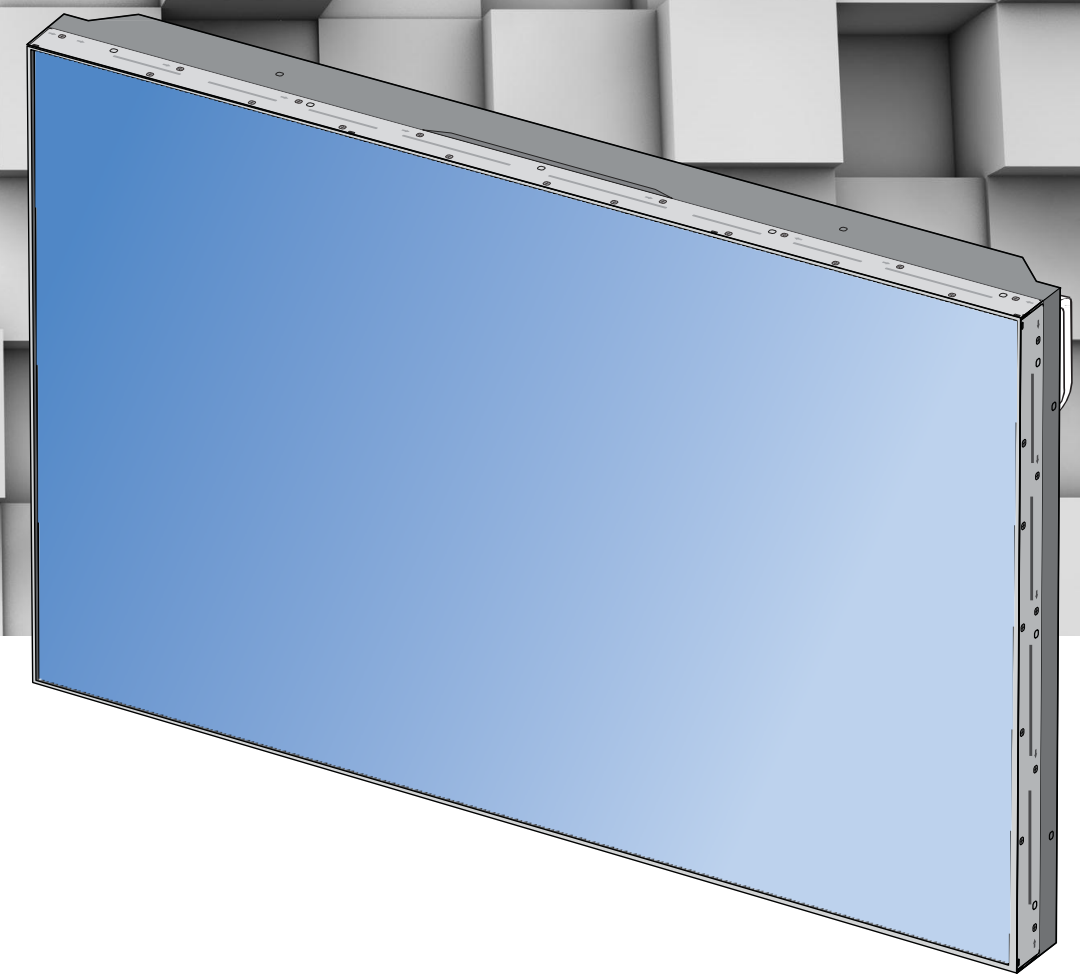A revolutionary MLCD

Infinitely Expandable MLCD

Infinitely Expandable **MLCD**

ORION DISPLAY CO.,LTD.

www.oriondisplay.net

Address: 217, 1gongdan-ro, Gumi-si, Gyeongsangbuk-do, Korea
Tel : +82-2-6678-8533, Fax: +82-2-6678-8599

OLMU-K4953 **User's Manual**

Please read through this user's manual for safely before installing this product

2020.11.24

Features

► Enjoy a wide flat screen with high brightness and high quality.

► Easy to install and move due to its thin design

► Enjoy your favorite programs with various split-screen features simultaneously presenting several programs.

Thank you for purchasing our monitor.

This manual describes how to use the product and notes in use.
Please read the manual carefully before using it.
After reading this manual, please retain for future reference.
If you have any questions or a problem occurs, please contact either the company you
purchased this product from or an authorized service center.

※ **Displaying static picture for an extended period of time may cause an burn-in effect.**
※ **Burn-in effect and the faults in brightness and picture elements caused by fixed images are not subject to the warranty coverage.**

⚠ **Warning** If you fail to comply with the regulations for safety and proper use, fire or injury may be caused.
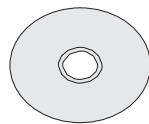
⚡ **Warning** To prevent electric shock, Do not remove cover.
No user serviceable part inside.
Refer servicing to qualified service personnel.

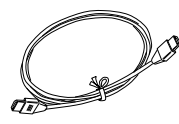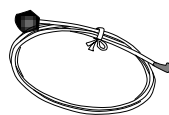## Supplied Accessories

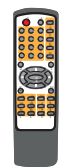| User's manual CD | Guide Pin(4pcs) | Power Cable | DP Cable |

| RS-232C Cable | IR Receiver | Battery (AAA X2) | Remote Controller |

Optional Accessories

MAIN FRAME
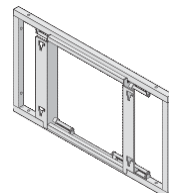
Notice to users

" Important Safety Instructions"

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
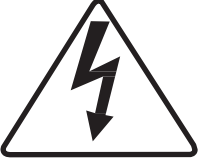
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
The symbol in figure 21 shall be shown adjacent to the text of item 12 above.

CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol 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.

This symbol is intended to alert the user to the presence of important operating and maintenance(servicing) instructions in the literature accompanying the appliance.

NOTICE

1. To disconnect the apparatus from the mains, the plug must be pulled out from the mains socket, therefore the mains plug shall be readily operable

2. WARNING - To Reduce The Risk Of Fire Or Electric Shock, Do Not Expose This Appliance To Rain Or Moisture.

3. Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

4. Use only a properly grounded plug and receptacle

5. "Warning" CAUTION – These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Contents

※European Union Disposal Information

English
Disposal of old Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collection programs)

This symbol found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources.

This symbol is only valid in the European Union.
If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Français
Mise au rebut des équipements électriques et électroniques usagés (Valable dans l'ensemble de l'Union Européenne ainsi que dans les pays européens disposant de programmes distincts de collecte des déchets)

Ce symbole appliqué sur votre produit ou sur son emballage indique que ce produit ne doit pas être traité comme un déchet ménager lorsque vous voulez le mettre au rebut. Il doit au contraire être remis à un site de collecte agréé pour le recyclage des équipements électriques et électroniques. En veillant à ce que ce produit soit mis au rebut de façon adéquate, vous contribuerez à prévenir les conséquences potentiellement négatives sur l'environnement sur la santé humaine qui risqueraient de se produire en cas de mise au rebut inappropriée de ce produit. Le recyclage des matériaux contribuera également à économiser les ressources naturelles.

Ce symbole n'est valable que dans l'Union Européenne.
Si vous souhaitez mettre ce produit au rebut, veuillez prendre contact avec les autorités locales ou avec votre revendeur et renseignez-vous sur la méthode de mise au rebut correcte.

Deutsch
Entsorgung von elektrischen & elektronischen Altgeräten (geltend für die europäische Gemeinschaft und andere europäische Länder mit separaten Sammelprogrammen)

Dieses Symbol, zu finden auf Ihrem Produkt oder dessen Verpackung, macht Sie darauf aufmerksam, dass dieses Produkt bei der Entsorgung nicht als Hausmüll behandelt werden darf. Statt dessen sollte es an eine Sammelstelle zum Recycling von elektrischen und elektronischen Altgeräten gegeben werden. Helfen Sie mit, potenziell schädliche Einflüsse auf Umwelt und Gesundheit, die durch eine unsachgemäße Entsorgung dieses Produktes entstehen können, zu vermeiden und entsorgen Sie dieses Produkt ordnungsgemäß. Recycling hilft, natürliche Rohstoffe einzusparen.

Dieses Symbol ist nur innerhalb der europäischen Gemeinschaft gültig.
Wenn Sie dieses Produkt entsorgen möchten, wenden Sie sich bitte an Ihre örtliche Behörde und fragen Sie nach der ordnungsgemäßen Entsorgungsmethode.

Español
Deshecho de equipos eléctricos y electrónicos (aplicable a la Unión Europea y a otros países europeos con programas de reciclaje independientes)

La presencia de este símbolo en el propio producto o en su material de embalaje, indica que no se debe tratar como residuo doméstico cuando desee deshacerse de él. En su lugar, debe entregarlo en el punto limpio correspondiente de reciclaje de equipos eléctricos y electrónicos. Asegurándose de que este producto se deseche de forma correcta, ayudará a evitar posibles consecuencias negativas para la conservación del medioambiente y la salud humana, consecuencias que podrían darse si se deshace del producto de forma inadecuada. El reciclado de materiales ayuda a conservar los recursos naturales.

Este símbolo solamente es válido en la Unión Europea.
Si desea deshacerse de este producto, póngase en contacto con las autoridades locales o con su distribuidor y pida información sobre el método de disposición adecuado.

Italiano
Smaltimento delle attrezzature elettriche ed elettroniche usate (applicabile in tutta la Comunità Europea ed altri Paesi Europei che applicano programmi di raccolta differenziata)

Il simbolo trovato sul prodotto, o sulla sua confezione, indica che il prodotto non può essere trattato come i domestici quando è il momento di smaltirlo. Al contrario, deve essere consegnato ad un centro di raccolta specializzato nel riciclaggio di attrezzature elettriche ed elettroniche. Assicurando che il corretto smaltimento di questo prodotto, si aiuterà a prevenire potenziali conseguenze negative sull'ambiente e sulla salute umana, che possono essere provocate da uno scorretto smaltimento di questa attrezzatura. I materiali riciclati aiuteranno a conservare le risorse naturali.

Questo simbolo è valido solo nell'Unione Europea. Per smaltire questo prodotto, mettersi in contatto con le autorità locali – o con il rivenditore – e chiedere informazioni sul corretto metodo di smaltimento.

Nederlands
Verwijderen van oude elektrische en elektronische apparatuur (toepasselijk in de volledige Europese Unie en andere Europese landen met afzonderlijke programma's voor afvalverzameling)

Dit symbool dat op het product of zijn verpakking is aangebracht, geeft aan dat dit product niet mag worden behandeld als huishoudelijk afval als u het wilt wegwerpen. U moet het afgeven bij een specifiek verzamelpunt voor de recyclage van elektrische en elektronische apparatuur. Door te garanderen dat u dit product op de correcte manier wegwerpt, helpt u potentiële negatieve gevolgen voor het milieu en de menselijke gezondheid, die zouden kunnen worden veroorzaakt door een onrechtmatig wegwerpen van het product, te voorkomen. De recyclage van materialen helpt het behoud van natuurlijke bronnen.

Dit symbool is alleen geldig in de Europese Unie.
Als u dit product wenst weg te gooien, dient u contact op te nemen met uw lokale instanties voor details over de geaste methode voor afvalverwijdering.

Português
Eliminação de equipamentos eléctricos e electrónicos usados (aplicável na União Europeia e noutros países europeus com programas próprios de recolha destes equipamentos)

Este símbolo, colocado no produto ou na respectiva embalagem, indica que o produto não deve ser tratado como lixo doméstico aquando da sua eliminação. Em vez disso, deve ser entregue num ponto de recolha de equipamentos eléctricos e electrónicos para posterior reciclagem. Ao garantir a correcta eliminação deste produto, estará a evitar consequências potencialmente negativas tanto para o ambiente como para a saúde humana. A reciclagem de materiais ajuda a preservar os recursos naturais.

Este símbolo apenas é válido na União Europeia.
Se quiser eliminar este produto, contacte as entidades locais ou o seu fornecedor para ficar a saber qual o método de eliminação correcto.

Polski
Usuwanie zużytego sprzętu elektrycznego i elektronicznego (Dotyczy krajów Unii Europejskiej i innych krajów europejskich z oddzielnymi programami zbiórki odpadów)

Obecność tego symbolu na produkcie lub na opakowaniu z produktem oznacza, że tego produktu nie można wyrzucać razem z odpadkami domowymi. Należy go przekazać do punktu zbiórki w celu poddania recyklingowi podzespołów elektrycznych i elektronicznych. Usunięcie tego produktu w prawidłowy sposób, pomoże w zabezpieczeniu przed negatywnym wpływem odpadów na środowisko i zdrowie ludzi, powodowanym przez niewłaściwe usuwanie produktu. Przetwarzanie materiałów pomaga w zachowaniu zasobów naturalnych.

Ten symbol obowiązuje wyłącznie w krajach Unii Europejskiej.
Informacje dotyczące prawidłowej metody usunięcia tego produktu, można uzyskać u władz lokalnych lub u dostawcy.

Waste Electrical and Electronic Equipment (WEEE) Directive In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling. EEE complies with Directive 'Regulation on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment'

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Svenska
Avfall av förbrukad elektrisk och elektronisk utrustning (Tillämpbart i hela Europeiska unionen och andra europeiska länder med separata samlingsprogram)

Den här symbolen som finns på din product eller på dess förpackning påvisar att produkten inte ska behandlas som hushållsavfall när du vill slänga bort den. Istället ska den lämnas övertill en lämplig uppsamlingspunkt för återvinning av elektriska och elektroniska utrustningar. Genom att tillförsäkra att den här produkten återvinns på ett riktigt sätt hjälper du till med att förhindra möjliga negativa konsekvenser för miljön och mänsklig hälsa. Det kan annars orsak as på grund av olämplig sophantering av den här produkten. Återvinning av material kommer att hjälpa till att bevara naturtillgångar.

Den här symbolen är endast giltig inom den Europeiska unionen.
Om du vill slänga bort den här produkten ska du kontakta lokala myndigheter eller återförsäljar, och fråga efter lämplig avfallsmetod

Suomi
Vanhojen sähkö- ja elektroniikkalaitteiden hävittäminen (Sove Ituva kaikkialla Euroopan unionin alueella, sekä muissa Euroopan maissa, joilla on erilliset keräysohjelmat)

Jos tuotteessa tai sen pakkauksessa on tämä symboli, sitä ei pidä hävitettäessä käsitellä tavallisena kotitalousjätteenä, vaan se kuuluu toimittaa sähkö- ja elektroniikkalaitteiden kierrätyspisteeseen. Varmistamalla, että tämä tuote hävitetään asiaankuuluvalla tavalla autat estämään mahdollisia ympäristölle ja ihmisille koituvia negatiivisia seuraamuksia, joita sen vääränlain en hävittäminen voi aiheuttaa. Materiaalien kierrättäminen auttaa säilyttämään luonnonvaroja.

Tämä symboli on voimassa ainoastaan Euroopan unionin alueella.
Jos haluat hävittää tämän tuotteen, ota yhteyttä paikallisiin viranomaisiin tai jälleenmyyjään ja tiedustele asiaankuuluvia hävittämistoimenpiteitä.

Waste Electrical and Electronic Equipment (WEEE) Yönergeleri Avrupa Birliği'nde bu etiket, ürünün ev elektroniği aletleri atıklan ile imha edilemeyeceğini gösterir.
Kurtarmak ve geri dönüşümünü sağlamak için uygun şartlarda saklanması gerekir. EEE Yönetmeliğine Uygundur Ve Elektronik Eşyalarda Bazı Zararlı Maddelerin Kullaniminin Sinirlandirilmasina Dair Yönetmelik.

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※Cautions for consisting

Environmental condition for installation

- Since monitor is very sensitive for physical impact, installation requires considerable caution.
- Minimum clearance(20cm) must be secured for smooth ventilation. (See page 6) Installation must avoid air tight or near air tight places. Improper ventilation causes malfunction and shortens product lifetime by rapid internal temperature rise. If monitor has to installed at the improper ventilation, additional ventilation openings or fans must be provided to keep the internal temperature between 0 ~ 35°C.
- For ground of monitor and application devices, it should be connected as frame ground.
- Considering monitor Max power consumption, check the main electric specification .

Recommended Operating Condition

- Temperature: 5~35°C, Humidity: 35~75%, Suitable operating time : under 18 hours a day.
- Do not install the set at the air-tight condition.
- It is recommended to install the set with good ventilation.
- Do not install the set at the place of direct sunlight or excessive exposure to lightings.
- ※ Blackening, stains or burning effect on the screen can be occurred by improper installation or use against the above recommended conditions.

Consideration for easier service

- When you design the exterior design for monitor system, consider easier disassembly for possible service occasion in the future.
- The sliding Universal Unit of ORION DISPLAY is recommended for easier service.
- If service people can step into the backside of monitor system, it can greatly reduce time and effort for service.
- In case of higher locations, consider the installation location and exterior design for easier service.

※Clearance for Ventilation

- When you install monitor make sure there is at least 20cm clearance for effective ventilation and do not seal off monitor sets.
  If monitor sets are installed at the locations of bad ventilation, the inner temperature can be raised rapidly and it can cause frequent malfunctions and rapid reduction of the product life.
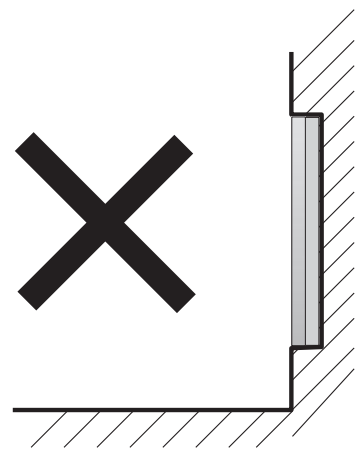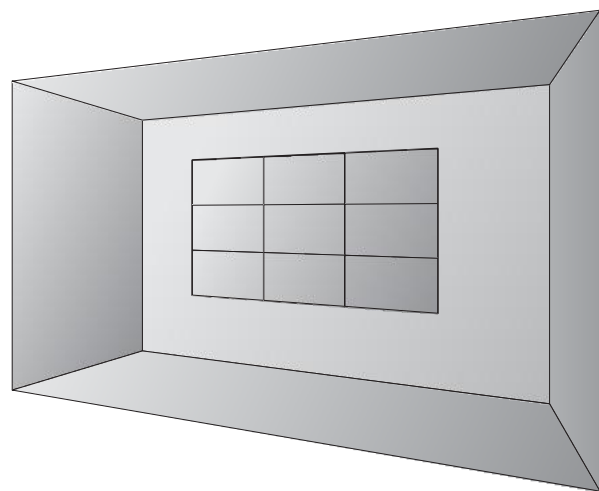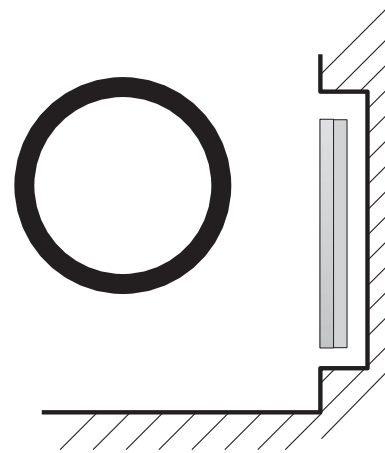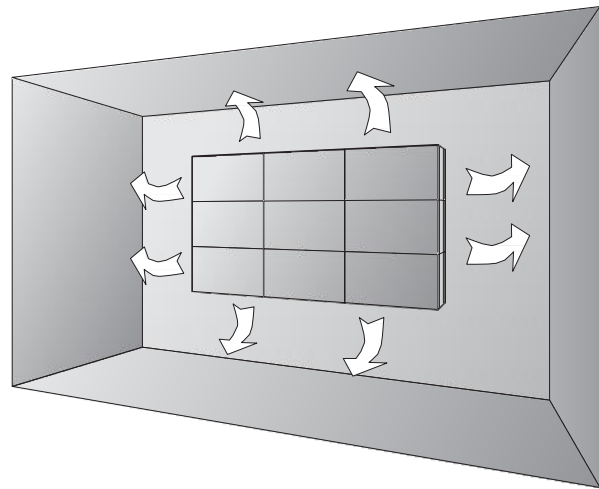
*　Ventilation space in front of monitor must be furnished for heat dispersion.If the front space of monitor has to be sealed, there must be consideration for the heat dispersion in the rear side of monitor.

※Cleaning and Maintenance

- Regularly clean off the vent holes in the back of monitor sets.
  If the vent holes and the fan air holes are clogged with dust, it prevents the air flow inside of monitor sets.
  It can cause rapid increase of the inner temperature and may cause malfunctions.
  Clean off the vent holes and the fan air holes with a vacuum cleaner regularly.

Vacuum Cleaner

⚠ Warning
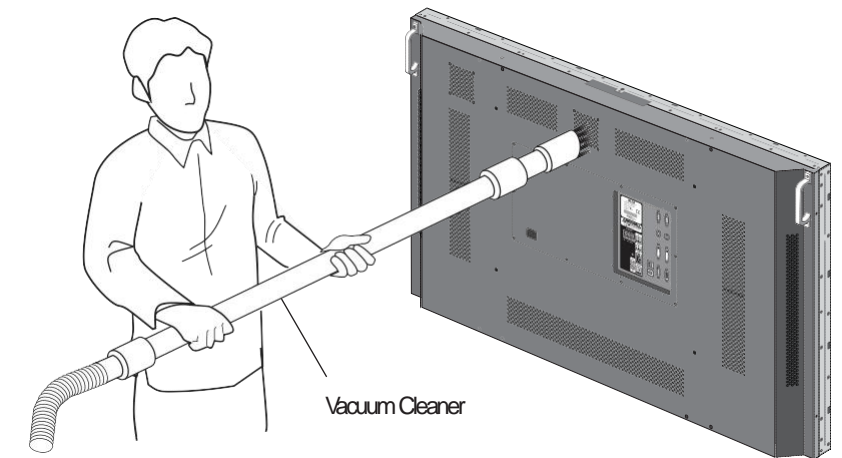
※**Please keep following instructi on for panel protection without exception.**

- This product can be damaged even with minor impact for its nature.
  Please keep following instruction to carry or store the products.

⚠ Warning

※**Handle with Caution.**

- Shock/Impact on the set's sides will result in internal circuit damages.
- The edge/bottom of the panel are fragile.
  Use shock-absorbing pads or rugs for laying down the product.

PANEL

CUSHION
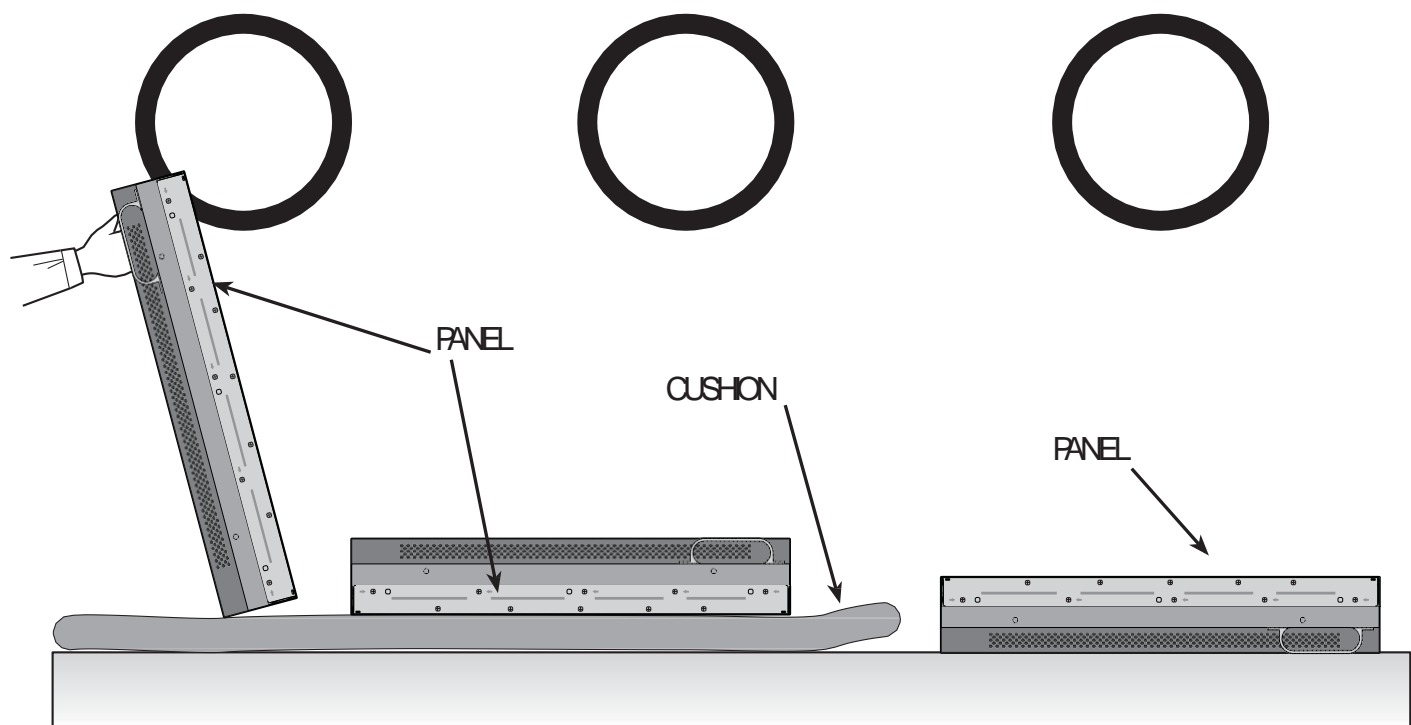
PANEL

• If you need to stand LCD,

you must lean over the LCD to avoid panel touches ground or floor .

• If you need to lay down

LCD as face down position, please use shock-absorbing pads under the LCD.

• If you need to lay down LCD

as face up position, please be cautious for falling objects on the surface of the LCD.

PANEL   PANEL   PANEL
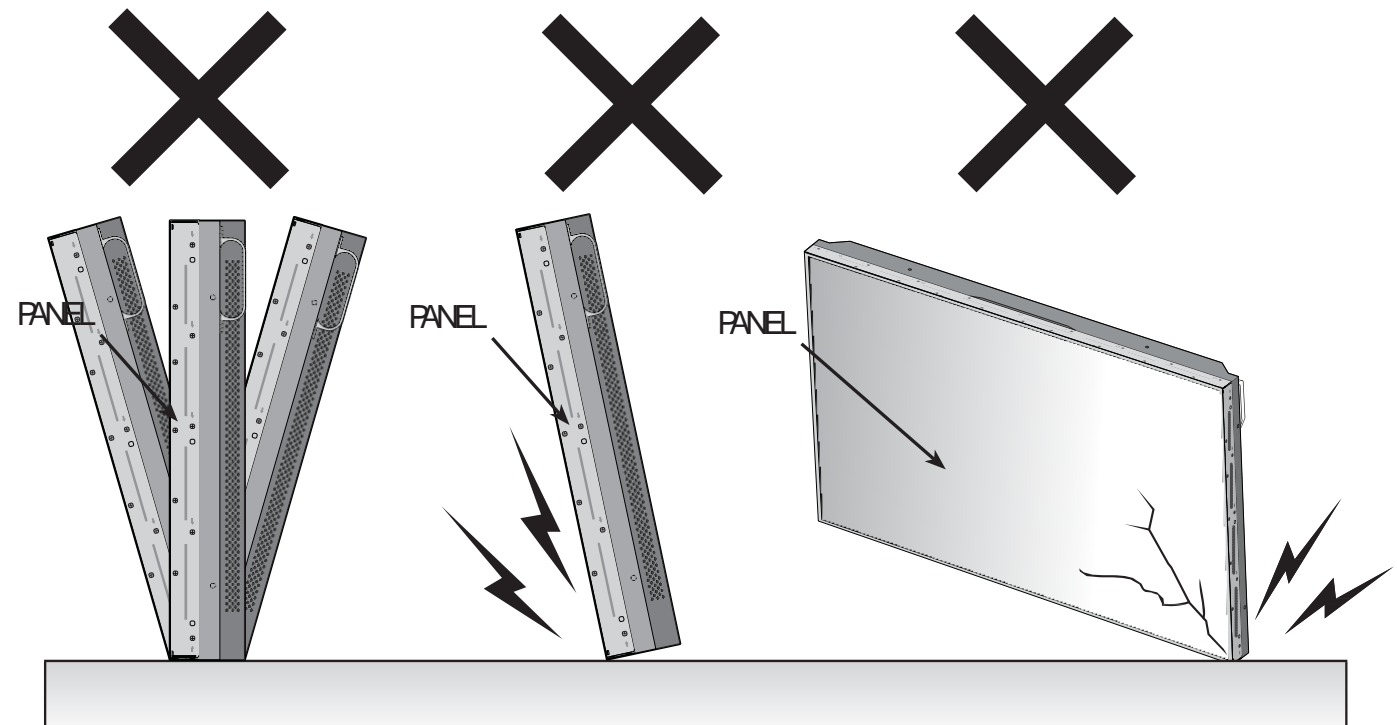
• Please do not stand LCD

alone. It may fall or slip off and Panel can be broken or damaged.

• Please do not lean over

the LCD. It may damage the bottom part of the LCD.

• Please do not lean over the

LCD toward the edge part. It may damage the edge part of the LCD.

※ How to carry

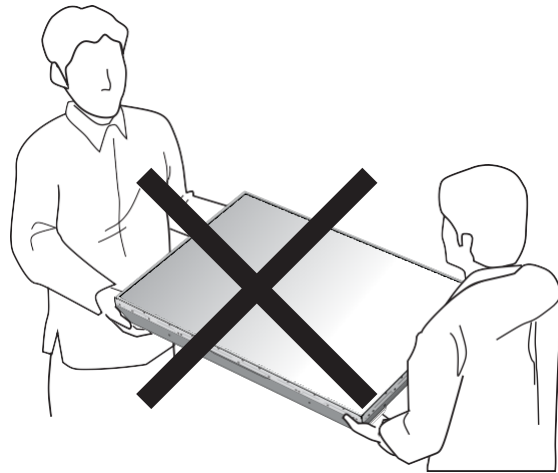It always needs two persons to carry or install monitor .

When you carry monitor with up straight manner, please hold handles on the back and bottom part of the panel together.

Please be careful not to touch the bottom part of the panel when you put down the panel.
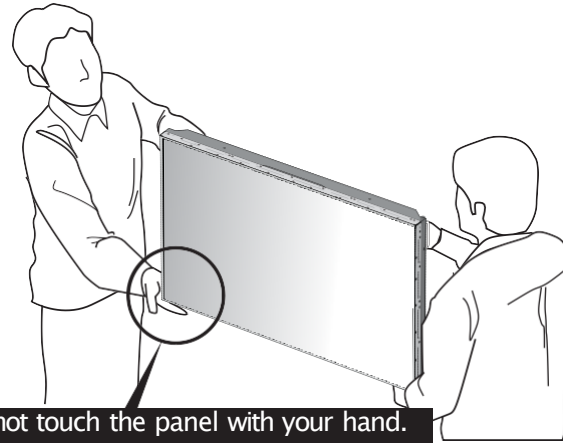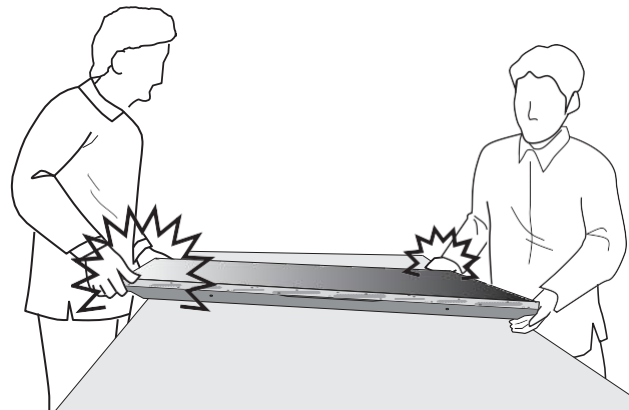
Please do not touch the panel with your hand.

Don't carry monitor in Horizontal Status.

When two operators uphold monitor, Panel is twisted by unbalanced handling.

※ Application information

If static images are displayed on the screen for a long time, it causes burn-in image. Please keep the following instruction to optimize the lifetime and functions of the product.

1. Operating condition
- Temperature: 20 ± 15℃
- Humidity: 55 ± 20 %
- Display pattern: moving picture or regular switchover display
- Environmental condition : Well ventilated place is recommended.
- Power off and screen saver : Periodical power-off or screen saver is needed after long-term static display.

※ Note : Moving picture or black pattern is strongly recommended for screen saver.

2. Operating methods to minimize burn-in image due to long-term static information display
- For optimal performance, we suggest turning off the LED power on the monitor for four hours per day
- Periodical display contents change from static image to moving picture.
- Periodical background color and character (image) color change

DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02
KE 732	12:10	K17
AN 291	12:45	F11

DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02
KE 732	12:10	K17
AN 291	12:45	F11

- Change the images of little luminance difference between the background and characters, periodically.

DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02

DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02

DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02

DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02

- It is not recommended to display the images of huge luminance difference between the background and characters or the images of grey tone.

ARRIVAL			
Flight No.	Time	Gate	Delay
AA 213	9:20	K11	On time
OZ 621	11:25	G21	10 min.
JA 032	12:05	A19	On time

(X)

ARRIVAL			
Flight No.	Time	Embark	Delay
AA 213	9:20	New York	On time
OZ 621	11:25	Seoul	10 min.
JA 032	12:05	Beijing	On time

(X)

- Scroll the characters periodically.

DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02
KE 732	12:10	K17
AN 291	12:45	F11

DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02
KE 732	13:40	K17
KE 732	17:03	A02

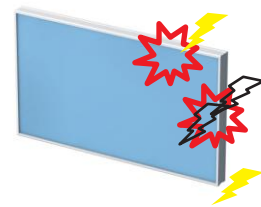| DEPARTURE		
Flight No.	Time	Gate
UA 012	11:20	A02
KE 732	12:10	K17
AN 291	12:45	F11

(Whole Screen Scroll)

⚠ ※ Attention for Installing

Warning

• Avoid giving a shock or damage at LCD
  corner or other parts during setting
  Multi-Vision.

• Keep all LCDs balanced in vertical or horizontal
  force after setting Multi-Vision. Avoid LCD is set
  up tilted so it can give a damage to down LCD.

• Avoid that LCD is twisted.
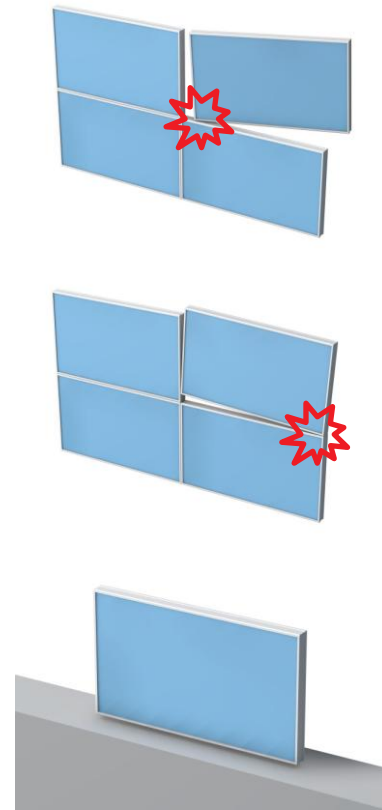
• Avoid that LCD outside is shocked or
  damaged by sharp thing.

• **The load applied to all sets must be supported by the wall mount on which each set is
  mounted through a VESA mount(600 x 400).**
• **The load must be supported only through a wall mount with a set through the VESA
  wall mount. (Each set must be completely fixed to a wall or wall mount.)**

※ Detailed installation instructions are described in our Main Frame User Manual.

■ How to Adjust the MLCD gap with the Adjuster.

The gap of the MLCD can be fixed using the Adjuster.

• To fix the gap detected between the MLCD or when the MLCD is tilted after the
  installation, use the Adjuster.
• Install the Adjuster at the lowest part of the Main Frame using the 5mm allen wrench.

ADJUSTER
(M10*50)

8mm allen wrench

It is possible to lift or lower the Main
Frame using a 8mm allen wrench after the
Adjuster was installed at the lower
part of the Main Frame.
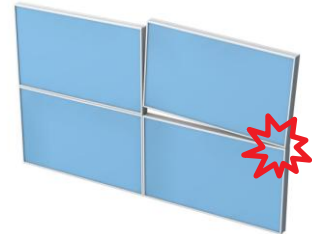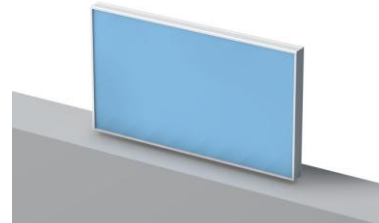
⚠ ※ Attention for Installing
Warning
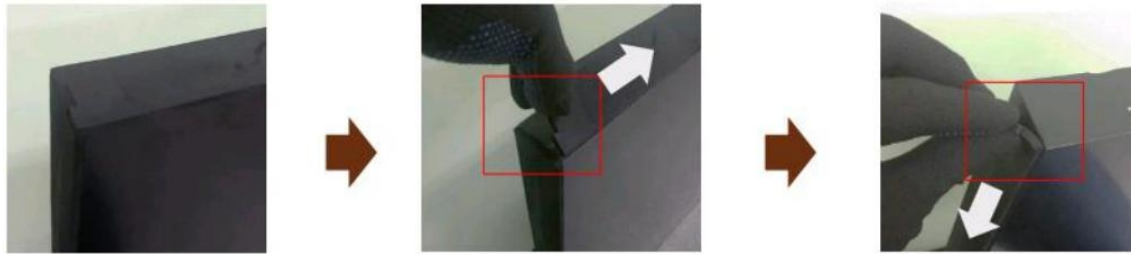
- Guide for peeling off side tape caution.
- Please, Peel off side tape slowly

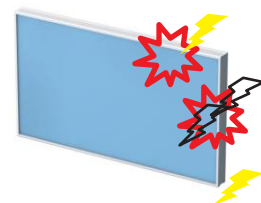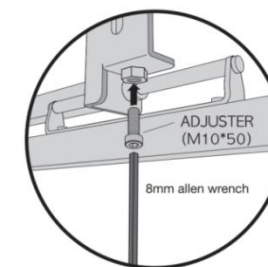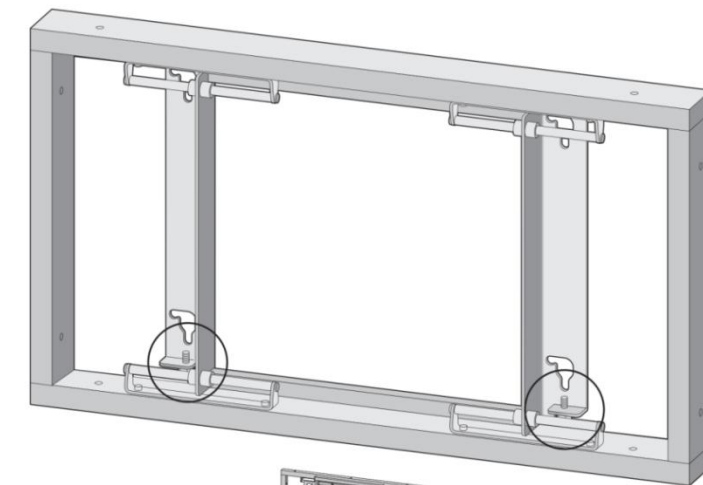- Avoid giving a shock or damage at LCD corner or other parts during setting Multi-Vision.
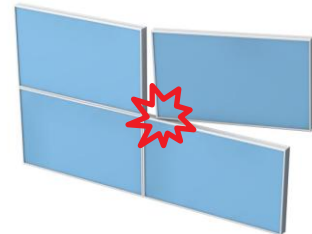
- Keep all LCDs balanced in vertical or horizontal force after setting Multi-Vision. Avoid LCD is set up tilted so it can give a damage to down LCD.

- Avoid that LCD is twisted.

- Avoid that LCD outside is shocked or damaged by sharp thing.

- **The load applied to all sets must be supported by the wall mount on which each set is mounted through a VESA mount(600 x 400, TBD).**
- **The load must be supported only through a wall mount with a set through the VESA wall mount. (Each set must be completely fixed to a wall or wall mount.)**

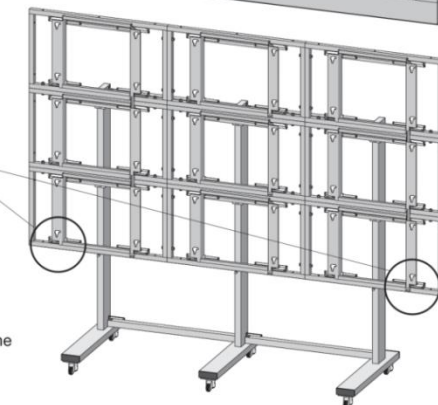※ Detailed installation instructions are described in our Main Frame User Manual.

■ How to Adjust the MLCD gap with the Adjuster.

The gap of the MLCD can be fixed using the Adjuster.

- To fix the gap detected between the MLCD or when the MLCD is tilted after the installation, use the Adjuster.
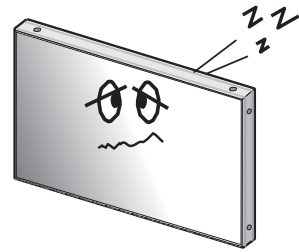- Install the Adjuster at the lowest part of the Main Frame using the 5mm allen wrench.

ADJUSTER
(M10*50)

8mm allen wrench

It is possible to lift or lower the Main Frame using a 8mm allen wrench after the Adjuster was installed at the lower part of the Main Frame.
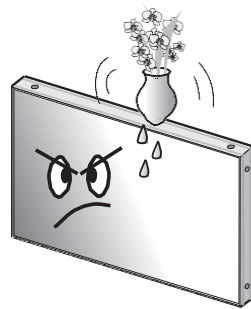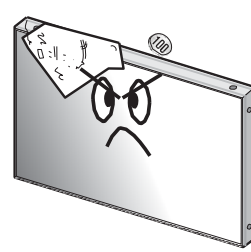
01. Safety Precautions

- If it operates abnormally, stop using it immediately.

- Do not place any liquid-containing container on it. If the inside is wet, it may cause electric shock or fire.
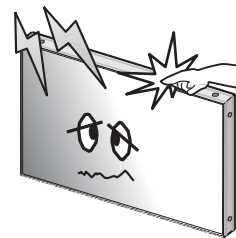
- Do not put any foreign material into the product. It may cause a failure or shorten the life span.
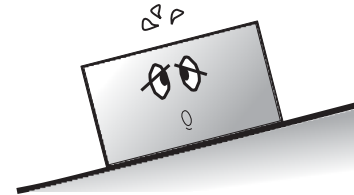
- Please refer to a specialized construction company for installing stand or wall mount unit. Otherwise, damage or injury may be caused.
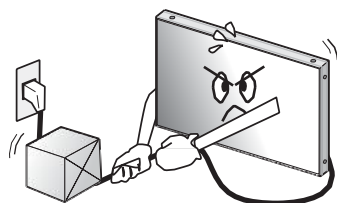
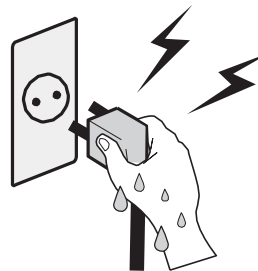- Do not touch the device when lightning strikes.

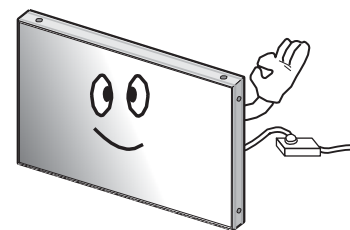- Do not install in an unstable location It may cause injury.

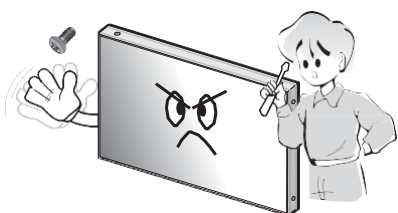- Avoid any action to damage the power cord or power plug. It may cause fire or electric shock.

- Do not pull out the power plug with a wet hand. It may cause electric shock.

- Do not exceed ratings of AC outlet or extension cords. It may cause failure.

- Do not alter (or disassemble) the product. It may cause electric shock since high voltage is flowing inside.

- Do not install the product where it may be exposed to direct sunlight or near any heating device. It may shorten the product's life span or cause failure.
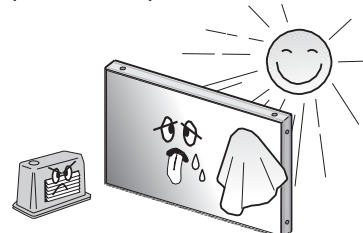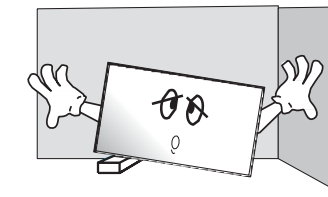
- Make sure the product is not covered with any object. If the ventilation hole is blocked, the inside temperature may rise to cause overheating resulting in fire.
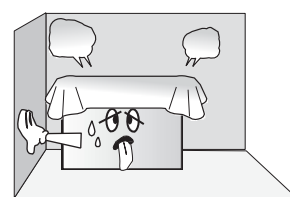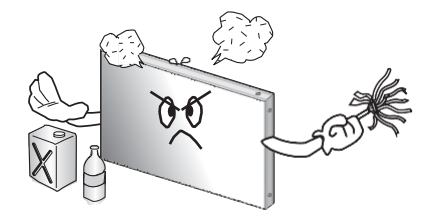
- Do not pull out or hang down the connection cable. It may damage the cord to cause fire or electric shock.
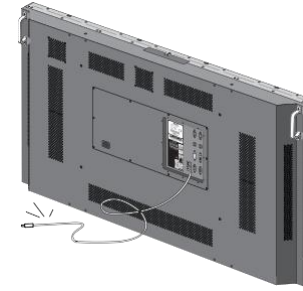
- Do not lean against the product or keep it leaned. It may cause injury or failure.

- Do not put it at any place with much humidity, dust, oil, smoke or steam. It may cause failure.

- Pull out the power plug by holding the plug. Otherwise, it may damage the power cord to cause fire or electric shock.
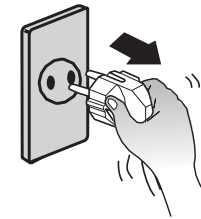
- If you do not want to use the product for a long time, keep the power plug unplugged to save electricity.
- The socket-outlet should be installed near the equipment and be easily accessible.
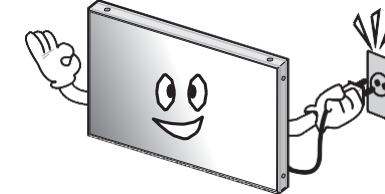
- Do not put any heavy object on it. It may cause failure.
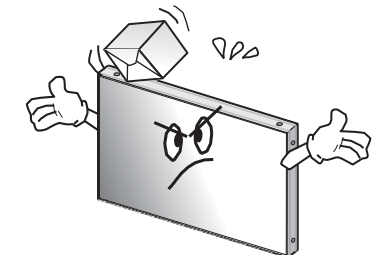
- Install the product on safe and flat surface.
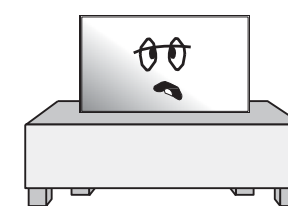
- Do not ride or step on the product It may cause breakage when fallen down.
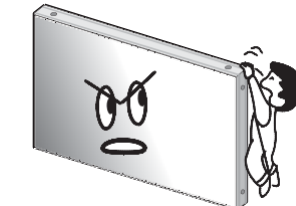
- When moving it, disconnect the connecting cable. Otherwise, it may damage the cable to cause fire or electric shock.
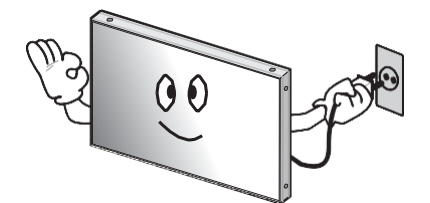
- Do not put candles on the product. If the liquid flows inside the product. It may cause electric shock or fire.
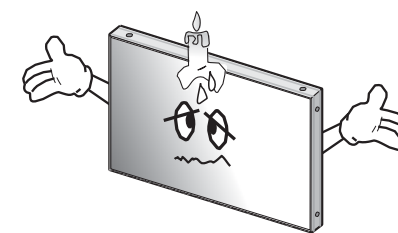
- Do not touch product's front surface with hand. Otherwise, the image quality can be lowered.
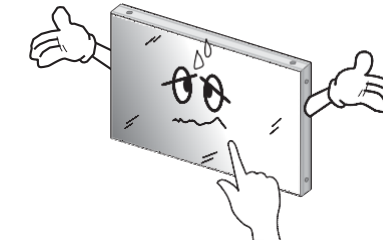
- Do not poke the front screen with sharp material. It may damage the screen and may cause malfunction of the product.
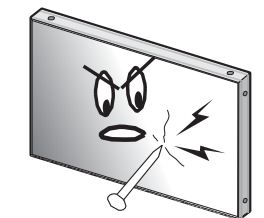
02. Names

▶ **Front**

▶ **Rear**
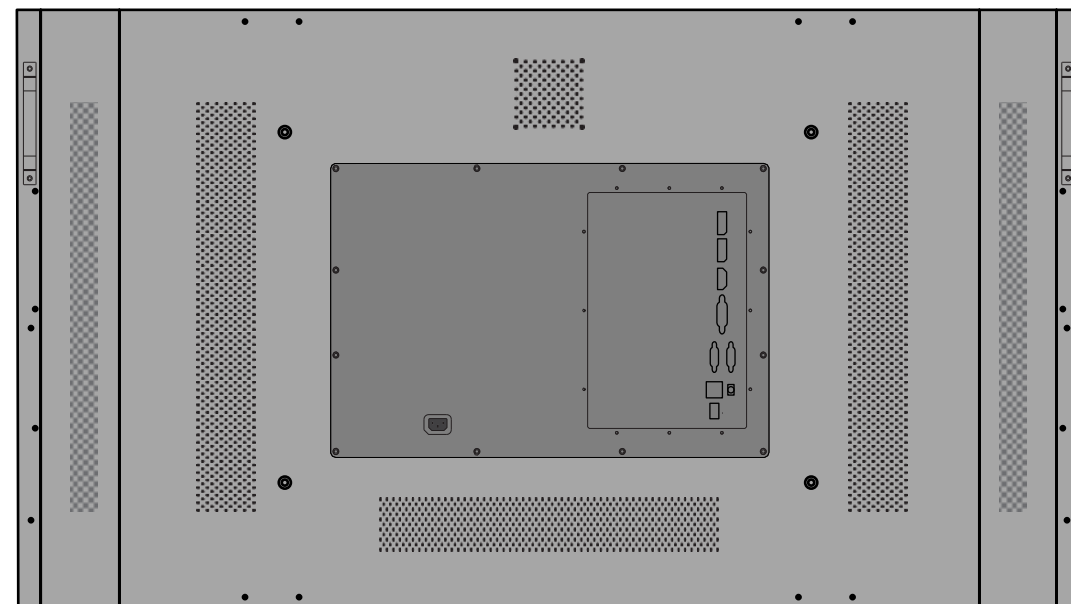
▶ **Input Ports**
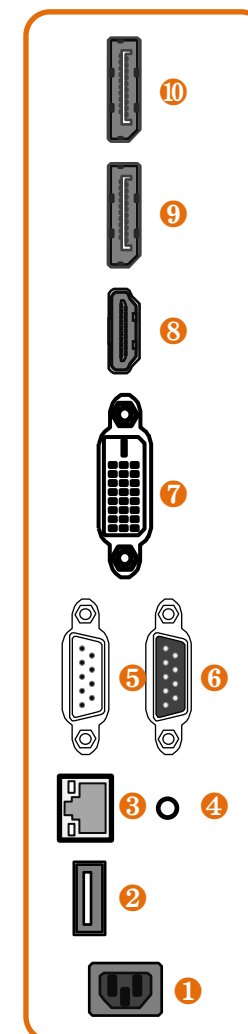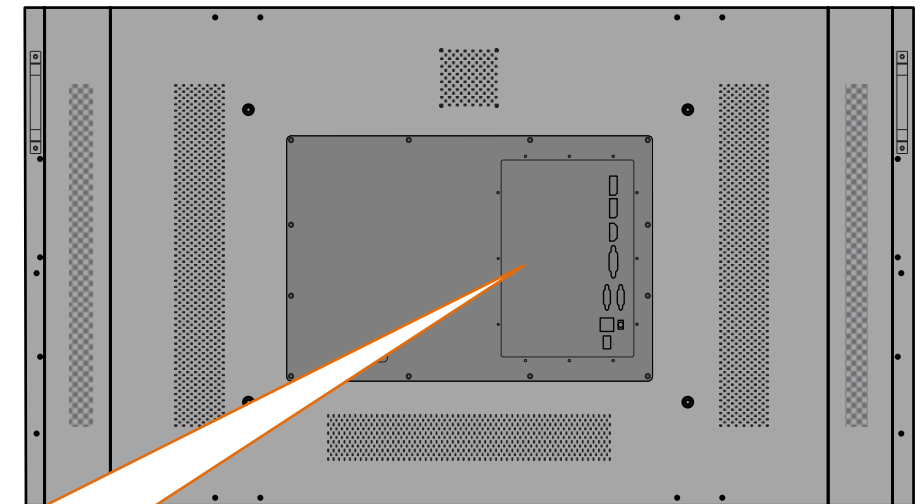
1. AC IN
AC 100V ~ 240V, 50/60Hz

2. A/S
Only for Firmware upgrade.

3. LAN
Display control via Ethernet (RJ45)

4. IR
Remote controller input port

5. RS232C IN
Display control via COM port
(D-Sub 9pin, FEMALE)

6. RS232C OUT
Display control via COM port
(D-Sub 9pin, MALE)

7. DVI IN
To input Display Port signals

8. HDMI IN
To input HDMI video signal.

9. DP IN
To input DisplayPort video signal.

10. DP OUT
For loop through video with other
monitors for sharing video signal through
DisplayPort.

03. How to Connect Cables

・ Do not connect/disconnect cables while monitor or other external equipments are turned on.

・ First turn off the power all the attached equipment and make connections.

・ Make sure the power cord is inserted properly into the power inlet to prevent unexpected pullout of the cord.

3.1. Connection of Single

・Monitor and PC should be connected; a Com Port in a PC and RS-232C IN port in a monitor is

connected with supplied RS-232C cable.

・ If you do not have Com Port, you need to use an USB converter for RS-232C. Depending on

manufacturers or models, converters may cause malfunction.

LOOP OUT

DVD player

DVD player

DVD player

Control PC

DP Cable

DP Cable

HDMI Cable

DVI Cable

RS-232C

LAN Cable(Cross Cable or Direct Cable)

LAN Cable (Direct cable)

HUB or Router

LAN Cable (Direct cable)
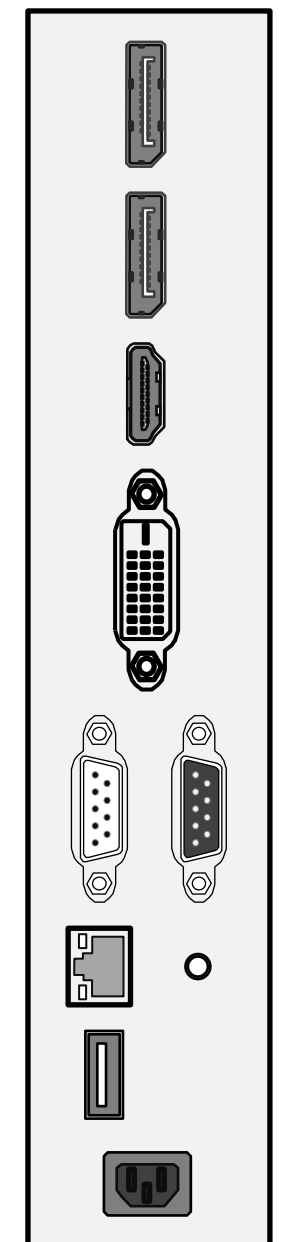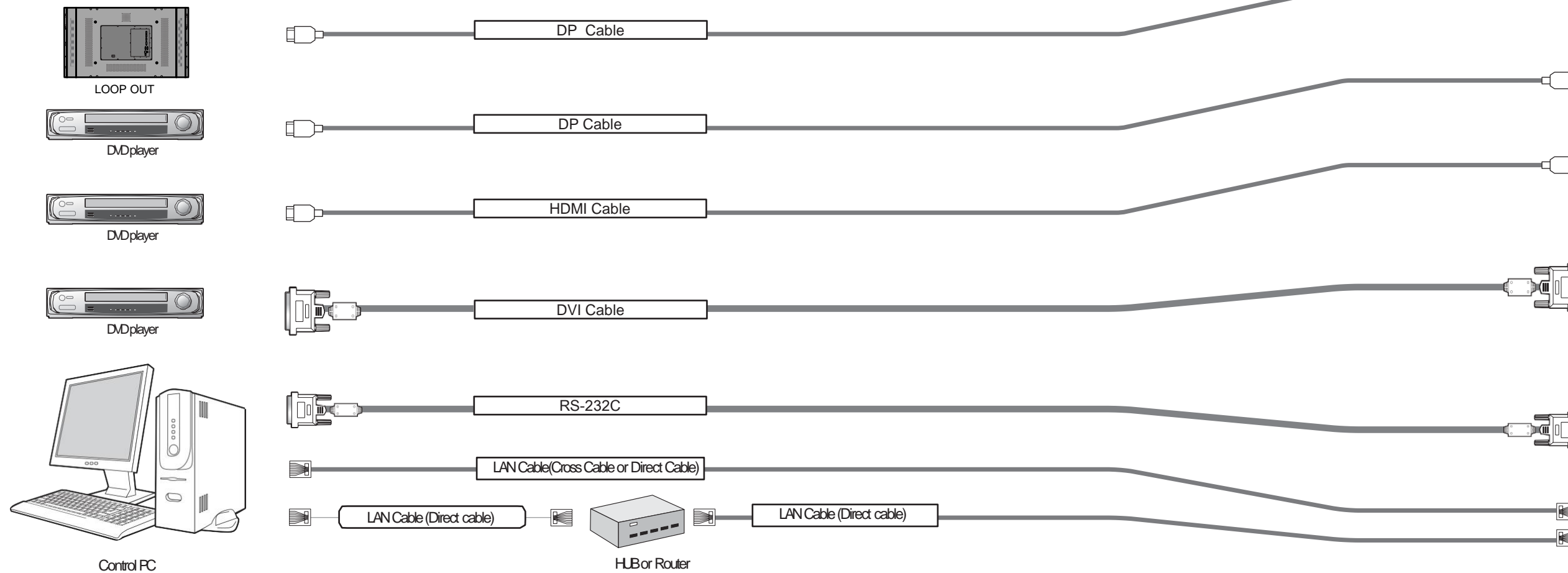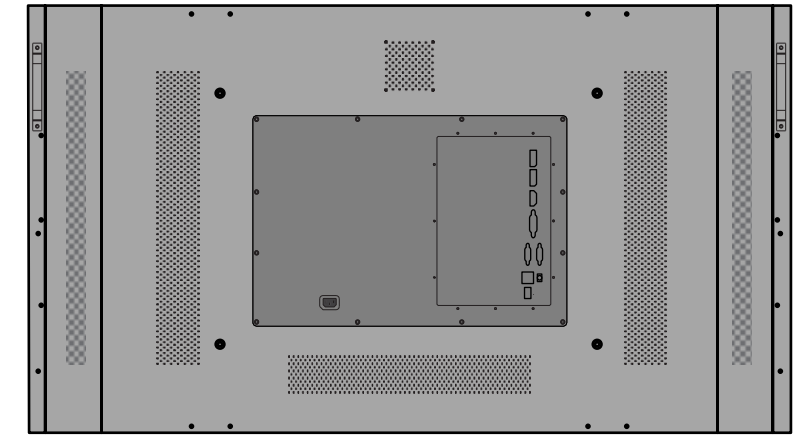
3.2. Connection of Multiple (for DP in)

· Image quality can be affected by cable or signal quality.

· Please use DisplayPort cable with DisplayPort certified logo.

· Select DisplayPort cables feature a locking function. When removing this cable, hold down the top button to release the lock.

· Recommended maximum set connection for Multi setting is shown in table below.
  If you need to connect more than described in the table, you have to use distributors.

INPUT SOURCE	Resolution	Output Port	Connection	Remark
DP / HDMI	3840 x 2160 x 60Hz	DP OUT	6 sets	HDCP Available
DVI	1920 x 1080 x 60Hz	DP OUT	6 sets	HDCP Available

Video Source
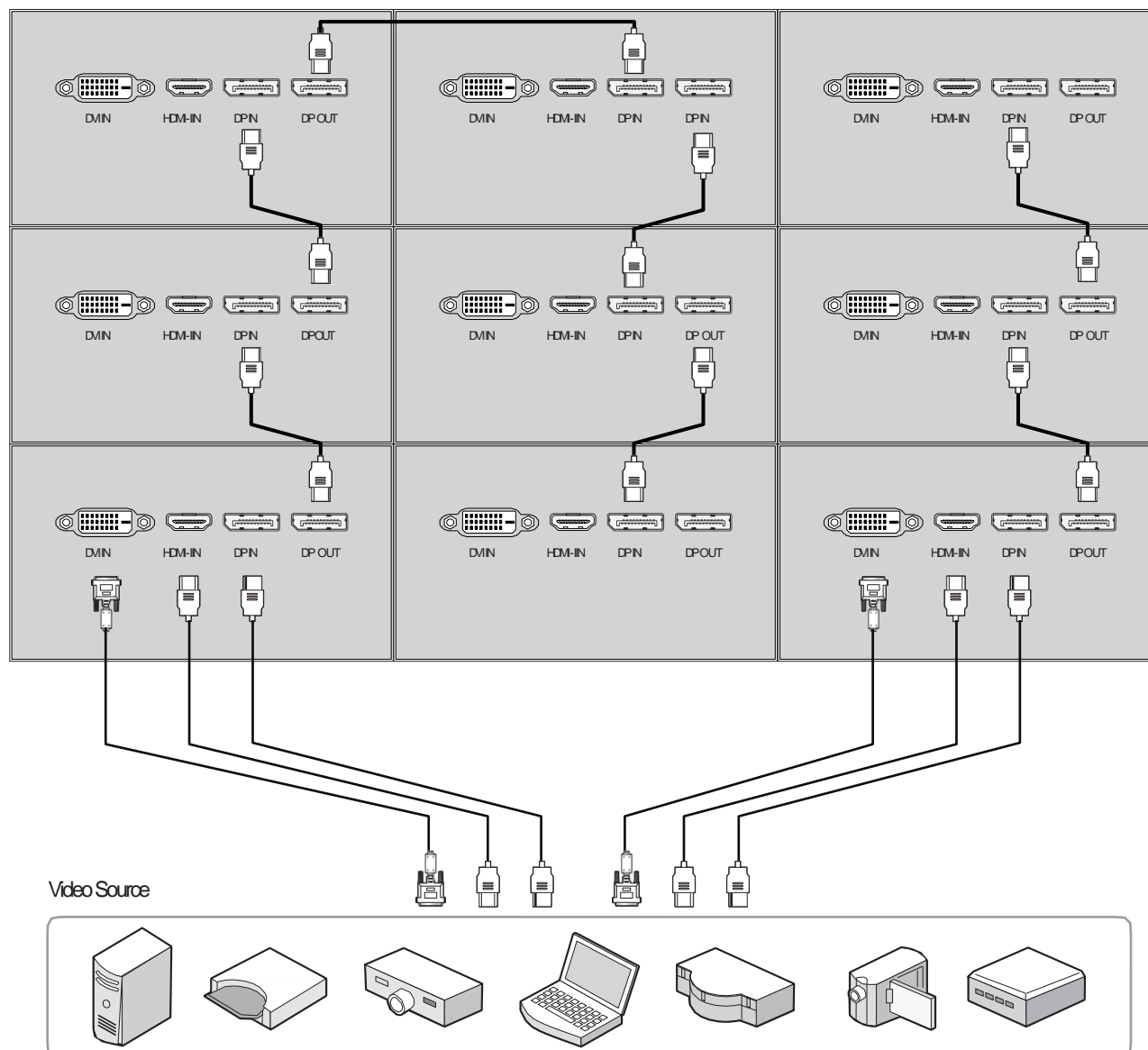
3.3. Connection of Multiple (for 1:1 connection)

· It is recommended you purchase an HDMI-certified cable. Otherwise, the screen may appear blank or a connection error may occur.

· Image quality can be affected by cable or signal quality.

HDMI or DP or DVI

VIDEO Signal Distributor

※Caution for DP Signal Distributor

If you want to display HDCP (High-bandwidth Digital Content Protection) applied contents, you must use the distributor that supports HDCP function.

DVI   HDMI   DP

Video Source
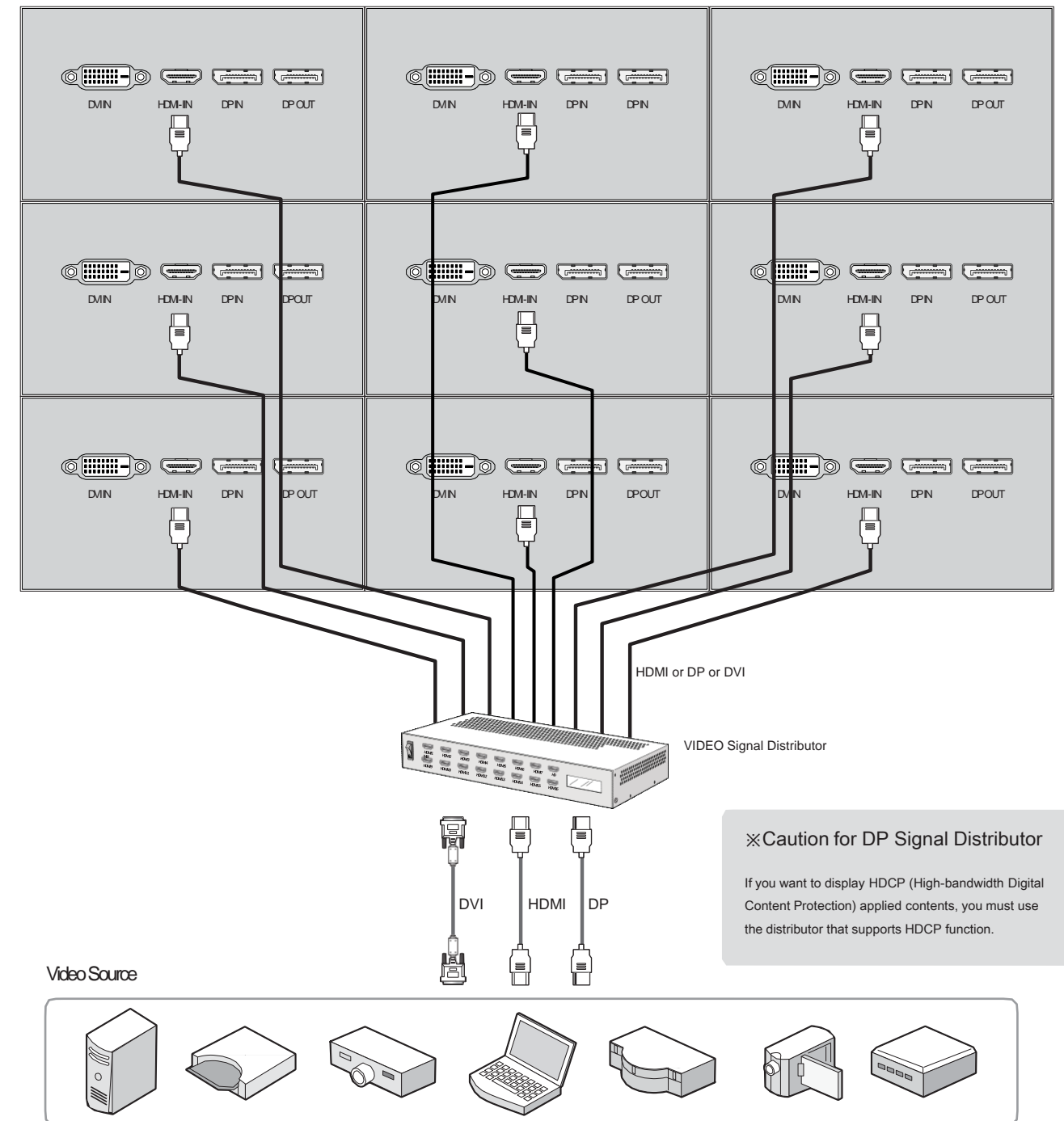
3.4. Connection of Control Cable

· Control signal transmission can be connected by 3 different methods.(RS-232C or Ethernet or IR)

· RS-232C and Ethernet connection cannot be used simultaneously.

· All control signals are output to the RS-232OUT after conversion to RS-232C signal.

3.4.1. Connection of RS-232C Cable

· Maximum use of RS-232C with Daisy Chain connection is 30 sets or less, if you need additional connection, use RS-232C distributor.

RS-232C Cable
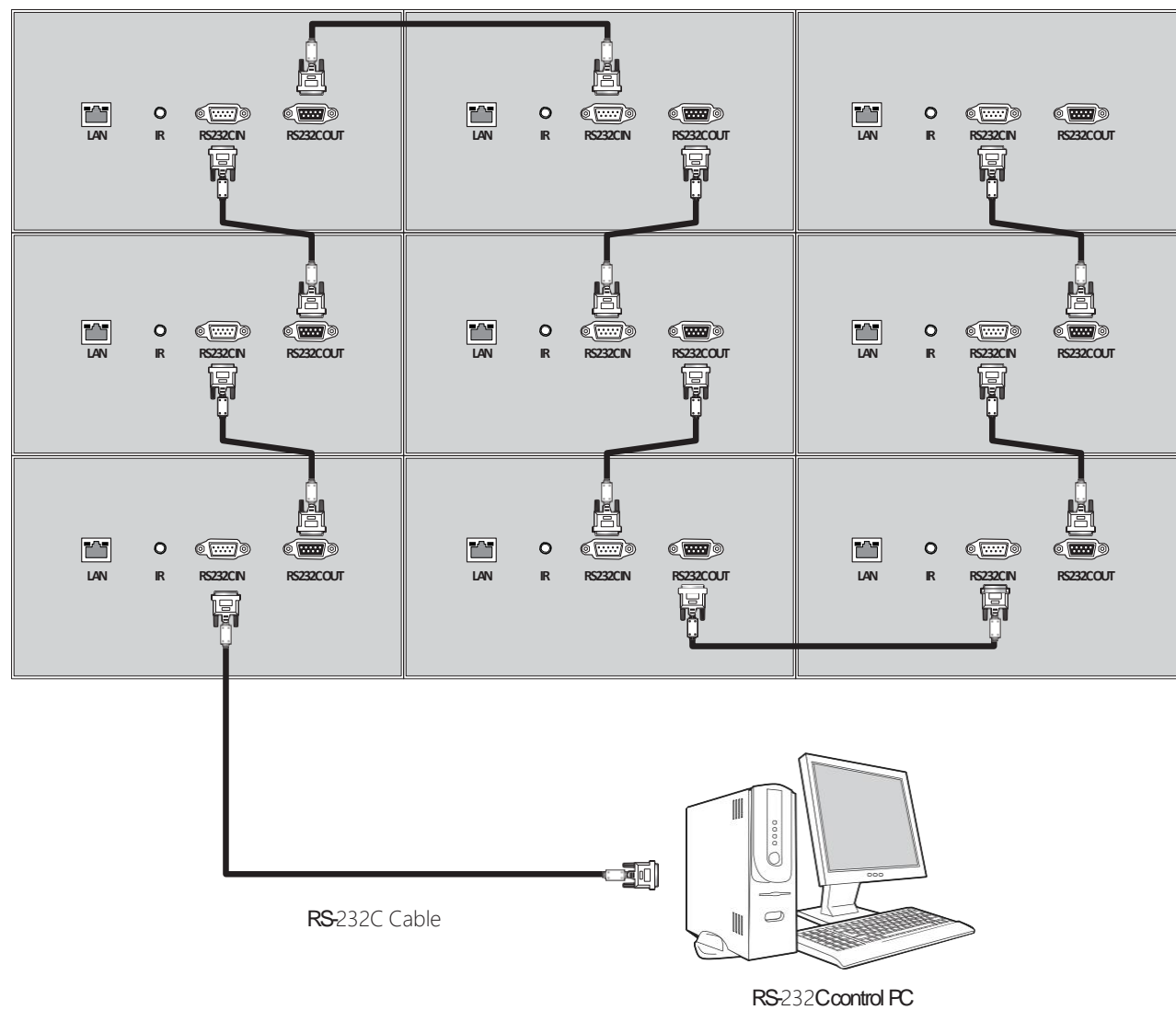
RS-232C control PC

3.4.2. Connection of Ethernet Cable

· In case of Ethernet connection, the control PC should be connected to one of monitor sets with Ethernet cable.For the connection between the monitor sets, they should be connected with RS-232C cables.

LAN Cable
(Direct Cable)

LAN Cable(Cross Cable or Direct Cable)

HUB or Router (
Wireless & Cable)

LAN Cable (
Direct Cable)

Ethernet control PC
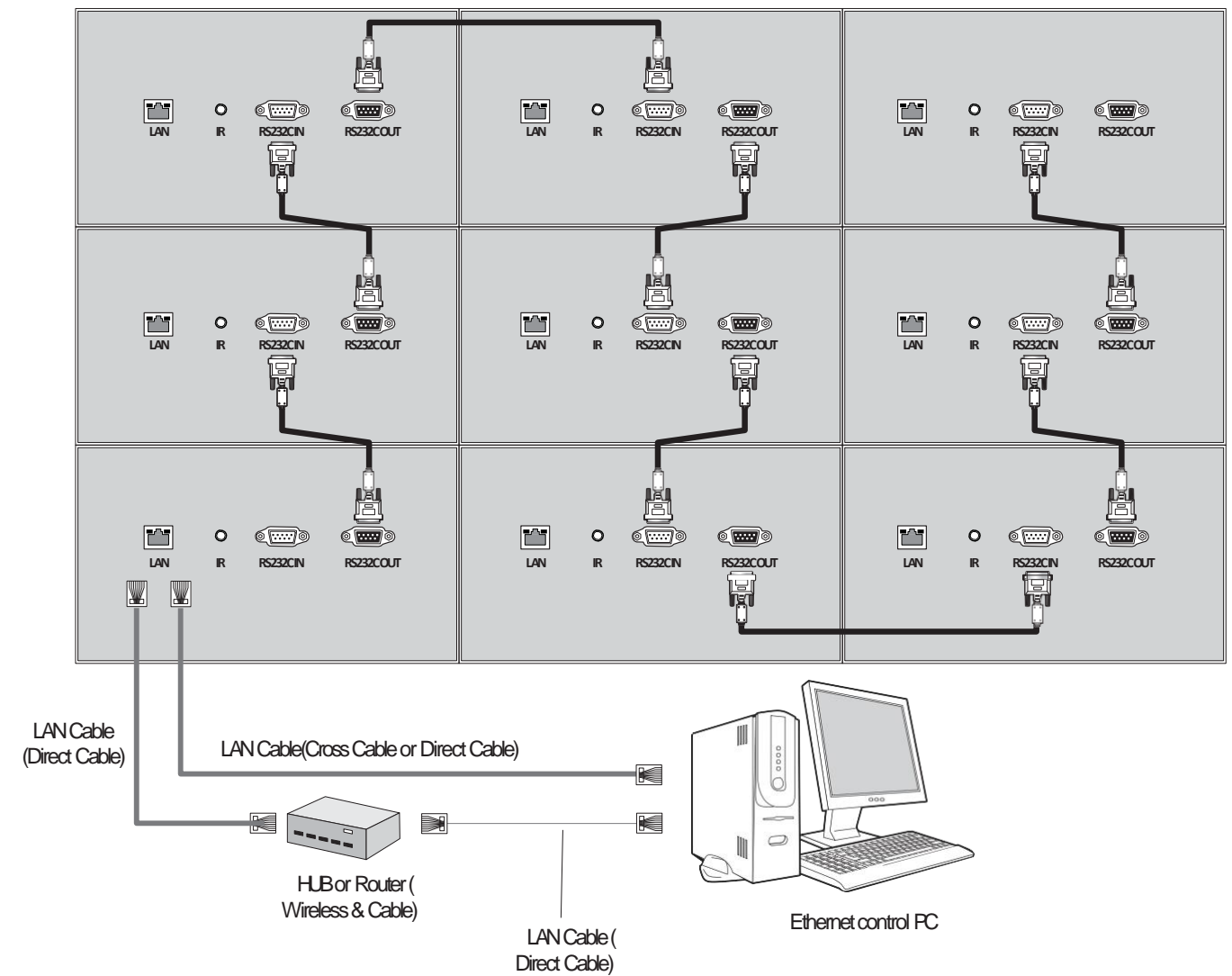
4. ID Setting

- ‧ Refer to the next chapter for OSW use.(6.1 ~ 6.7)

- ‧ Before ID Setting Using OSW, Make sure that all of the connected MLCD sets are turned on by clicking "Power On" button in Broadcast.

☐ BROADCASE MODE

4.1. Sequential Connection

‧ It is the sequential RS-232C cable connection according to the order of ID numbers.

RS-232C
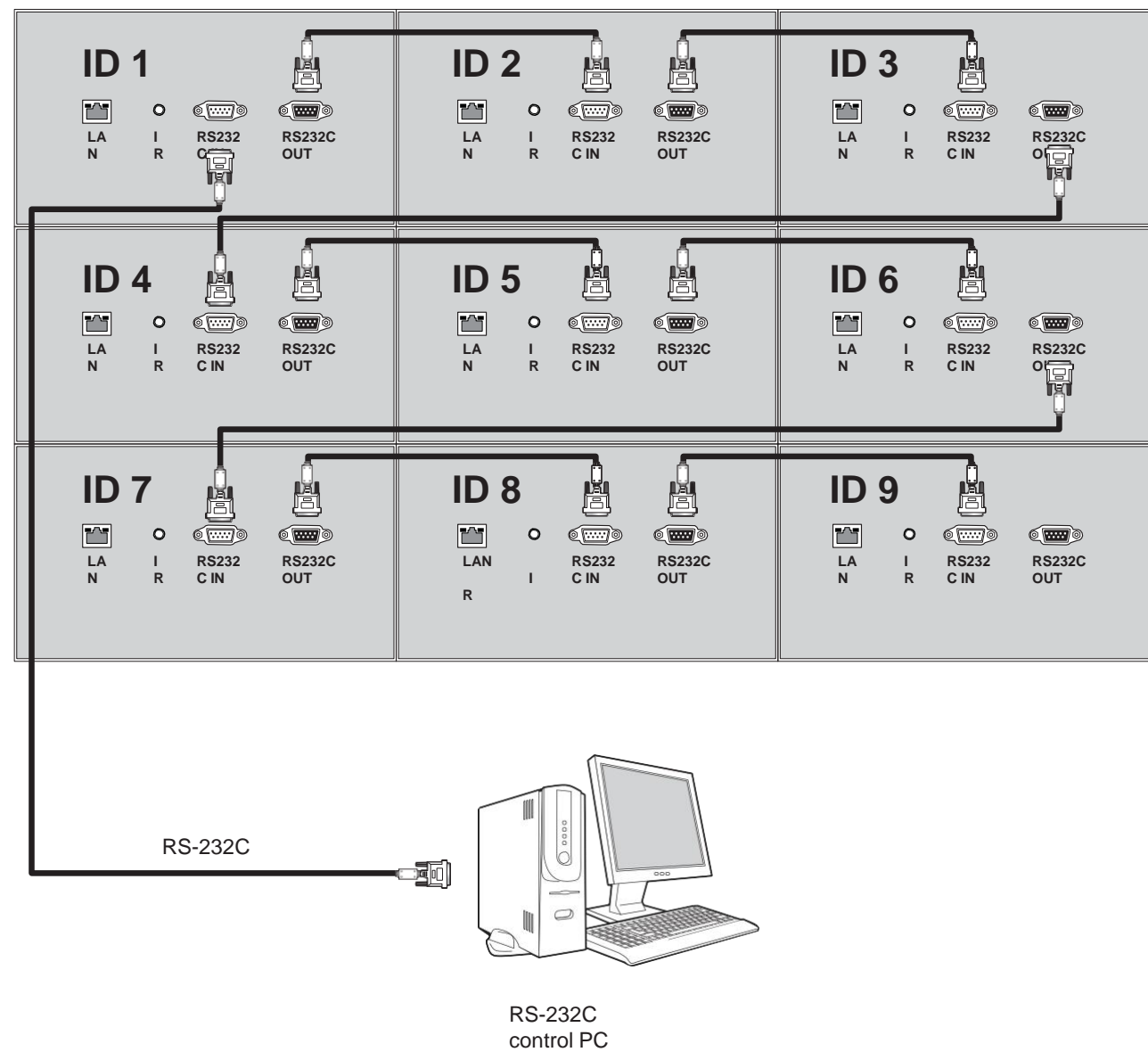
RS-232C
control PC

1. Go to "APPLICATION" tab and Click "ID SETTING" icon.
2. Click "AUTO ID SET" button in "ID" tab to run ID setting automatically.
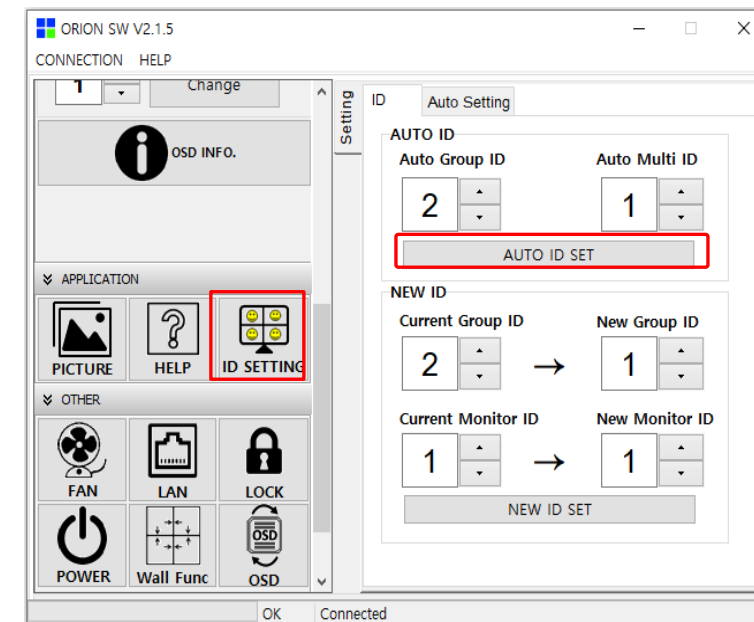
3. After that, ID setting status in OSW Screen Configuration is as bellow. It's same as physical RS-232C cable connection. Because "AUTO ID" sets the order of ID numbers according to the sequential RS-232C cable connection.
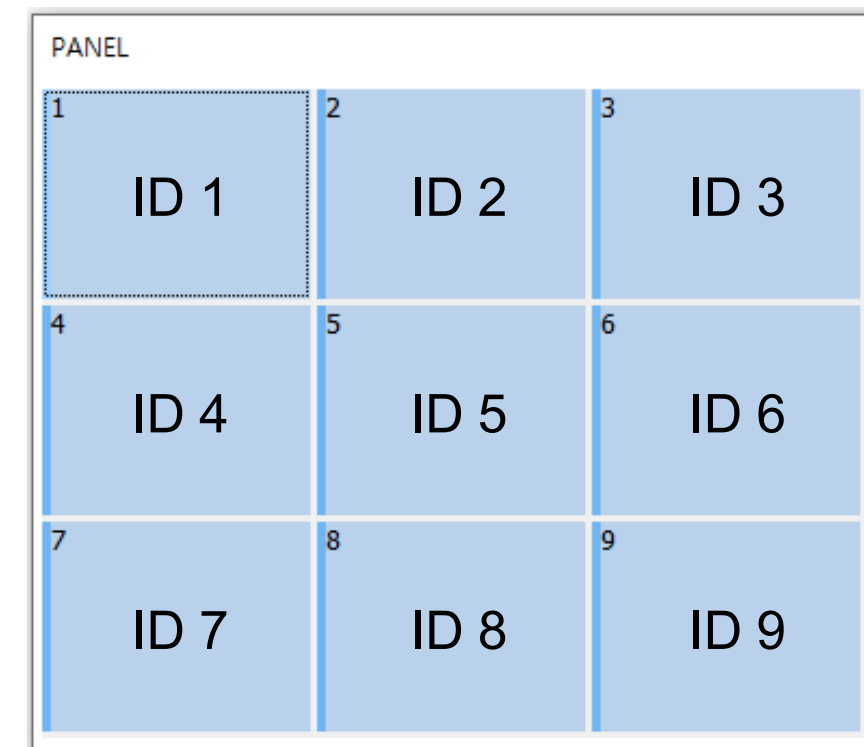
4.2. Random Connection

・It is the random RS-232C cable connection regardless of the order of ID numbers.

ID 1 | ID 2 | ID 3
LAN | I R | RS232 | RS232C OUT
ID 4 | ID 5 | ID 6
ID 7 | ID 8 | ID 9

RS-232C

RS-232C
control PC
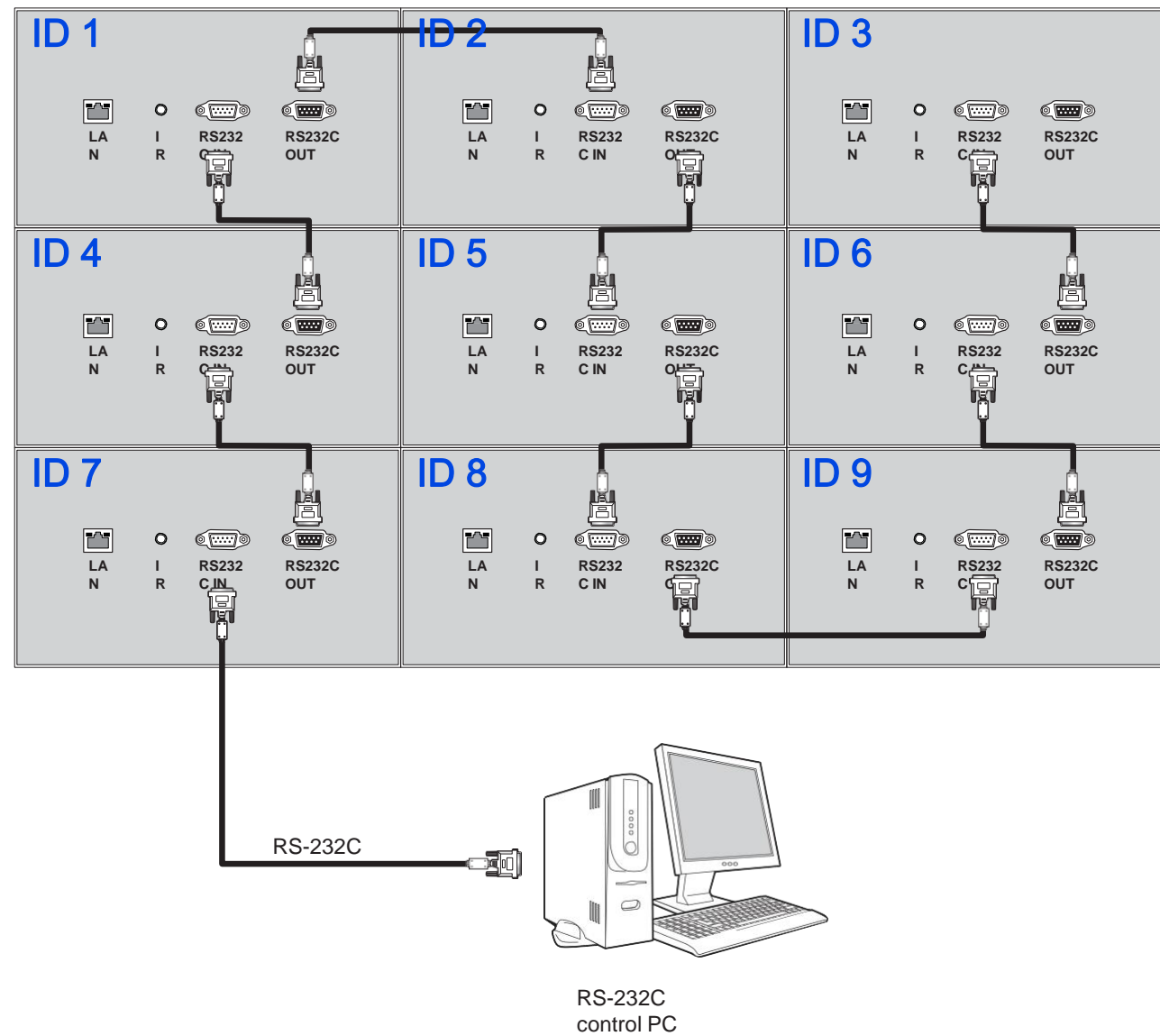
1. Go to "APPLICATION" tab and Click "ID SETTING" icon.

2. Select another number, which is not in use, for "AUTO GROUP ID" and click "AUTO ID SET" in "AUTO ID" menu
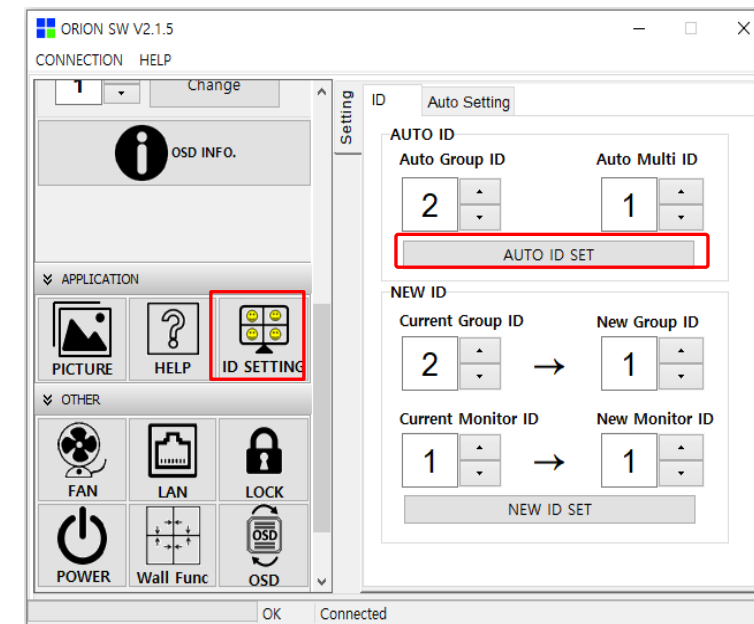
3. After that, ID setting status in OSW PANEL window is as follows. It's same as physical RS-232C cable connection. Because "AUTO ID" sets the order of ID numbers according to the sequential RS-232C cable connection.
   * GID = Group ID, MID = Monitor ID

PANEL

1 GID 2 MID 3	2 GID 2 MID 4	3 GID 2 MID 9
4 GID 2 MID 2	5 GID 2 MID 5	6 GID 2 MID 8
7 GID 2 MID 1	8 GID 2 MID 6	9 GID 2 MID 7

4. Identify the IDs of all connected MLCD sets by clicking "INFO" button in Broadcast.

5. first, Identify the IDs of upper left corner MLCD set.

6. Set the IDs identified through the above 4,5) procedure for "EXISTING GROUP/MULTI ID" in "Modify ID" Menu. And then, set "NEW GROUP ID" as 1 and "NEW MULTI ID" as 1 in "Modify ID" Menu. And click "SET" button in "Modify ID" menu.

NEW ID

Current Group ID	New Group ID
2	→	1

Current Monitor ID	New Monitor ID
3	→	1

NEW ID SET

PANEL

1 GID 2 MID 3	2 GID 2 MID 4	3 GID 2 MID 9
4 GID 2 MID 2	5 GID 2 MID 5	6 GID 2 MID 8
7 GID 2 MID 1	8 GID 2 MID 6	9 GID 2 MID 7

Group ID 2, Multi ID 3

→

PANEL

1 GID 1 MID 1	2 GID 2 MID 4	3 GID 2 MID 9
4 GID 2 MID 2	5 GID 2 MID 5	6 GID 2 MID 8
7 GID 2 MID 1	8 GID 2 MID 6	9 GID 2 MID 7
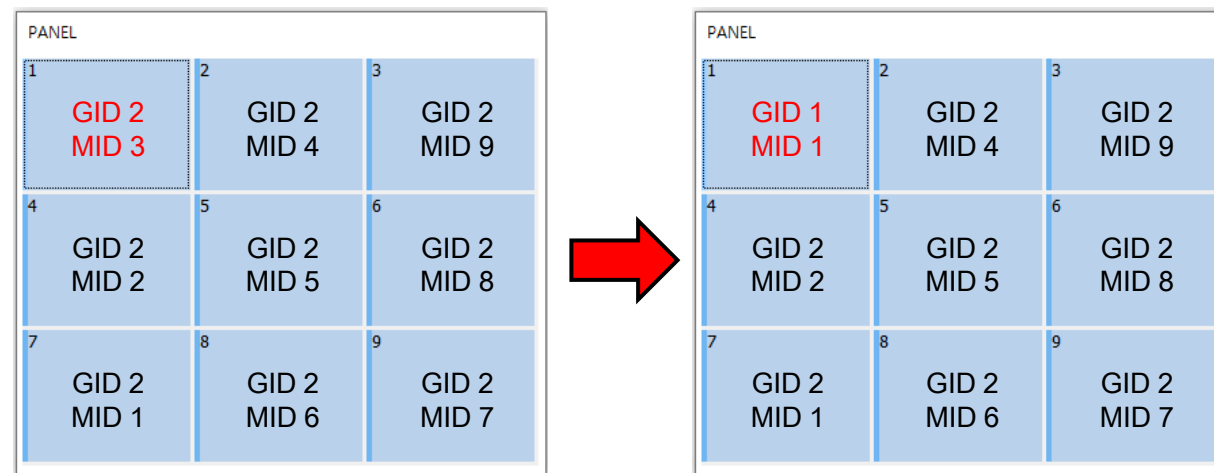
Group ID 1, Multi ID 1

7. Identify the IDs on the right MLCD set of upper left corner MLCD set in the same way as the above 4) procedure.

8. Set the IDs identified through the above 7) procedure for "EXISTING GROUP/MULTI ID" in "Modify ID" Menu. And then, Increase the number by 1 for "NEW MULTIID" in "Modify ID" Menu to set the ID order. and click "SET" button in "Modify ID" menu.

NEW ID

Current Group ID	New Group ID
2	→	1

Current Monitor ID	New Monitor ID
4	→	2

NEW ID SET

PANEL

1 GID 1 MID 1	2 GID 2 MID 4	3 GID 2 MID 9
4 GID 2 MID 2	5 GID 2 MID 5	6 GID 2 MID 8
7 GID 2 MID 1	8 GID 2 MID 6	9 GID 2 MID 7

Group ID 2, Multi ID 4

→

PANEL

1 GID 1 MID 1	2 GID 1 MID 2	3 GID 2 MID 9
4 GID 2 MID 2	5 GID 2 MID 5	6 GID 2 MID 8
7 GID 2 MID 1	8 GID 2 MID 6	9 GID 2 MID 7
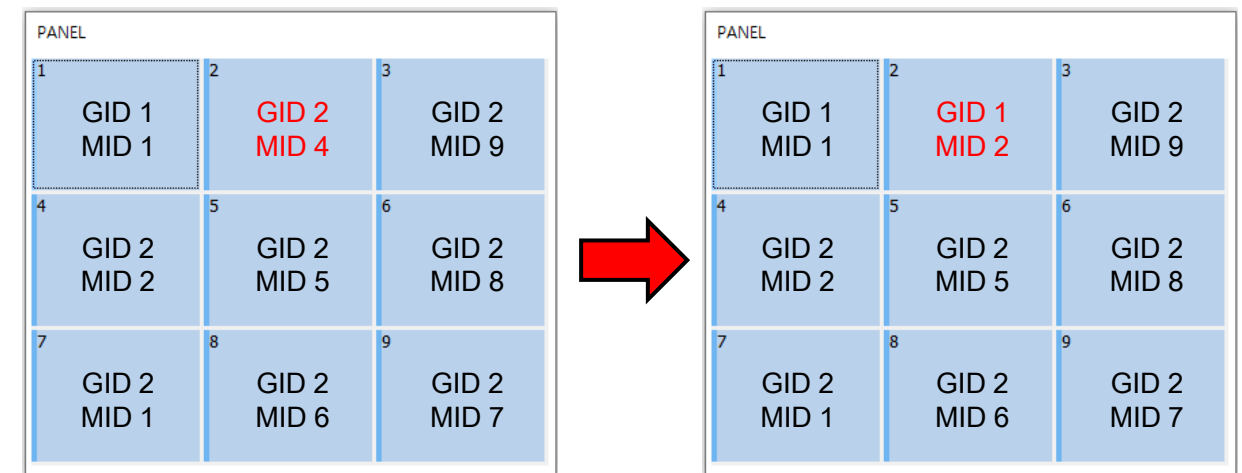
Group ID 1, Multi ID 2

9. Repeat the above 7) and 8) procedures for the rest of displays in the same order as the number of the 10) procedure's capture view.

10. After setting last MLCD set, ID setting status in MSCS Screen Configuration is as follows. It's different from physical RS-232C cable connection.

Current Group ID	New Group ID
2 →	1

Current Group ID	New Group ID
3 →	1
4 →	2
9 →	3
2 →	4
5 →	5
8 →	6
1 →	7
6 →	8
7 →	9

PANEL

1	2	3
ID 1	ID 2	ID 3
4	5	6
ID 4	ID 5	ID 6
7	8	9
ID 7	ID 8	ID 9
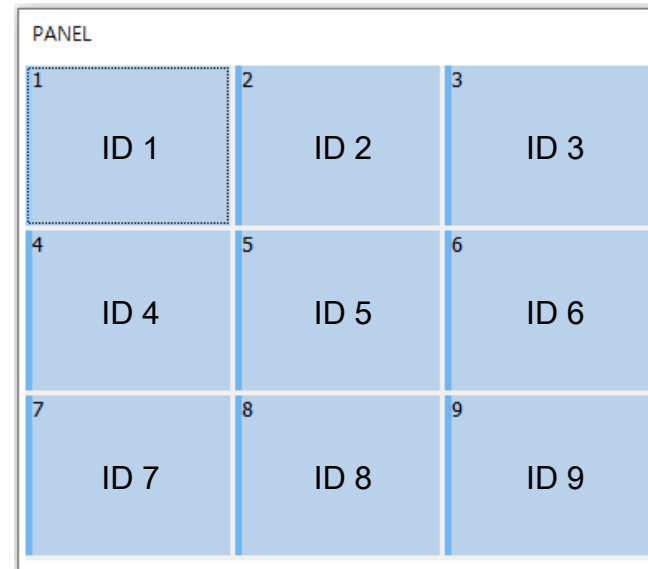
4.3. Using Auto Setting

・This feature is a way to automatically set the ID by entering a cable connection order

※ NOTE : This function is supported on OSW 2.1.3 and later versions.

Setting

| ID | Auto Setting |

3 ÷ X 3 ÷   SET

MODE
☐ BROADCAST MODE ☑ DRAG MODE

MULTISCALE
Full Screen On   Full Screen Off

POSITION
1 ÷   Change

ⓘ OSD INFO.

≫ APPLICATION

PICTURE   HELP   ID SETTING

≫ OTHER

FAN   LAN   LOCK

POWER   Wall Func   OSD

1. MONITOR CONFIGURATION
X   Y
1 X 1   SET

2. Type in the panel
▶ Type the physical connection sequence of monitor.
▶ Example

2	3
1	4

3. Auto Setting Start
START

4. Check Status
Standby

1. Monitor Configuration
・Enter the horizontal and vertical numbers in the X / Y fields. Click the SET button.

Setting

| ID | Auto Setting |

1	2	3
4	5	6
7	8	9

1. MONITOR CONFIGURATION
X   Y
3 X 3   SET
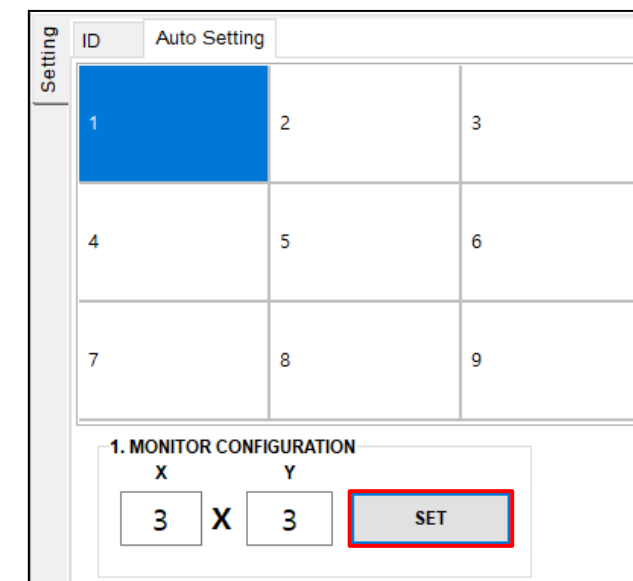
2. Monitor Configuration

•Type the number in panel as physical RS-232 cable connection sequence.

▶ Eample

RS-232C Cable

RS-232C control PC
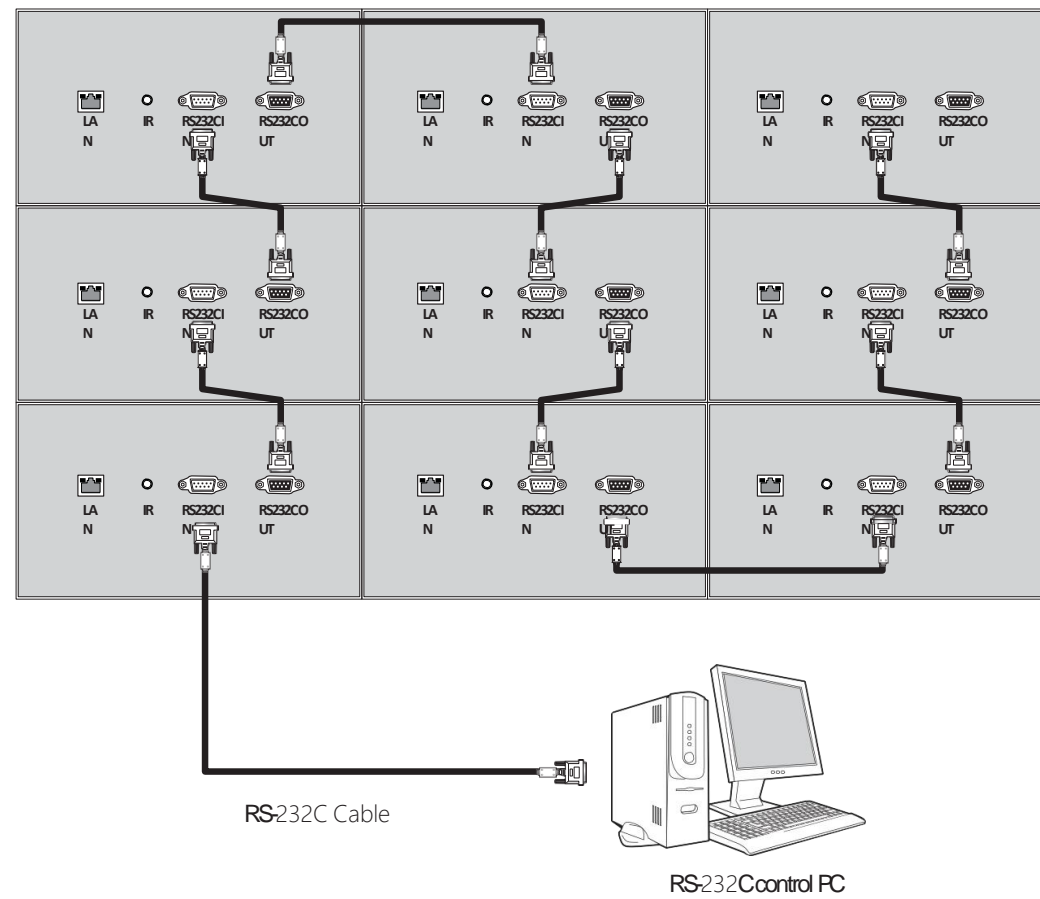
•If the physical connection is above, type the number in auto setting panel as connection sequence.

3. Auto Setting Start

• After typing the numbers in auto setting panel, then click the START button.
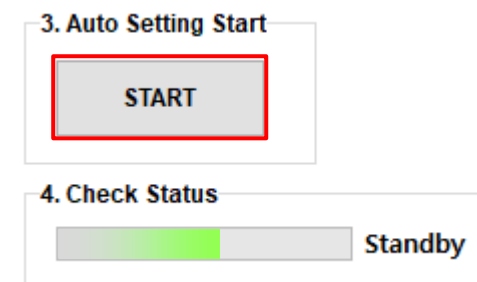
• Setting is done, you can see IDs set as below.

ID 1	ID 2	ID 3
ID 4	ID 5	ID 6
ID 7	ID 8	ID 9

5. OSD Menu

5.1. Picture Menu

・Use this menu to activate Brightness/Contrast/sharpness and the luminance of the backlight adjustment.
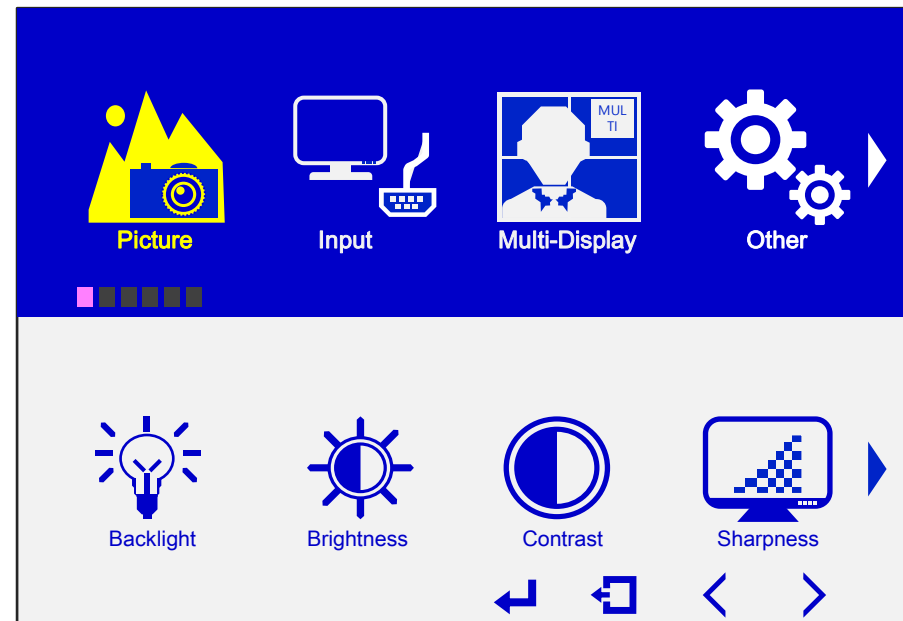
[Picture Menu Table]

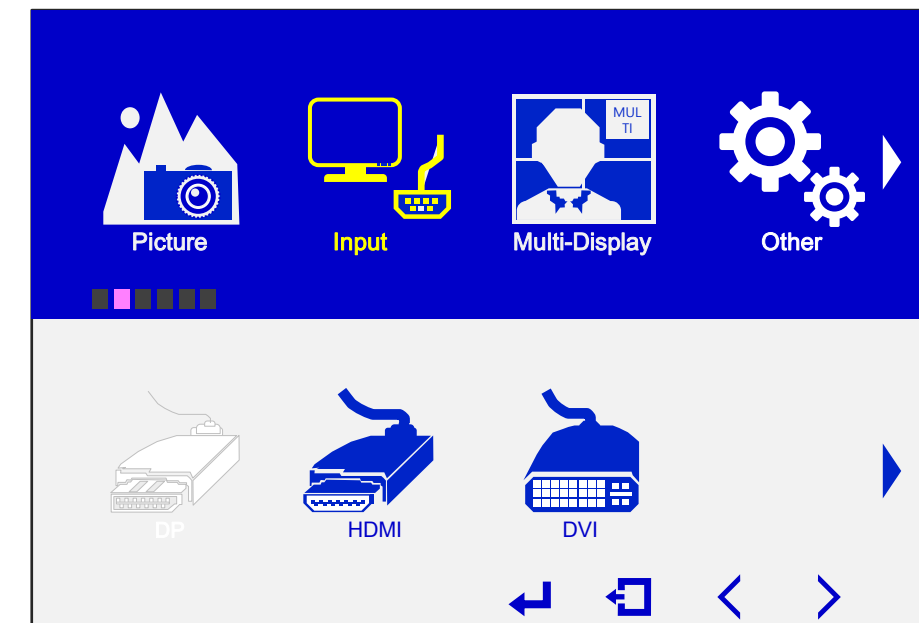| Menu	Sub Menu	Description	Range
Picture	Backlight	Backlight adjusts the luminance of the backlight	0 ~ 100
	Brightness	Brightness adjusts the brightness of the monitor.	0 ~ 100
	Contrast	Contrast adjusts the difference between darkness and lightness on the monitor. Adjust the Brightness first, and then adjust Contrast only if further adjustment is necessary.	0 ~ 100
	Sharpness	Sharpness adjusts the sharpness of the monitor	0~4
	GAMMA	Select a display gamma for best picture quality.	1.8/2.0/ 2.2/2.4
	TEMPERATURE	Adjust the color temperature of the screen. If Color Temperature needs further adjustment, the individual R/G/B levels of the white point can be adjusted. Can be used only in User mode of Color Temperature.	10000/ 9300/ 6500/ 3200/ USER
	HUE	Adjustment the hue value of the screen.	0 ~ 100
	SAT	Adjustment the saturation value of the screen.	0 ~ 100
	Color Range	Select Color Range for input signal Only applied to HDMI, DVI). The color range of DP is detected Automatically	Limit/Full

5.2. Input Menu

・Use the Input Source menu to select between different video inputs that are be connected to the monitor.

[Input Menu Table]

Menu	Sub Menu	Description	Range
Input	DP	Select DP input when you are using the DP (DisplayPort) connector.	-
	HDMI	Select the HDMI input when you are using the HDMI connector. Use to select the HDMI input source.	-
	DVI	Select DVI input when you are using the DVI connector.	-

5.3. Multi-Display Menu

・Control multi-scaling functions in this menu
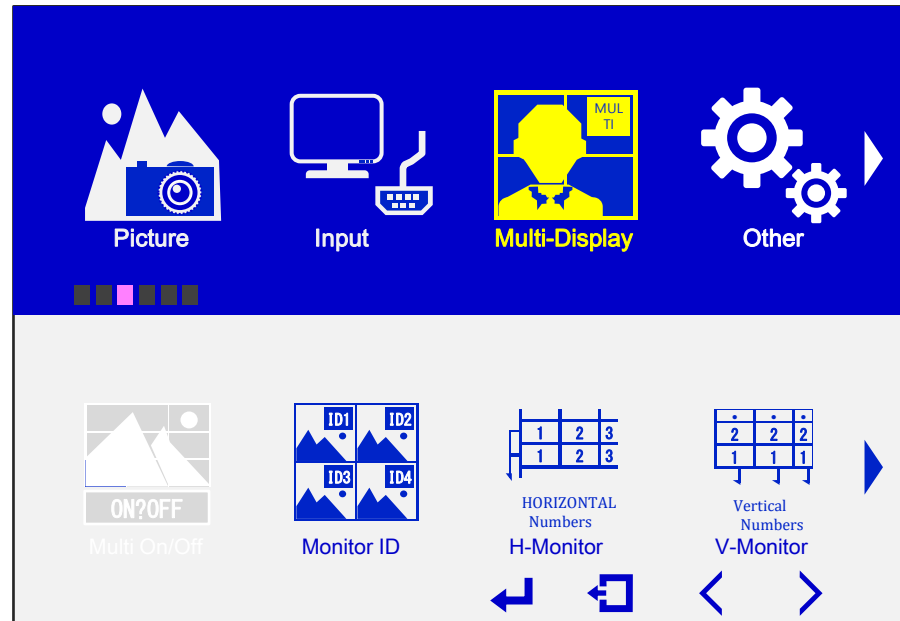

[Multi-Display Menu Table]

Menu	Sub Menu	Description	Range
Multi Display	Multi On/Off	Activate the multi-scaling screen or Deactivate	ON/OFF
	Monitor ID	Assign the ID to the monitor individually	1~254
	H-Monitor	set the number of horizontal monitor in multi-screen.	1~32
	V-Monitor	set the number of vertical monitor in multi-screen.	1~32
	Multi Position	set the position number of the segment image in multi screen	1~255
	B-Comp. Set	Activate Bezel compensation	ON/OFF
	B-Comp. Value	Set bezel compensation numerically	1~10

※ The multiplies of H-monitor value and V-monitor value cannot exceed 255.

If the value of H-monitor is set to 16, the max value of V-monitor is 15.

5.4. Other Menu

・Reset of the OSD settings, menu time, transparency, position and rotation of the OSD can be adjusted in other menu
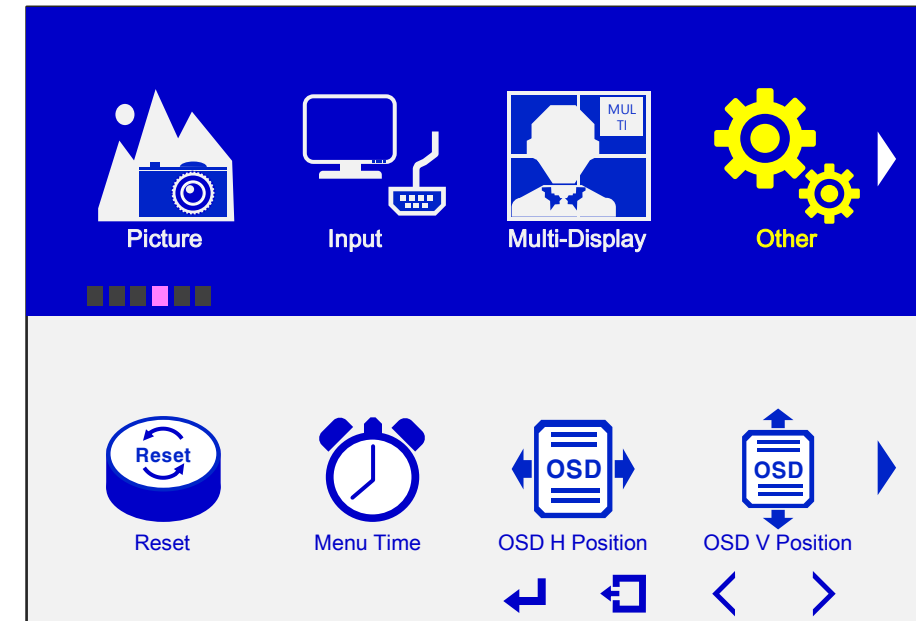
[Other Menu Table]

Menu	Sub Menu	Description	Range
Other	Reset	Initialize all the setting value and options.	ON/OFF
	Menu Time	OSD operation Time	3 ~ 60
	OSD H Position	OSD horizontal position adjustment .	0 ~ 100
	OSD V Position	OSD vertical position adjustment	0 ~ 100
	Language	Select the Language.	EN/DE/FR/ES/NL/PL/RU/IT
	Transparency	OSD transparency ratio adjustment.	0 ~ 10
	Rotate(OSD)	OSD ROTATION.	0°/90°/270
	Fan On/OFF	Turn On/Off the fan operation.	ON/OFF
	Model Info	View Model name, Ip address, Subnet Mask ,Gateway	-
	LAN	Tun On or Off the Lan operation.	ON/OFF
	Auto Power On	Turn On or Off the Auto Power On operation.	ON/OFF

5.5. Wall Function Menu

• Save current video wall settings to the scene or Load the scene.

Wall Function   Information

Load Scene   Save Scene
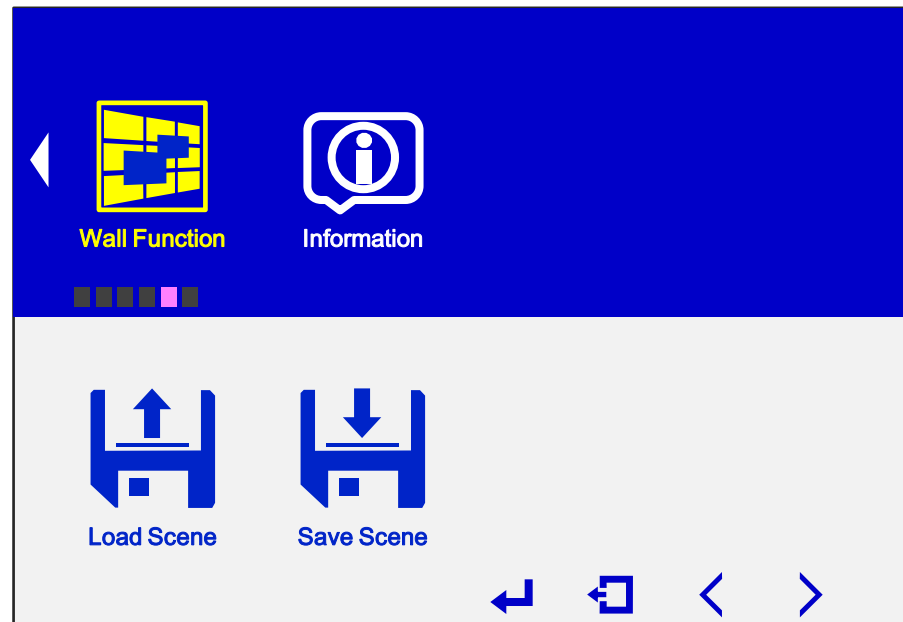
[Wall Function Menu Table]

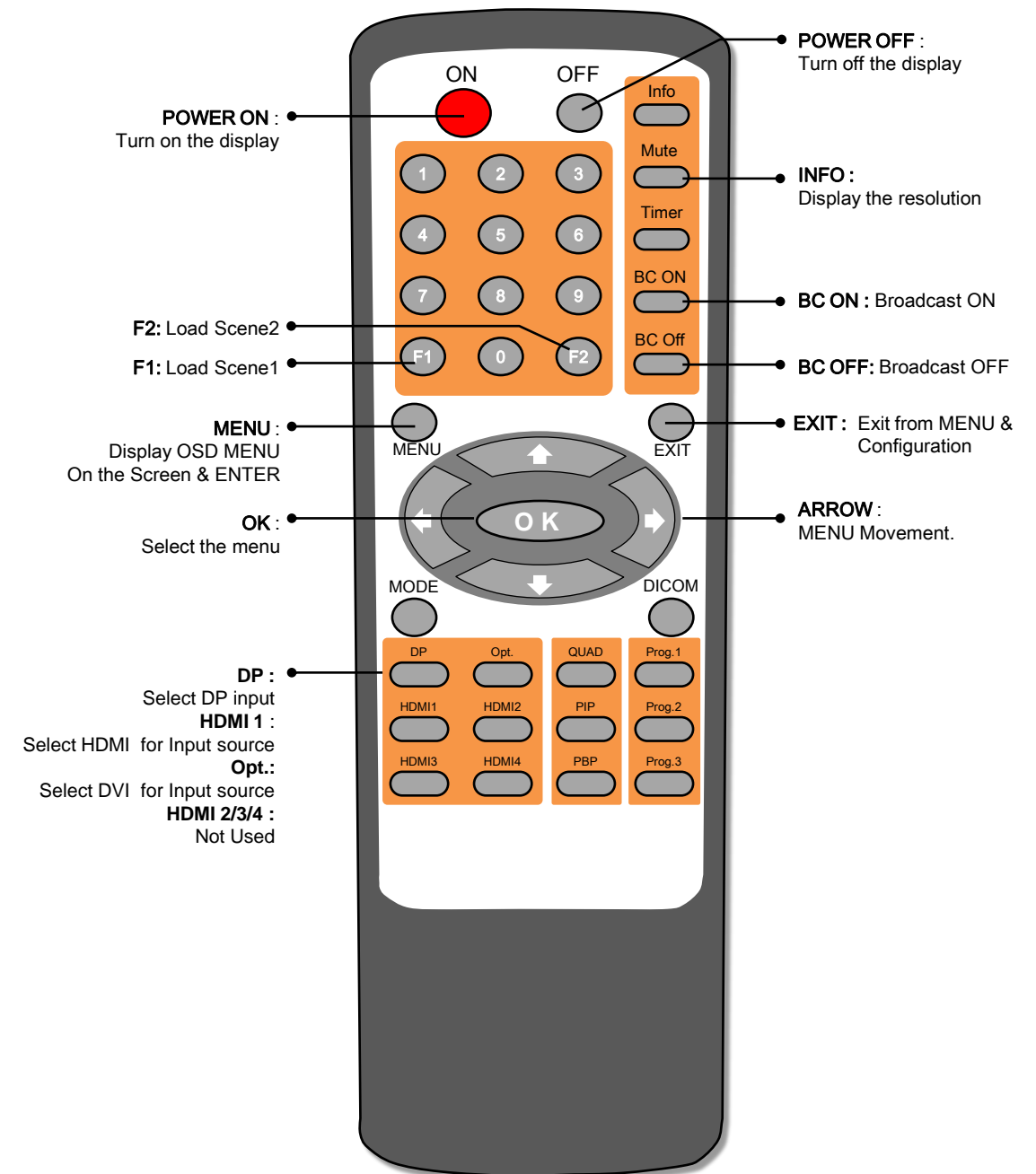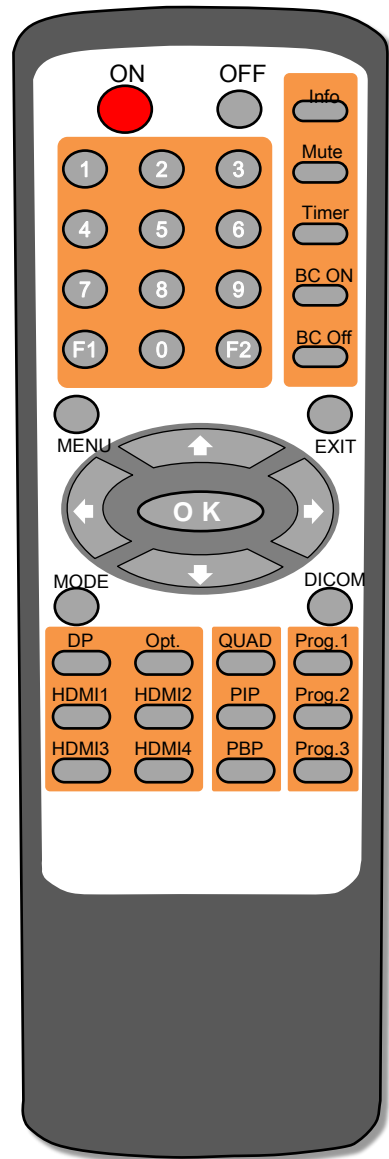| Menu	Sub Menu	Description	Range
Wall Function	Load Scene	Load the Scene.	Scene 1/2/3/4
	Save Scene	Save Current the Wall Setting Values to the Scene.	Scene 1/2/3/4

5.6. Information Menu

• The information of input source is shown.

Wall Function   Information

DP
3840x2160@60Hz
H: 135.0KHz PCLK: 594.0MHz
HDCP Disabled
GROUP ID 1
MONITOR ID 1

5.6. How to Use Remote Controller

POWER OFF :
Turn off the display

ON   OFF   Info

POWER ON :
Turn on the display   Mute

INFO :
Display the resolution

Timer

BC ON

F2: Load Scene2   BC ON : Broadcast ON

F1: Load Scene1   BC Off   BC OFF: Broadcast OFF

MENU :
Display OSD MENU   MENU   EXIT   EXIT : Exit from MENU &
On the Screen & ENTER   Configuration

OK :   O K   ARROW :
Select the menu   MENU Movement.

MODE   DICOM

DP :   DP   Opt.   QUAD   Prog.1
Select DP input
HDMI 1 :   HDMI1   HDMI2   PIP   Prog.2
Select HDMI for Input source
Opt.:   HDMI3   HDMI4   PBP   Prog.3
Select DVI for Input source
HDMI 2/3/4 :
Not Used

1. MENU button
– OSD MENU will be displayed by pressing MENU button.

Picture | Input | Multi Display | Other

Backlight | Brightness | Contrast | Sharpness
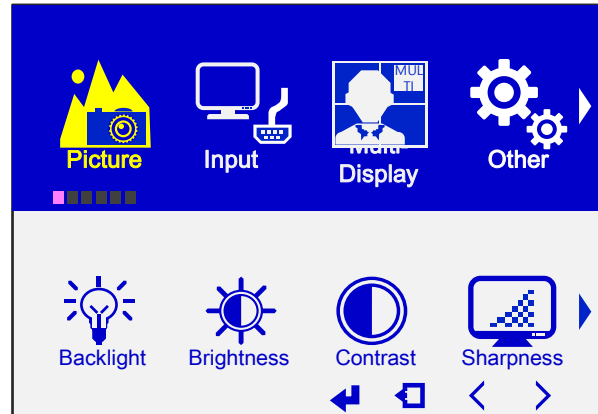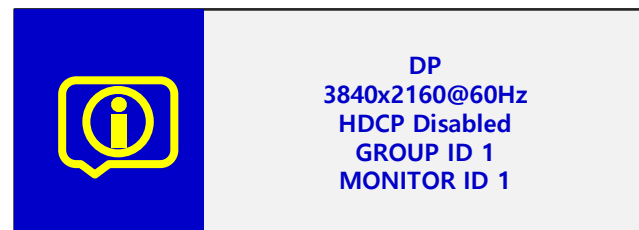
2. Direction buttons for movement
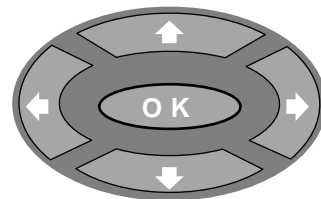
3. EXIT button
– Press EXIT button to exit from the MENU after adjustment.

4. INFO button
– The display information for the screen at the moment is
   displayed at the upper left corner of the screen. ,
   ex) Input DP

DP
3840x2160@60Hz
HDCP Disabled
GROUP ID 1
MONITOR ID 1

5. BC On/BC Off button
  - To control all MLCDs, just press "BC ON" button. After then,
    IR control is applied to the all MLCD.
  - To control one MLCD plugged IR only, just press "BC Off, then
    IR control is applied to one MLCD plugged IR.

6. How to control only one MLCD in multi-configuration
– With each set's ID set, it's about controlling one set with the remote controller..
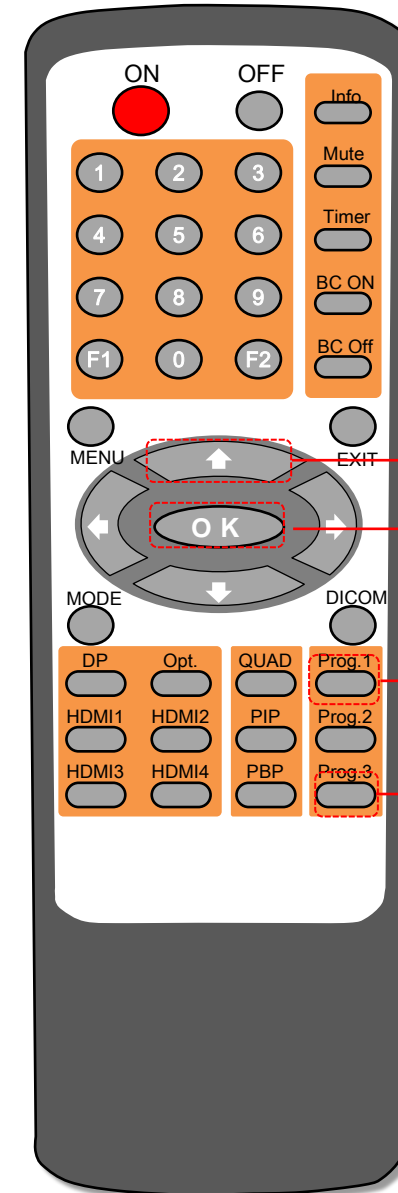
▶ **Entering individual control mode.**
 - key combination :   Prog.1 key – UP key – OK key - ID key(3 digits)
Ex) pop up the OSD menu on ID 3 MLCD
 - Prog1.key > UP key > OK key > 0 key > 0 key > 3 key > menu key
Then, the OSD menu pops up only in the ID 003 MLCD. IF you change
the SET, push the ID key(3 digits) in this mode. .

UP key

OK key

Prog.1 key

Prog.3 key

▶ **Exiting individual control mode.**
 - key :   Prog.3 key
 - IF you exit the individual control mode, just press the Prog.3 button.

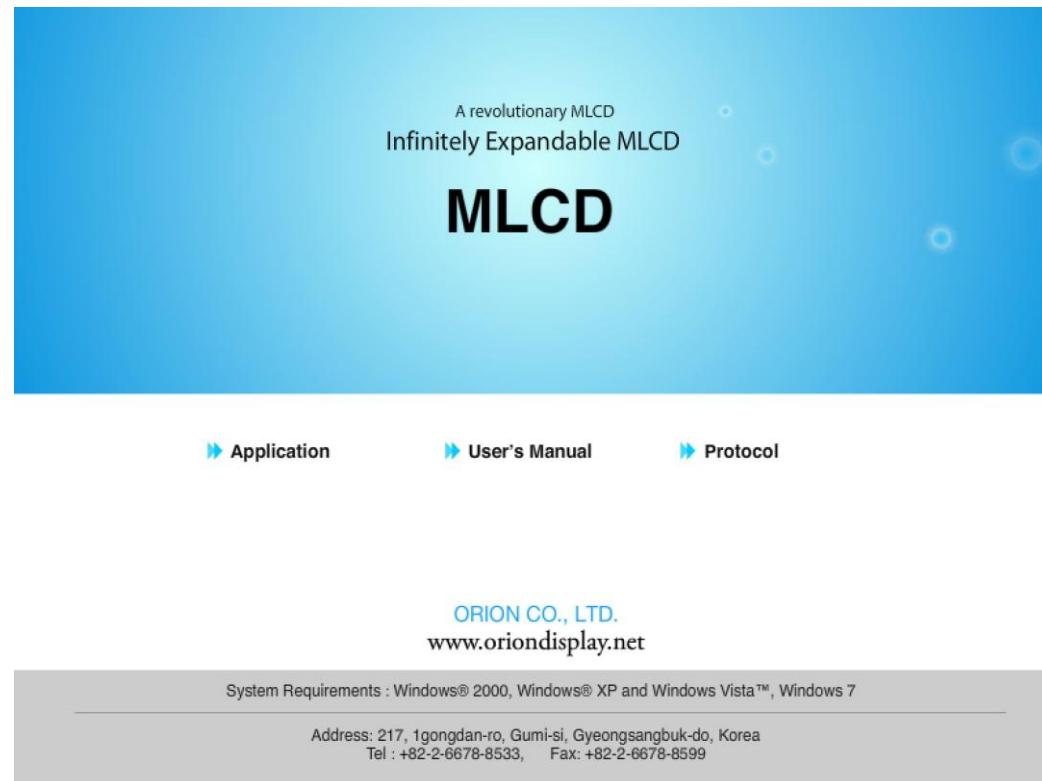7. How to install the Battery

Battery Installation   •Open the battery compartment cover on the back side and insert the batteries with correct polarity.
•Install two 1.5V alkaline batteries of AAA type. Don' t mix used batteries with new batteries.
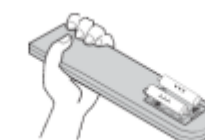
6. Setting and Operation of OSW

6.1. Installation

· Insert the Installation CD.

· You can see following installation start screen.

· Select proper version for your product and start installation

· OSW supports Window® (2000, XP, Vista, 7, 8, 10).

A revolutionary MLCD
Infinitely Expandable MLCD

MLCD

▶ Application   ▶ User's Manual   ▶ Protocol

ORION CO., LTD.
www.oriondisplay.net

System Requirements : Windows® 2000, Windows® XP and Windows Vista™, Windows 7

Address: 217, 1gongdan-ro, Gumi-si, Gyeongsangbuk-do, Korea
Tel : +82-2-6678-8533,   Fax: +82-2-6678-8599

* OSW Versions can be changed for function improvement without prior notice.

⚠ **Caution**   Caution for using OSW

1. Specific features can be read by clicking the left button of your mouse on the desired MLCD set from OSW.
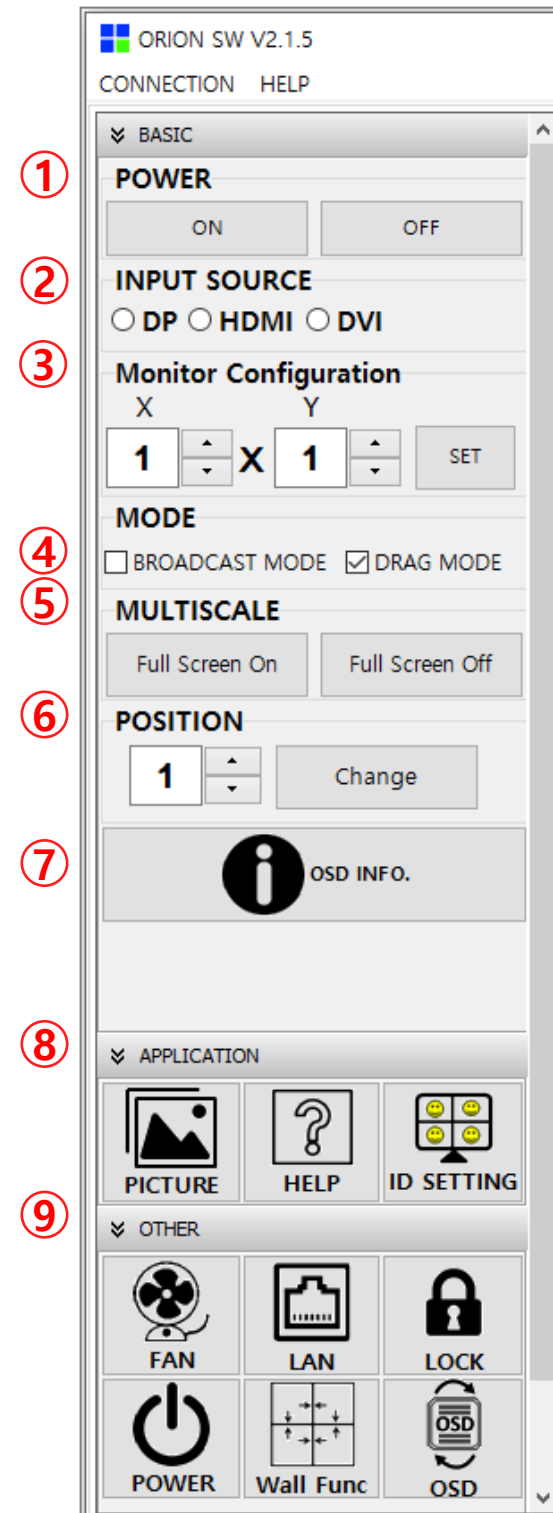   Please do not use above function together with the other functions.

6.2. Start OSW

· OSW is a software for controlling Orion's monitor.

· When you execute OSW (v2.1.5) for your product at the installation screen, it will create a new folder at *C:\Program Files \ORION* and an icon on your computer screen.

· By double clicking the ORION OSW (v2.1.5) icon, the initial screen image of OSW (v2.1.5) will be displayed as shown in the picture.
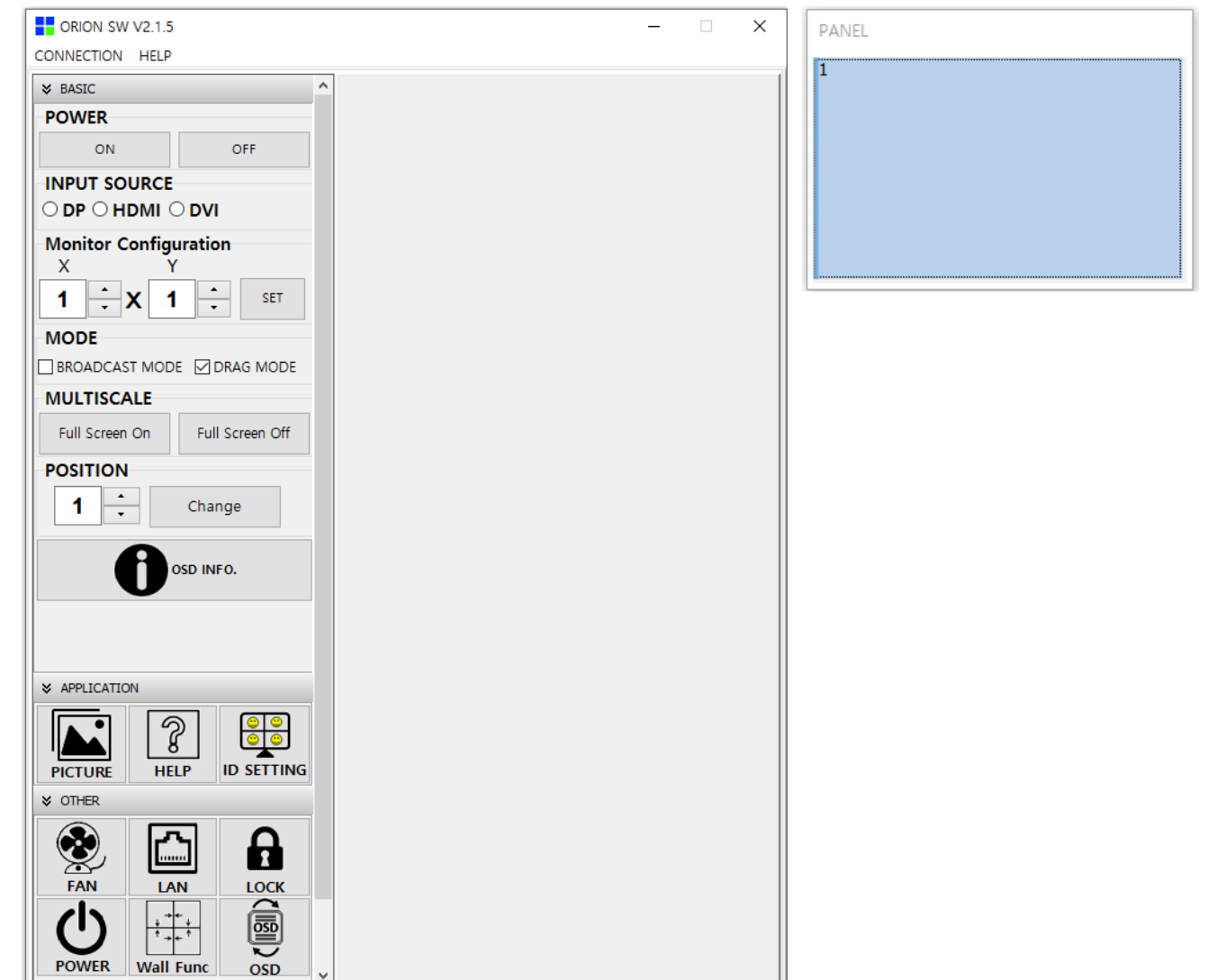
Main Image of OSW (Orion Software)

6.2.1 Main Menu

ORION SW V2.1.5
CONNECTION   HELP

BASIC

① POWER
- ON
- OFF

② INPUT SOURCE
- ○ DP ○ HDMI ○ DVI

③ Monitor Configuration
- X   Y
- 1 X 1   SET

④ MODE
- ☐ BROADCAST MODE ☑ DRAG MODE

⑤ MULTISCALE
- Full Screen On   Full Screen Off

⑥ POSITION
- 1   Change

⑦ ⓘ OSD INFO.

⑧ **APPLICATION**
- PICTURE   HELP   ID SETTING

⑨ **OTHER**
- FAN   LAN   LOCK
- POWER   Wall Func   OSD

1. POWER
 - Power On/Off.

2. INPUT SOURCE
 - Input Source.(DP, HDMI, DVI)

3. MONITOR CONFIGURATION
 - Monitor Configuration X*Y(15*15) Set.

4. MODE
 - Broadcast Mode, Drag Mode.

5. MULTI SCALE
 - Full Screen On/Off.

6. POSITION
 - Screen Position.

7. OSD INFO
 - On Screen Display Information.

8. APPLICATION
 - Picture, Help, Multi

9. OTHER
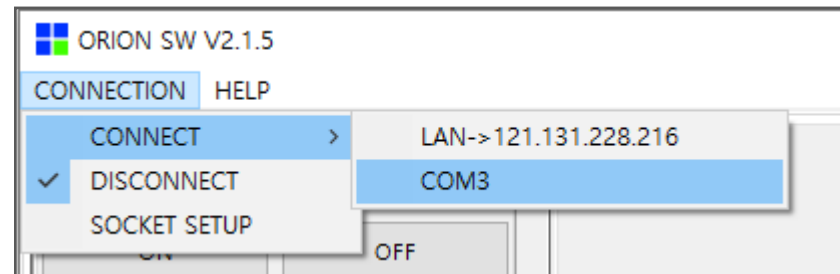 - Fan, Lan, Lock, Power, Wall Func, OSD.

6.2.2 Multi Panel

· This is a panel for selecting monitor.

· It can help for controlling

1x1

2x2

5x1

3x3
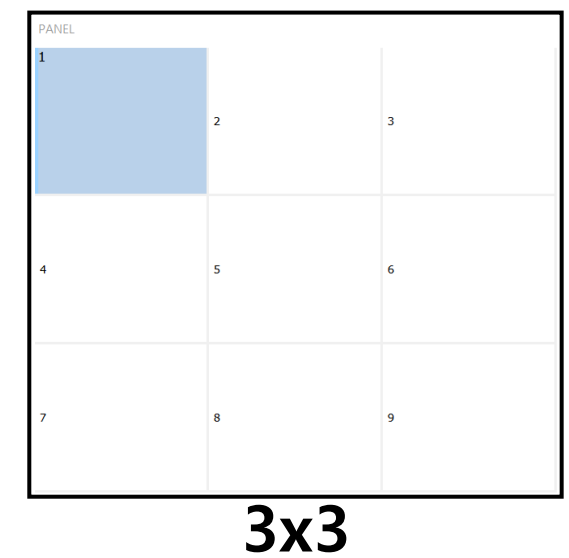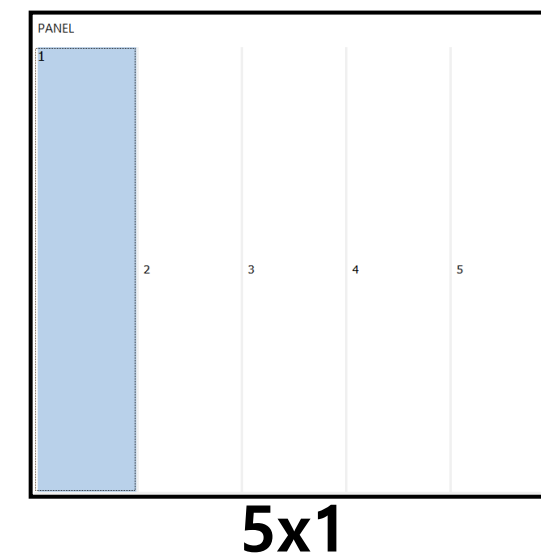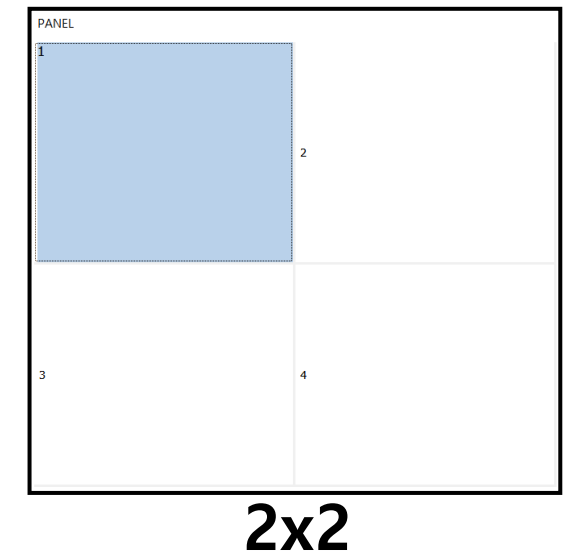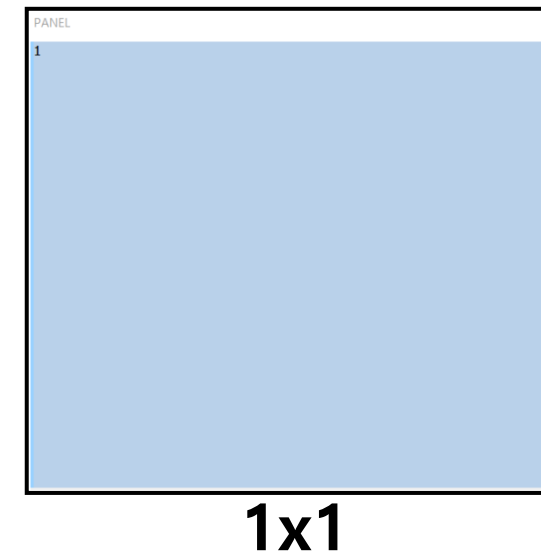
6.3. Communication Configuration

6.3.1. COM Port For OSW

· Com Port connects or disconnects the communication between PC and MLCD.
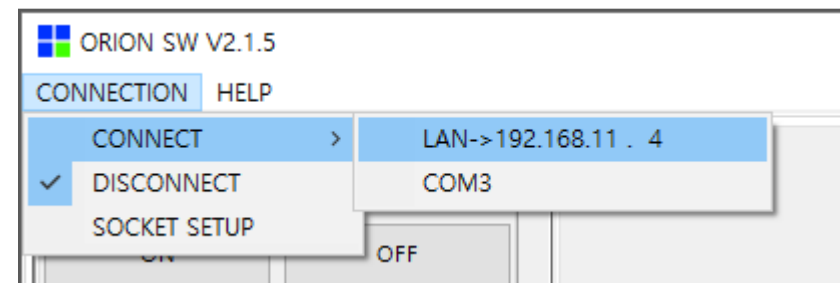
· Connect MLCD to PC Com Port via RS-232C cable.

· Go to "OSW Menu → CONNECTION → CONNECT" and select the comport you want to connect.

· In order to disconnect the communication, click "DISCONNECT"..

· **When you use USB-to-RS-232C converters, you need to set Com Port again, because OSW uses one of Com Port no. 1 to 30.**

※ Available Com Port on the PC is automatically recognized and displayed.

6.3.2. LAN Port For OSW

· LAN Port connects or disconnects the communication between PC and MLCD.

· Connect MLCD to PC LAN Port via LAN cable.

· Go to "OSW Menu → CONNECTION → CONNECT" and select the LAN port you want to connect.

· In order to disconnect the communication, click "DISCONNECT"..

※ Destination IP address is configured using "SOCKET SETUP" menu.
※ Destination IP address is IP address of the MLCD you want to connect.

1. Execute the OSW.
2. Select "OSW Menu → CONNECTION → SOCKET SETUP".
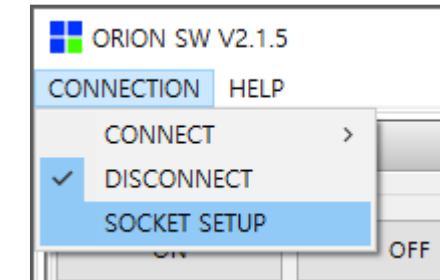
3. Type in IP Address of MLCD.
4. Click "PING TEST" to check status of communication.
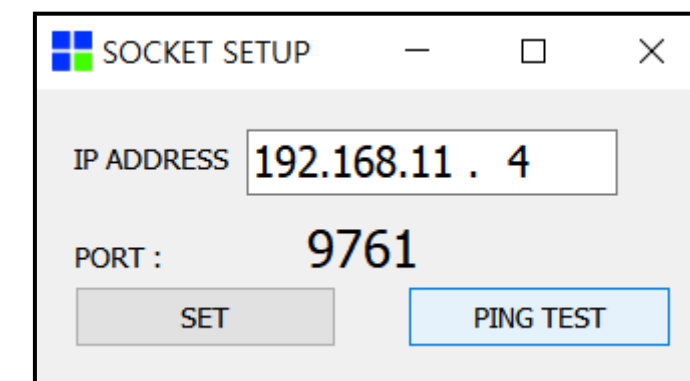5. Close the Communication setup window

· **Socket Setup Menu Description**

• **Edit Box** : Set the IP address.

• **Port Number** : Fixed as 9761.

* Caution: You cannot change the port number.

• **Ping Test**: Test the IP address.

SOCKET SETUP

6.3.3. LAN Port For MLCD

6.3.3.1 In case of connection to a LAN Hub

- This function is used to control the MLCD via LAN PORT.

- During the setting process, MLCD and control PC should be connected via RS-232C cable only. Do not connect Ethernet.

- After setting process, the control PC should be connected to one of MLCD sets with Ethernet cable only. For the connection between the MLCD sets, they should be connected with RS-232C cables.

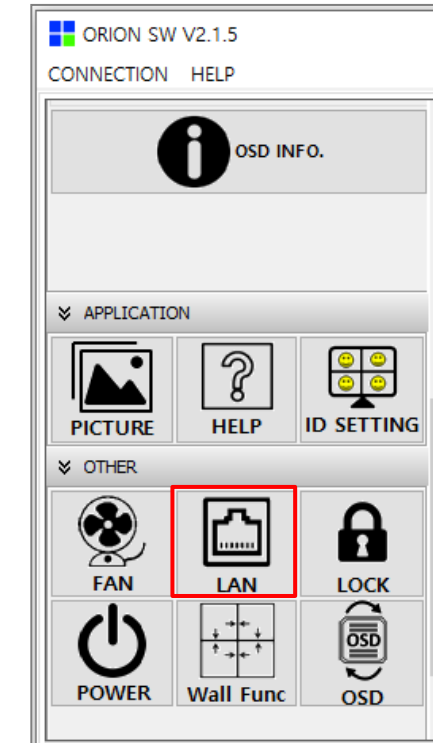 ※The Ethernet cable should be connected to RS-232C starting point

■ Network IP setting for MLCD

1. Execute the OSW.
2. After Serial Connection, Turn on the MLCD.
3. Click left button of the mouse on the MLCD that you want to control on the screen configuration window.(This MLCD should be connected to LAN cable)
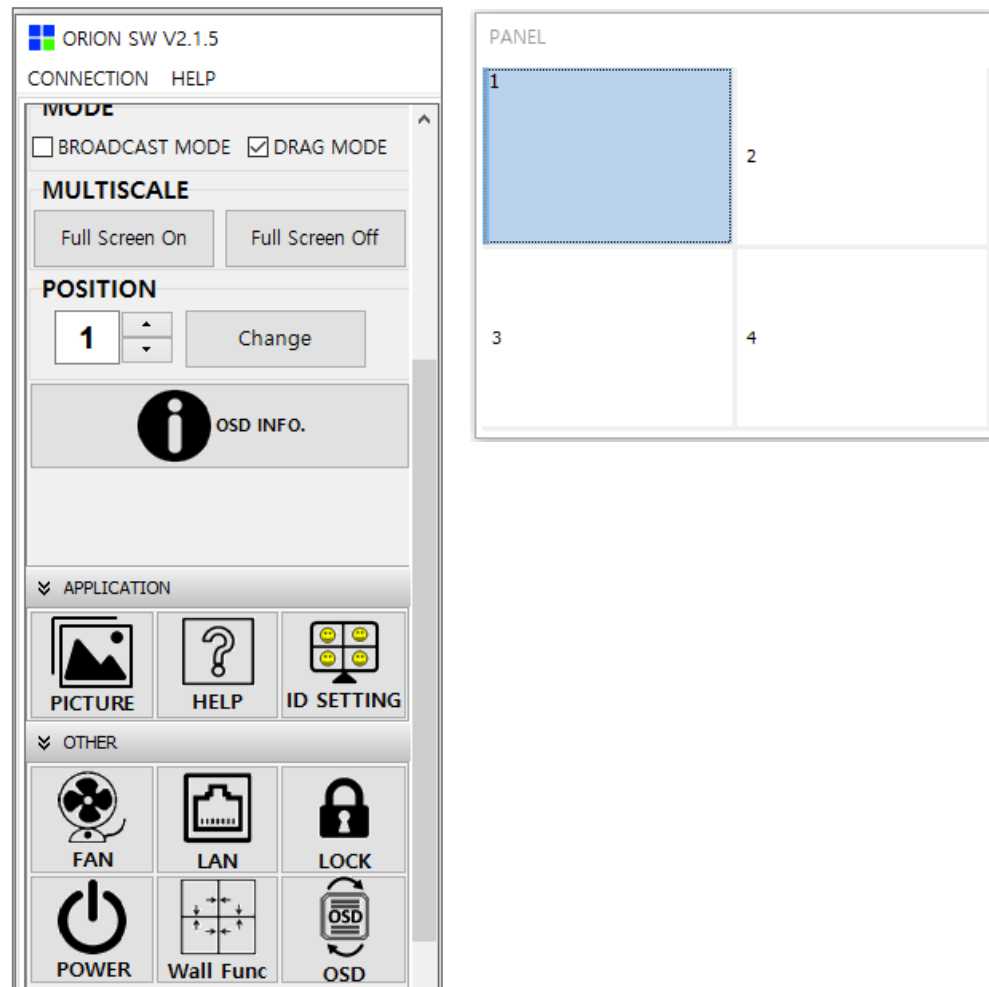
4. Click " OTHER → LAN "

5. Type in the IP address provided by the network administrator.

6. Save the IP address by clicking "SET TCP/IP" after type-in.

7. Click "GET TCP/IP" and check whether the IP address is correct.

6.3.3.2. In case of connection to user's computer
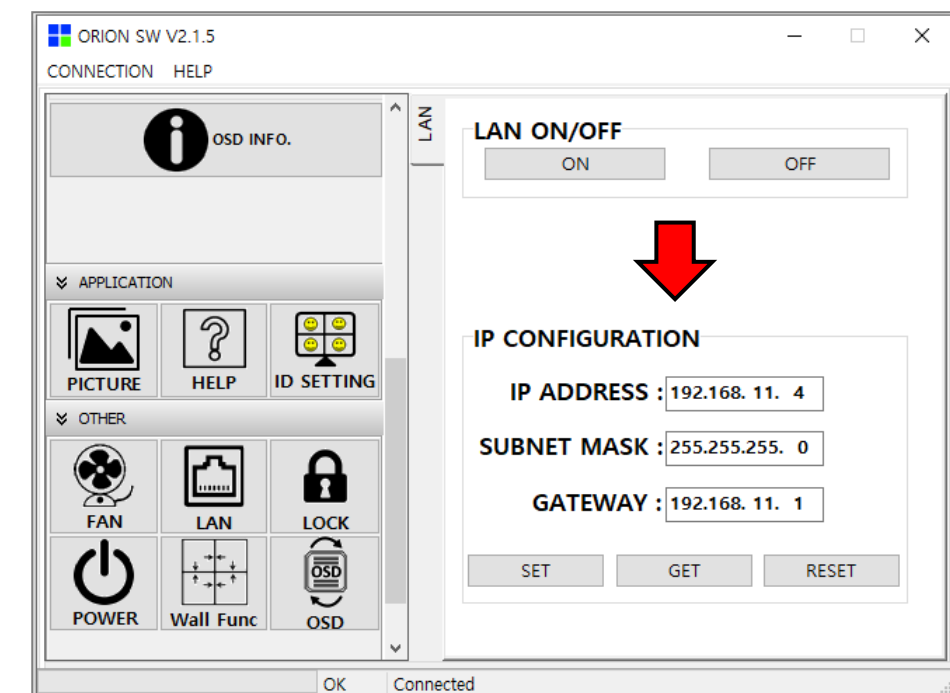
■ Check the network informations

1. Execute the OSW.

2. After Serial Connection, Turn on the MLCD.

3. Click left top of the mouse on the MLCD that you want to control on the screen configuration window.(This MLCD should be connected to LAN cable)
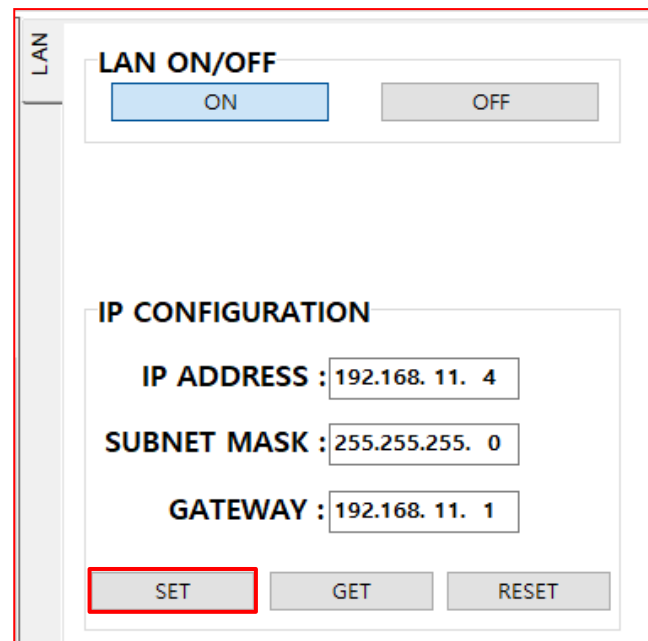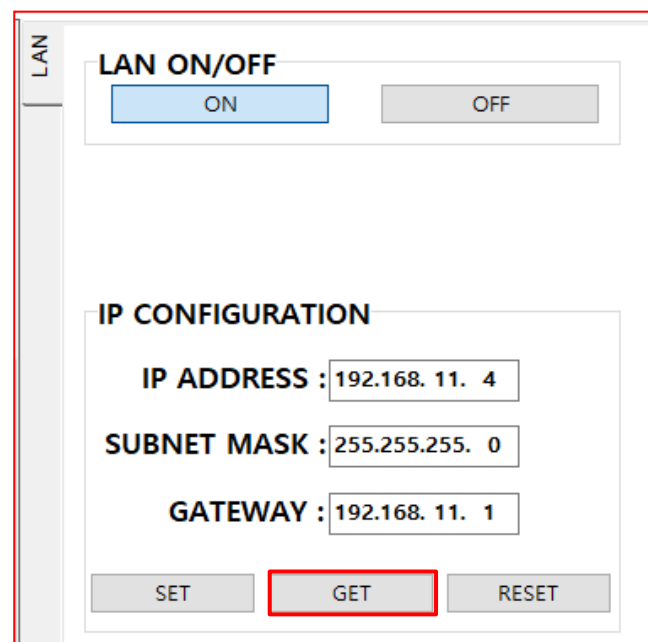
4. Click → OTHER → LAN

5. Click the "LAN ON" and click "GET TCP/IP" to read the initial network configuration of the MLCD.
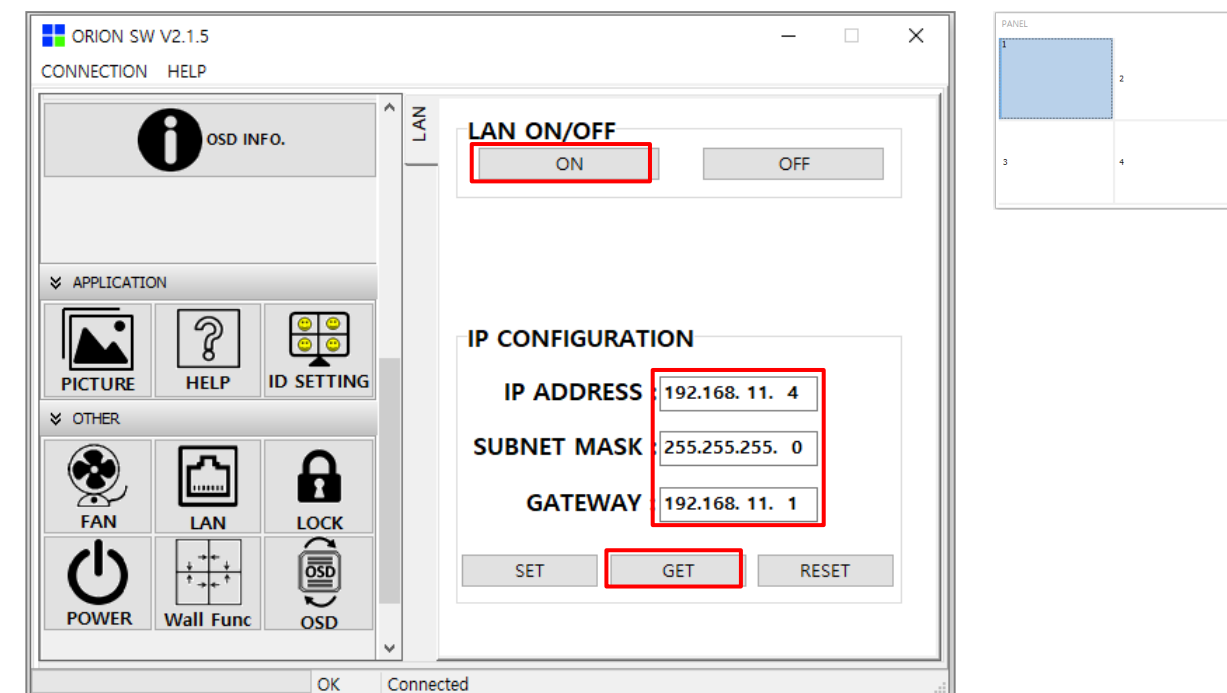
6. Input the network information of the user's PC to be identical with MLCD set. However, the final digit of the IP address must be different.

6.4. Screen Configuration

■ Input column/row number of the MLCD Matrix.

· Column/row can be selected within the range from 1 to 16. The maximum MLCD quantity of OSW control is 254 sets.
· After inputting column/row number, MLCD matrix with input source color is displayed in the "Screen Configuration" after click the button "SET"
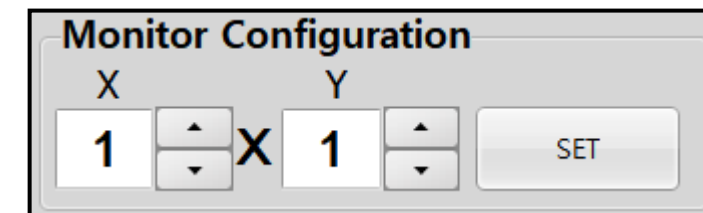
Screen Configuration Setting

■ BROADCAST.

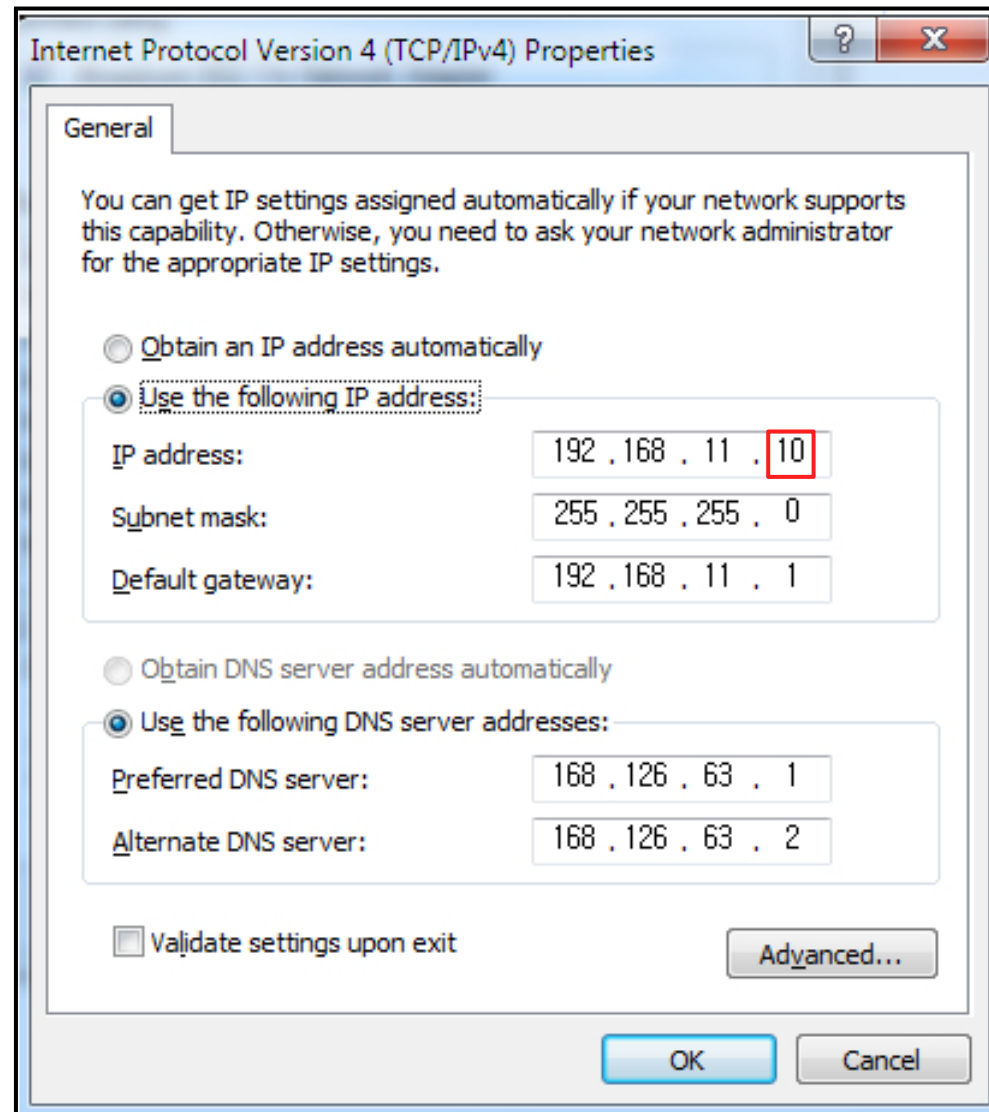· When broadcast checkbox is checked, entire command transmission method is broadcast.
· When broadcast checkbox is not checked, entire command transmission method is normal mode.
· User Transmit the Protocol command respectively to Selected MLCD Sets in normal transmission method.

※ You can't select the MLCD in screen configuration in broadcast.
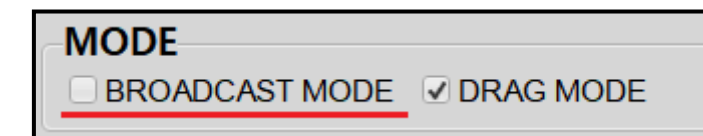
Mode Setting

■ DRAG MODE.

· When the Drag Mode checkbox is not checked, the screen configuration window will be clicked only one.

6.5. Explanation of the command transmission method.

■ **Normal Transmission Method.** ☐ BROADCAST MODE

  · You select MLCD sets in "Screen Configuration Window" clicking the left button of
    the mouse. Maybe you want to select more than one MLCD set, drag the mouse.
    Then you can transmit the Protocol command respectively to selected MLCD Sets.

■ **Broadcast Transmission Method.** ☑ BROADCAST MODE

  · When broadcast checkbox is checked, entire command transmission method is
    broadcast. You can transmit the Protocol command simultaneously to all connected
    MLCD sets.

  ※ All Protocol commands are affected by the command transmission method.

6.6. Basic Control

· To control basic operation in Main Screen.

⚠
Caution
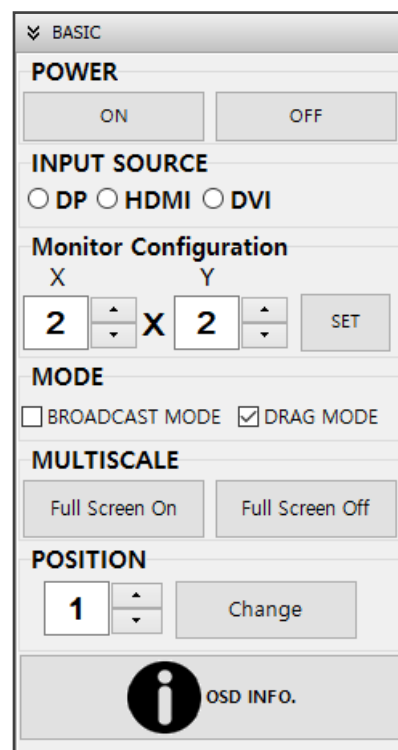
  · Please wait for at least 10 seconds before executing "Power On" command
    after the first AC power connection. If not, it may cause abnormal behavior.

  · Please disconnect AC power and reconnect in case of abnormal behavior.

• **POWER :** " POWER ON/OFF " button is to control power of selected MLCD Sets.
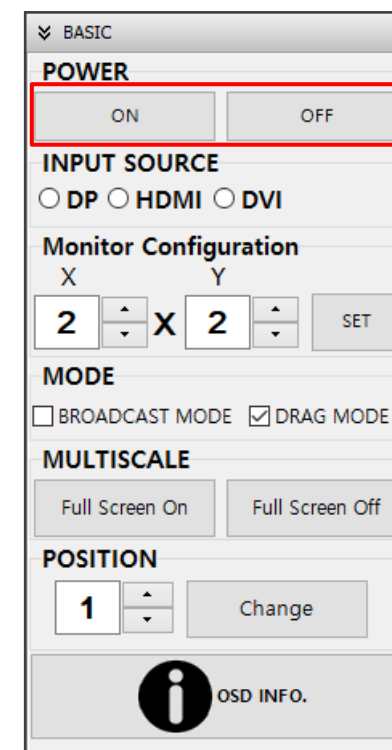
• **MULTISCALE :** " Full Screen On " button is to make multiscaling screen. " Full Screen Off "
button is to make individual screen.
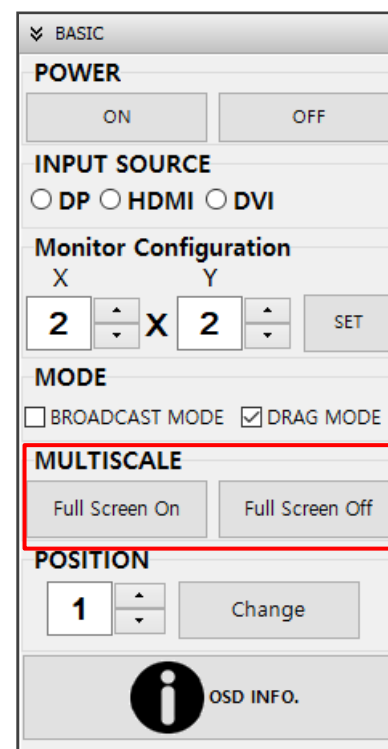
• Drag the panel -> Click the "Full Screen On" button

< Full Screen Off >   < Full Screen On >
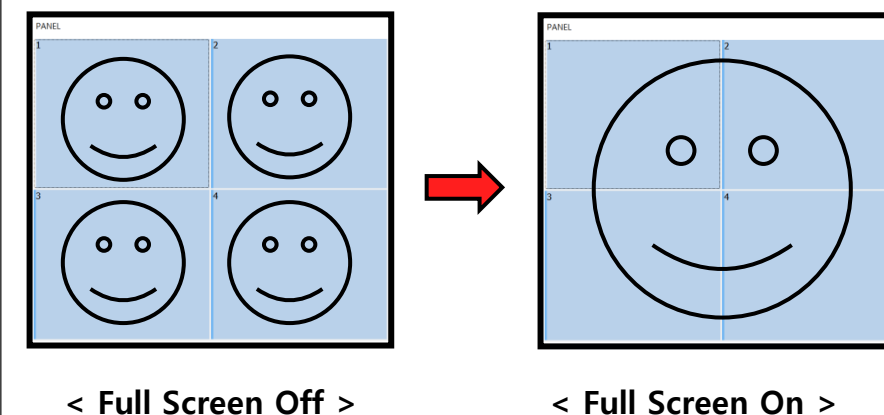
• **INPUT SOURCE :** To select one of input sources from DP, HDMI, DVI Port.
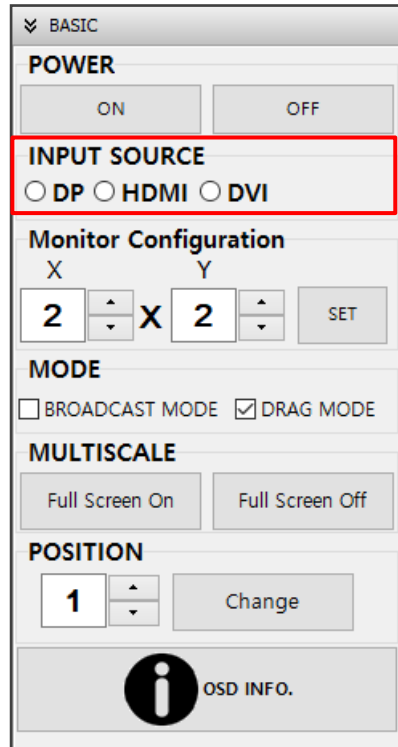
• **INFO. :** "INFO." button is to display the resolution of the input source and the signal. It is
displayed at the center of the screen.

DP
3840x2160@60Hz
HDCP Disabled
Group ID 1
Monitor ID 1
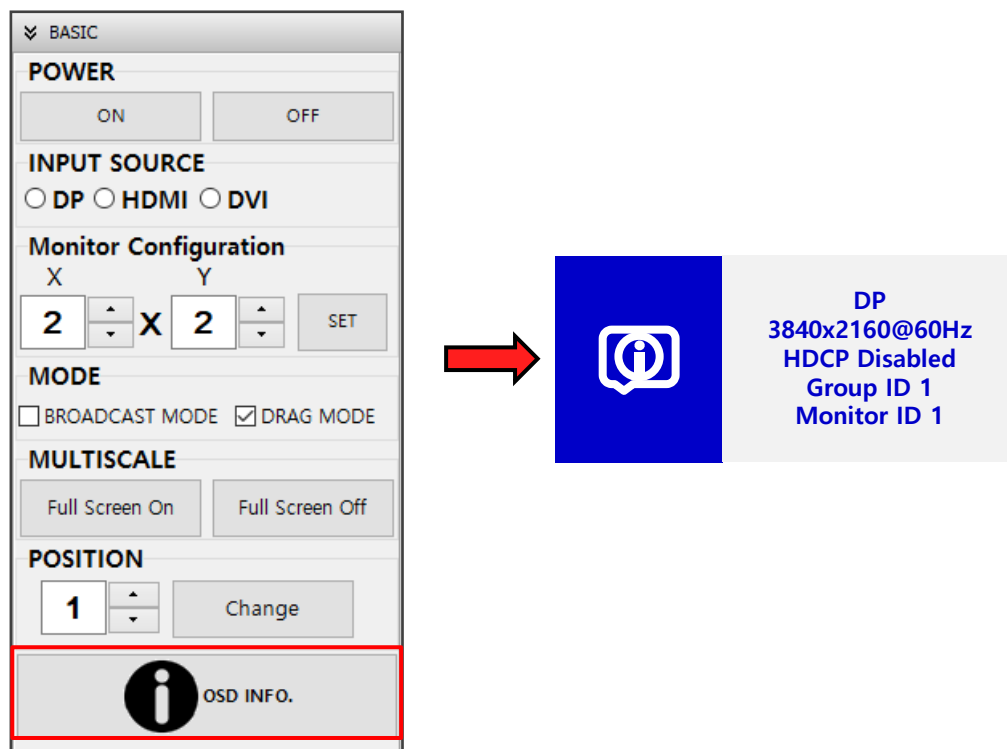
• **POSITION :** To change monitor position.(only one monitor)
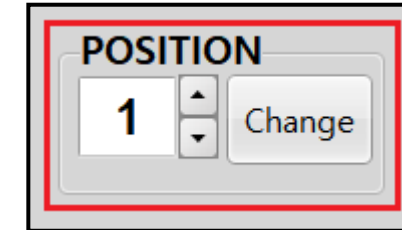
1. Select → Screen configuration window

2. Click the "Change" button after change the position number

ID 1   ID 2
ID 3   ID 4   →   ID 1   ID 2
                     ID 3   ID 4
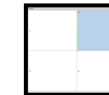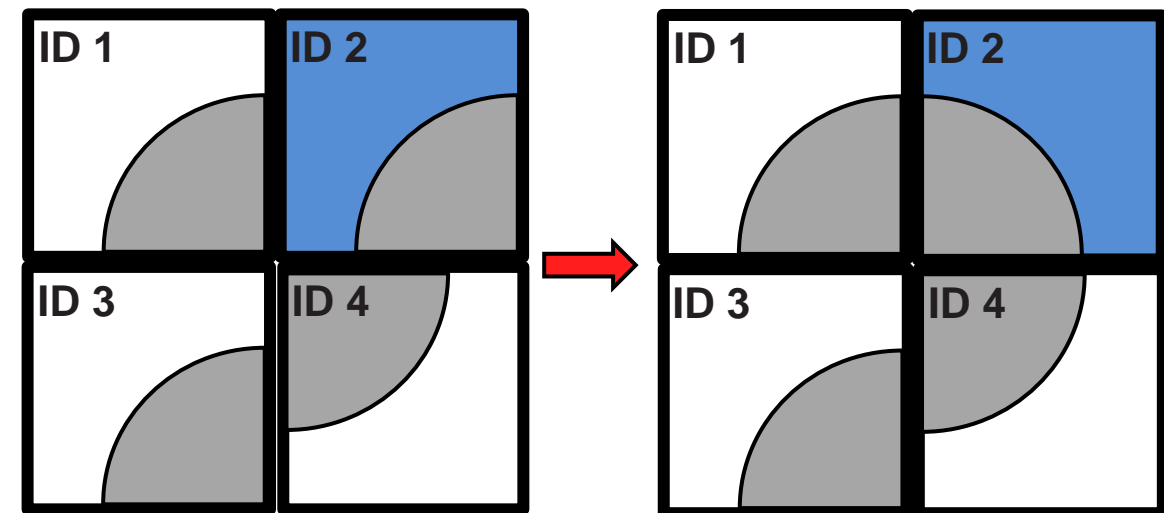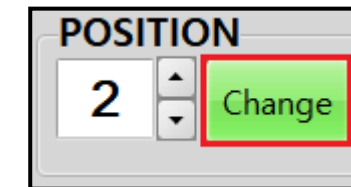
3. Select → Screen configuration window

4. Click the "Change" button after change the position number
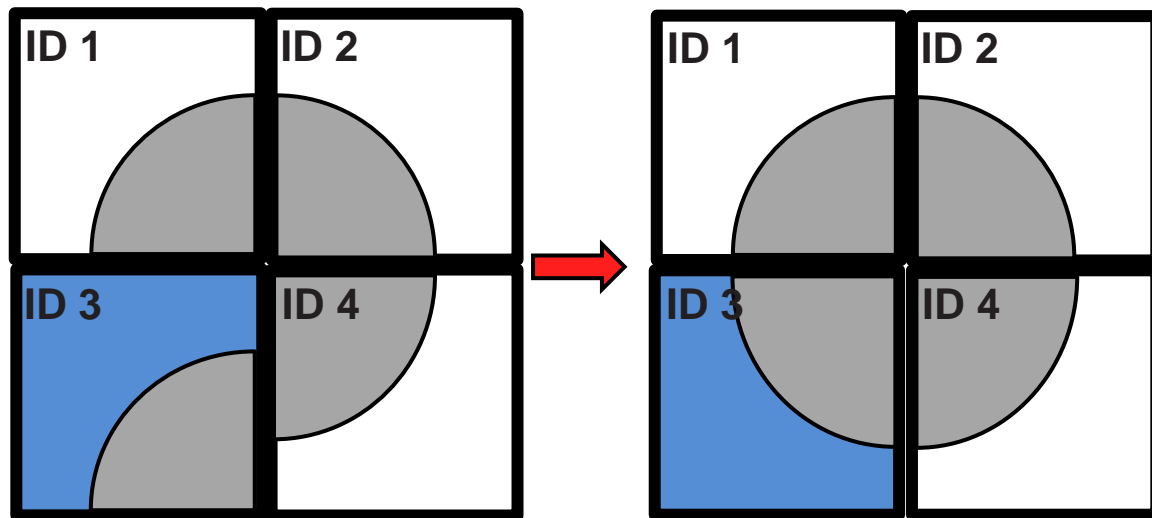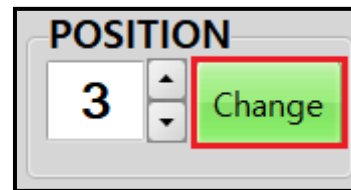
6.7. Control

6.7.1. Power ON Control

- Go to "OTHER → POWER" to control power related operation.
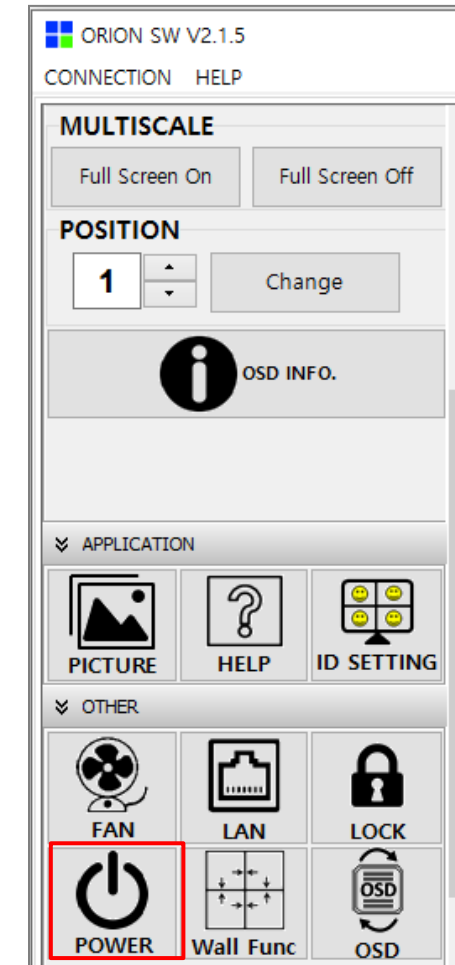
- **AUTO POWER :** Automatic power on by AC power connection.
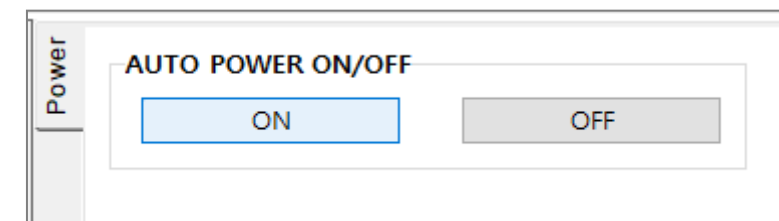
6.7.2. Picture Control

· To use Picture Control, go to " APPLICATION → PICTURE".
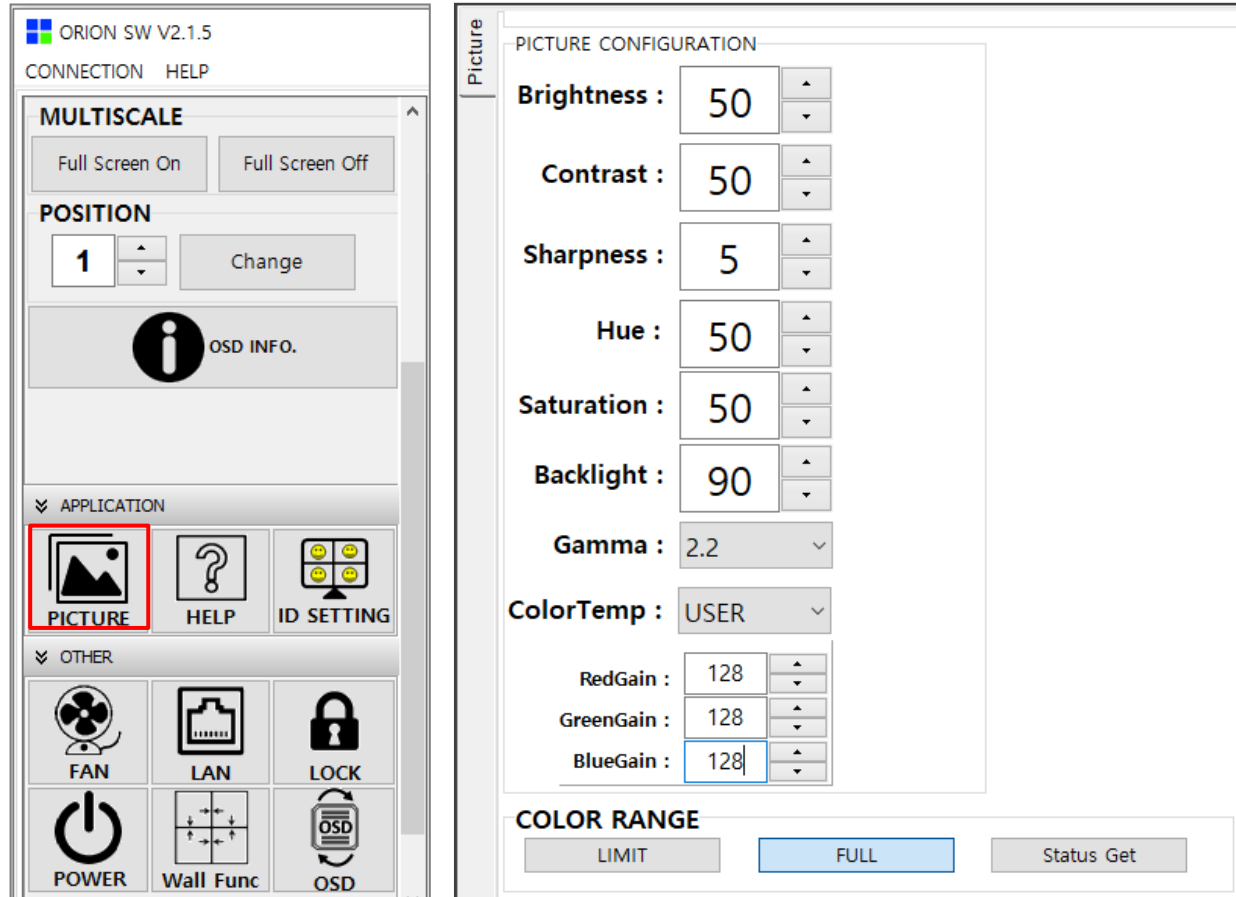
• **BRIGHTNESS** : Brightness adjusts the brightness of the monitor. (0~100)

• **CONTRAST** : Contrast adjusts the difference between darkness and lightness on the monitor.(0~100)

• **SHARPNESS** : Sharpness adjusts sharpness of the monitor. (0~4)

• **HUE** : Adjust the hue value of the screen. (0~100)

• **SATURATION** : Adjust the saturation value of the screen. (0~100)

• **BACKLIGHT** : Adjust the backlight value of the screen.(0~100)

• **GAMMA** : Select a display gamma for best picture quality.(1.8/ 2.0/ 2.2/ 2.4)

• **COLOR TEMP** : Color temperature of the screen - 10000K, 9300K, 6500K, STUDIO, USER.

• **COLOR RANGE** : Select Color Range for input signal Only applied to HDMI, DVI). The color range of DP is detected Automatically.

6.7.3. FAN Control

· Go to " OTHER → FAN " to control fan related operation.
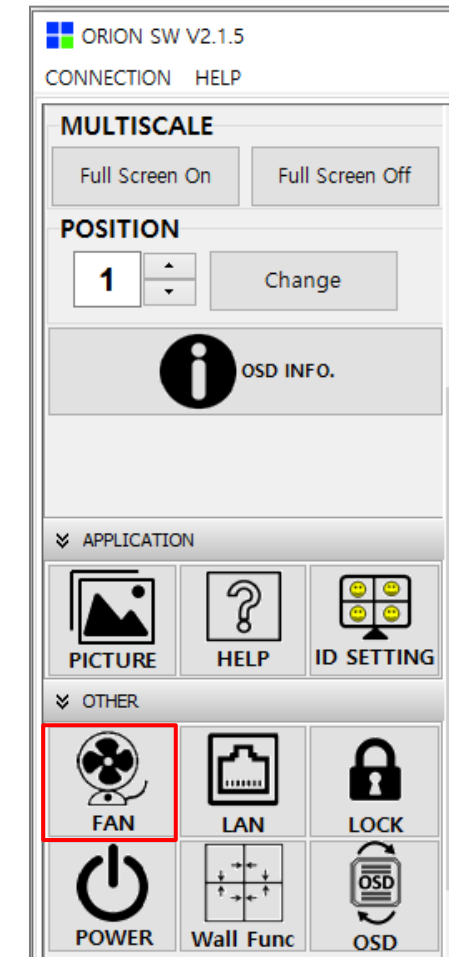
• **FAN :** FAN On/Off

6.7.4. LOCK Control

· Go to " OTHER → LOCK " to control lock operation.
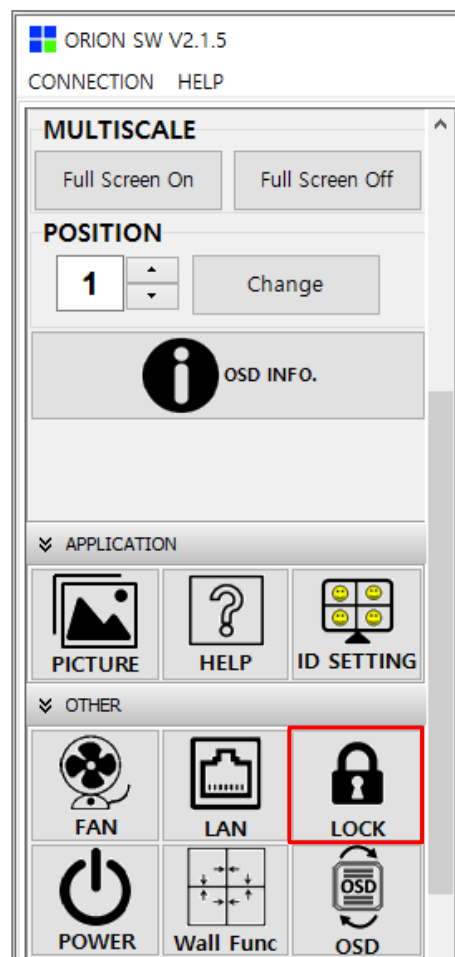
• IR Lock : IR (Remote Controller) Lock On or Off

• Alert Message : Alert Message Enable or Disable. If input signal disappear or input cable is unplugged when it enabled, information of monitor come automatically from the monitor via communication line..
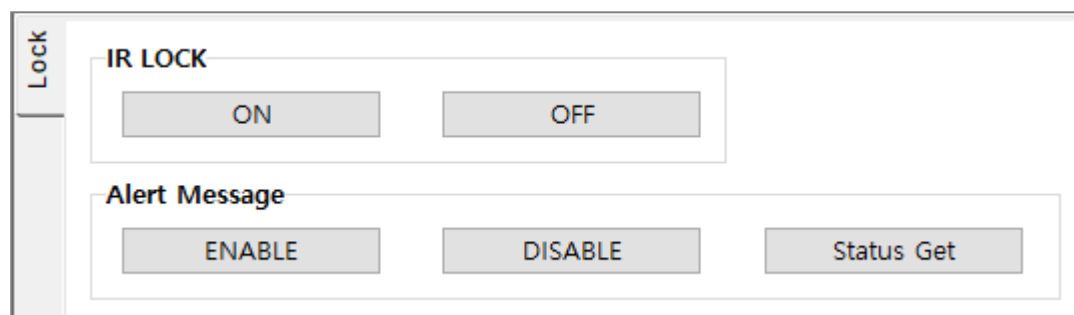
6.7.5. OSD Control

· Go to " OTHER → OSD " to control OSD operation.
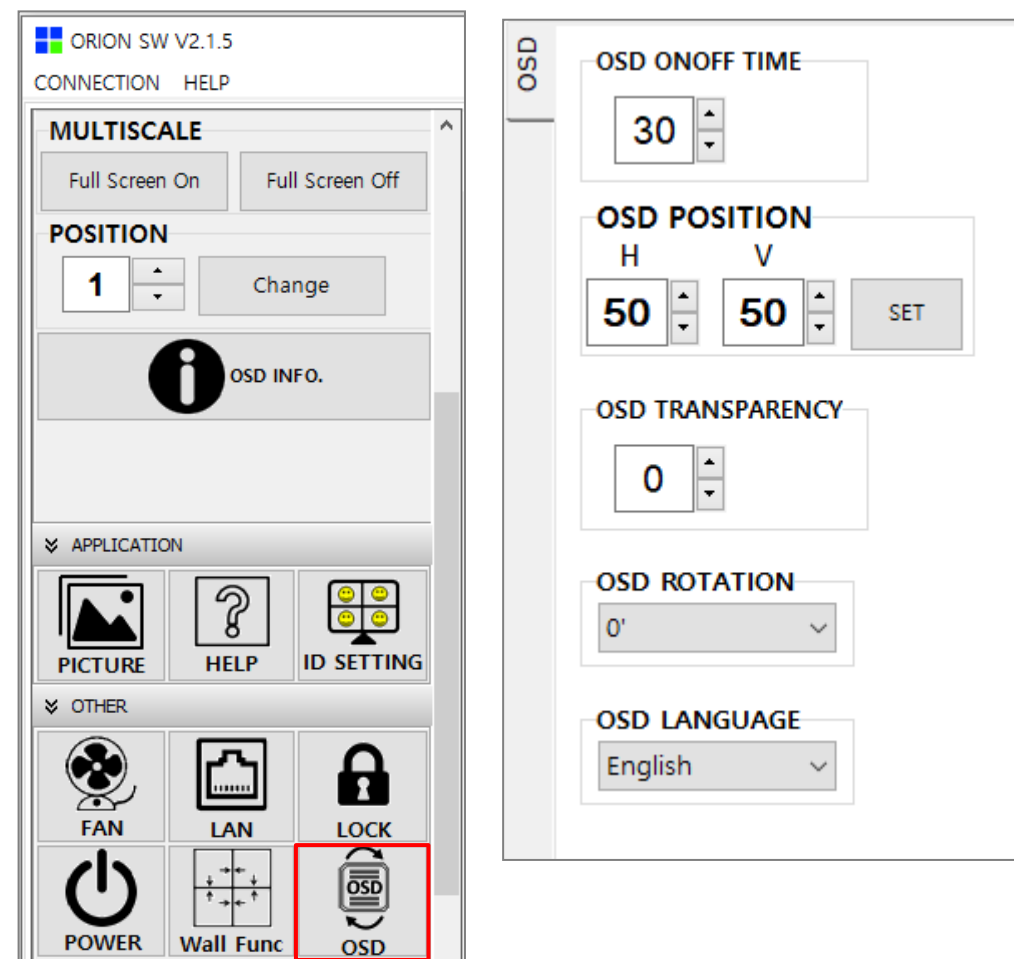
• **OSD ON/OFF TIME**	: Adjust the OSD operation Time
• **OSD POSITION**	: Adjust the OSD Position(H/V, 0~100)
• **OSD TRANSPARENCY**	: Adjust the OSD transparency(0~10)
• **OSD ROTATION**	: Select the OSD rotation direction.(0/90/270)
• **OSD LANGUAGE**	: Select the OSD language (EN/DE/FR/ES/NL/PL/RU/IT0)

6.7.6 Help

· Go to " APPLICATION → HELP " to check model information
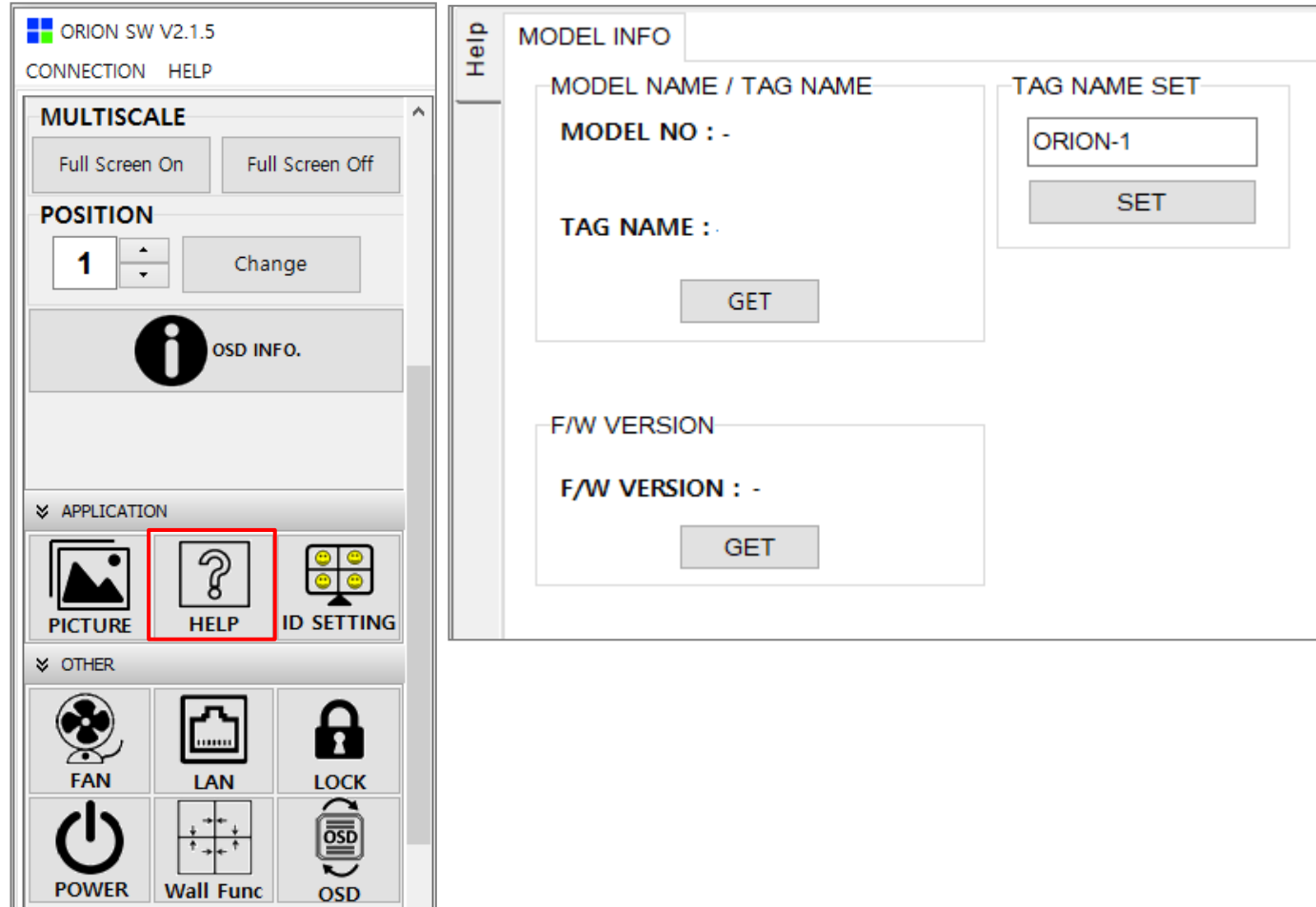
• **Model Info** : Click → " GET " button to check model information

· **TAG NAME SET**

1. Select the panel

2. Type in edit box and click the set button.
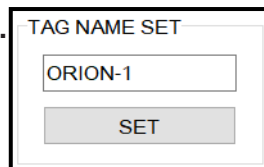
3. Check the Tag name
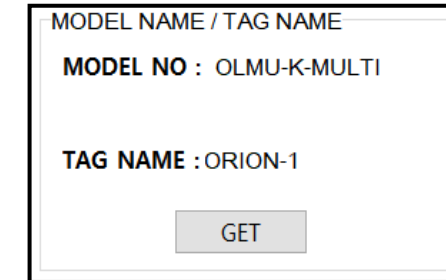
• **F/W VERSION GET**

1. Select the panel

2. Click the GET button, then firmware version is loaded.
  - M:STM firmware version S: RTD firmware version.
  - When Standby mode, only STM firmware version is loaded.
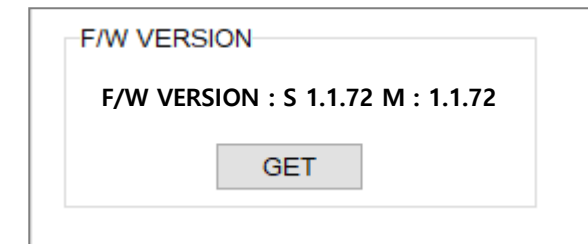
• **HELP menu > About**

  - Click About item in HELP menu, OSW information will be shown
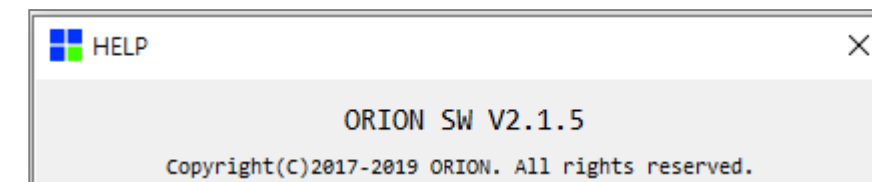
6.7.7. Wall Function Control

· Go to " OTHER → "Wall Func" to control Bezel Compensation and Scenes
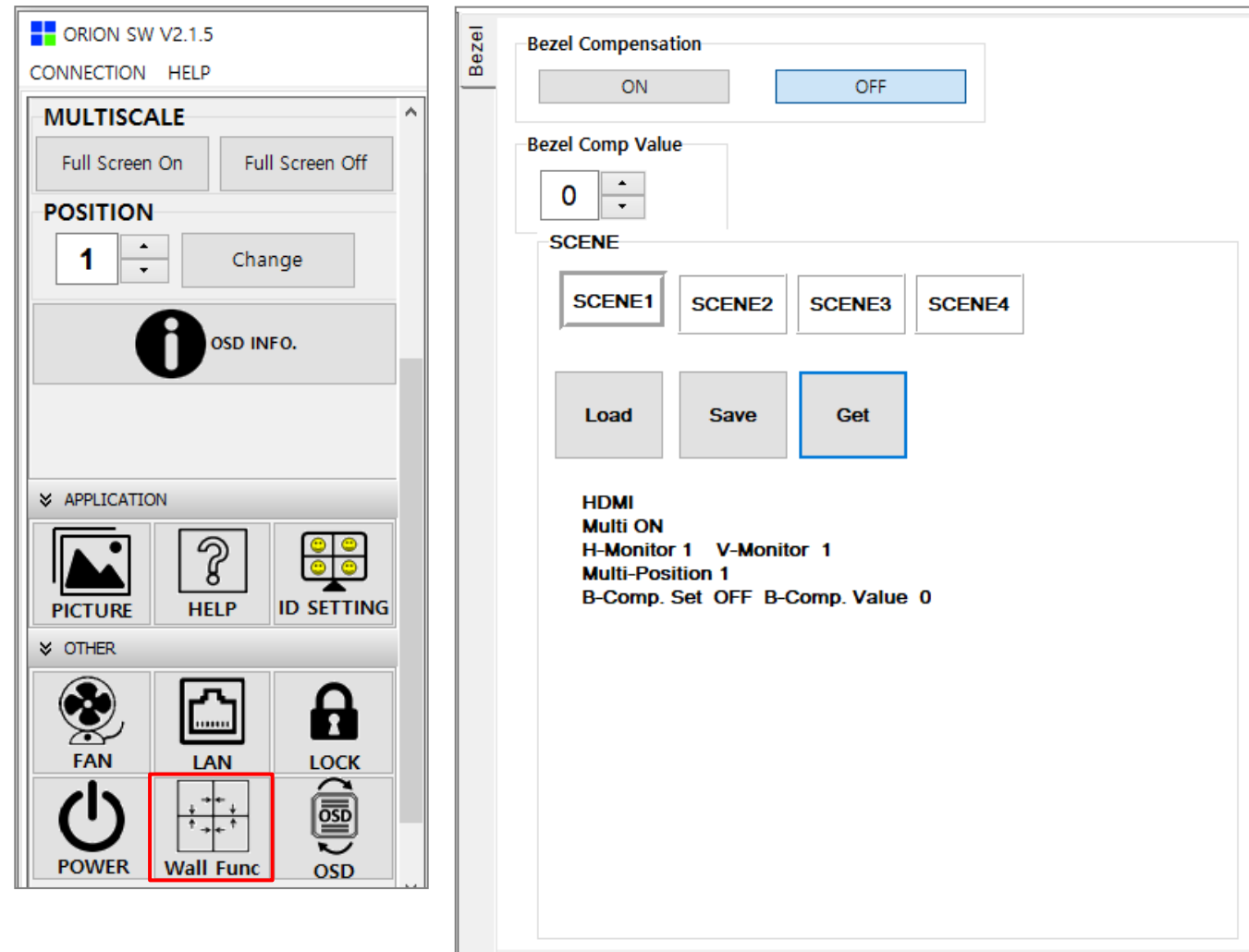
- **Bezel Compensation :** Bezel Compensation On/Off

- **Bezel Comp Value :** Compensating the frame width.(0~10)

· **Load :** Load the Scene. Select the scene number button and click the Load button. Saved values of the scene memory will be applied to the screen.

· **Save :** Save current wall setting to the Scene memory. Select the scene number button and click the save button.

· **Get :** Show saved values of each scene memory.

■ How To Use Wall Function

- This function is useful for saving the frequently used video wall mode and calling the saved video wall mode with a simple operation.

▶Example) In 4x4 video wall configuration.

1) Save video wall modes to each scene memory.

① Set 1:1 individual mode. Using OSW or OSD menu, save it to scene1.
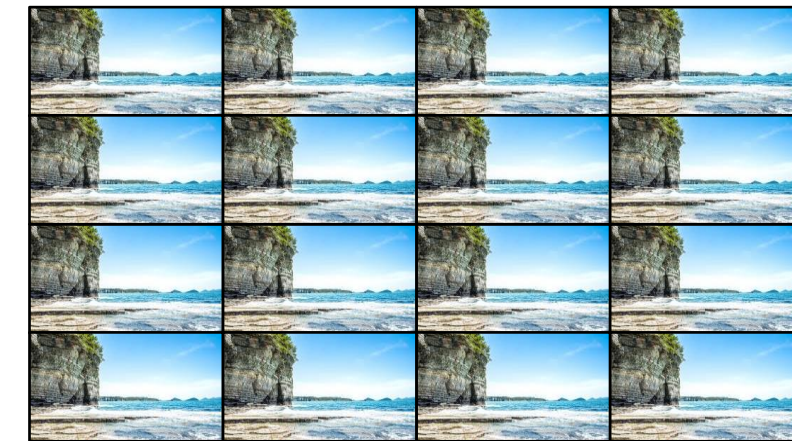
▶ Using OSW

- Select all screen in PANEL window. ①
- Select Scene number. ②
- Click Save button. ③
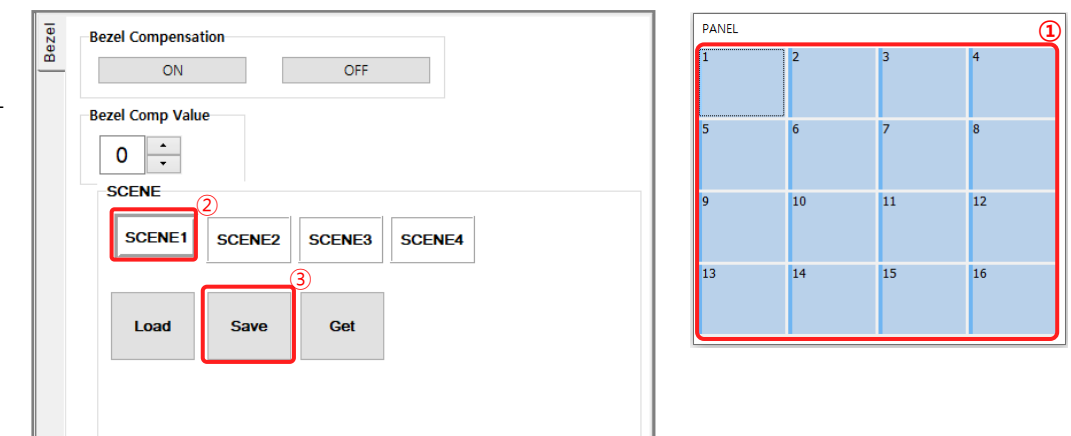
▶ Using OSD Menu

- Press "Menu" button to OSD menu
- Go to "Wall Function" -> "Save Scene" menu.
- Select Scene1.
- press "OK" button.
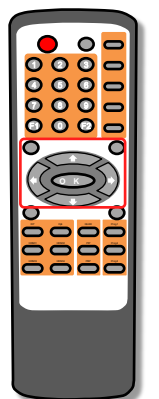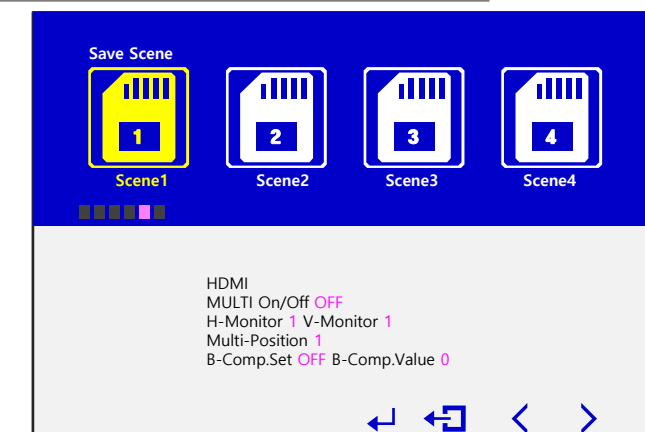
② Set Full Screen mode. Using OSW or OSD menu, save it to scene2.

③ Group 16 screens into 4 groups of 2x2. Using OSW or OSD menu, save it to scene3.

④ Set screens to any configuration. Using OSW or OSD menu, save it to scene4.
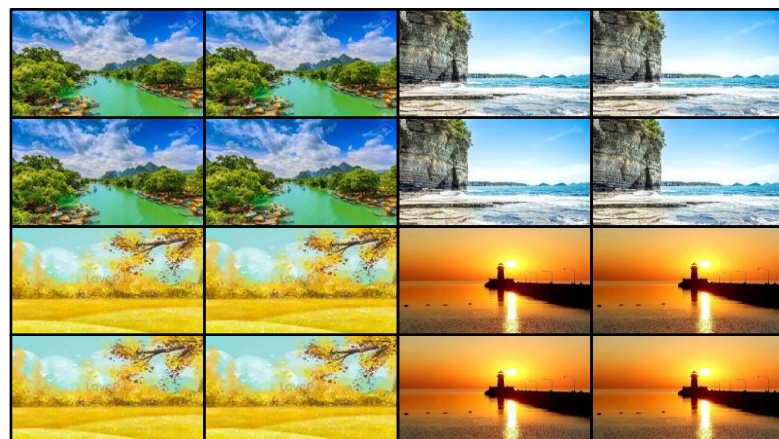
2) Load Scene.

① Load the Scene using OSW or OSD menu. Setting values saved to the scene will be applied to each monitor.

▶ Load Scene1

▶ Load Scene2

▶ Load Scene3

▶ Load Scene4

② Scene1 and Scene2 can be loaded by using hot keys on remote controller.

To apply settings of the scene, it should be operated in broadcast mode.

- Press "BC ON" button to activate broadcast mode.

- Press F1 or F2 to load the scene 1 or the scene 2.

F2: Load Scene2
F1: Load Scene1
BC ON : Broadcast ON
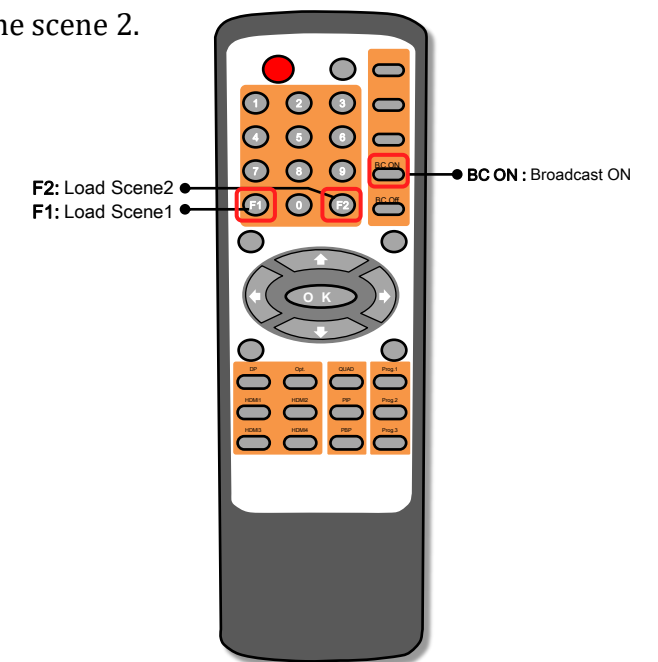
7. PROTOCOL

■ Introduction

- This document contains the communication PROTOCOL between LCD and its control devices for better use.

- It focuses on the brief functional explanation and communication protocol without detailed technical matters.

7.1. Communication Setting

ITEM	SPECIFICATION
TRANSMISSION & RECEPTION TYPE	ASYNCHRONOUS SERIAL COMMUNICATION
CONNECTION TYPE	DAISY CHAIN
BAUD RATE	57600 bps
DATA BITS	8
PARITY	NONE
STOP BITS	1
FLOW CONTROL	NONE
CABLE & PIN ASSIGN	9PIN D-SUB, MALE / FEMALE STRAIT TYPE

	PC	PIN NO.	PIN NO.	MONITOR
	RX DATA	2	2	TX DATA
	TX DATA	3	3	RX DATA
	GND	5	5	GND

7.2. Protocol Format

7.2.1 Send Protocol Format

STX	COMMAND		LEN	DATA						EXT
STX	MCMD	SCMD	LEN	GID	MID1	MID2	D1	...	Dn	EXT

7.2.2 Receive Protocol Format

STX	COMMAND		LEN	DATA						CS	EXT
STX	MCMD	SCMD	LEN	GID	MID1	MID2	D1	...	Dn	CS	EXT

* **STX** - 0x02, **EXT** - 0x03

7.2.3 Description of Protocol Format

ITEM	DESCRIPTION	VALUE	SIZE	REMARK
STX	START OF CODE	0x02	1 BYTE	
MCMD	MAIN COMMAND	VARIABLE	1 BYTE	
SCMD	SUB COMMAND	VARIABLE	1 BYTE	
LEN	LENGTH OF ID & DATA	VARIABLE	1 BYTE	
GID	GROUP ID	VARIABLE	1 BYTE	ID = 0 : ALL MONITOR(BROADCAST)
MID1	MONITOR ID (MSB)	VARIABLE	1 BYTE	
MID2	MONITOR ID (LSB)	VARIABLE	1 BYTE	
D1	FIRST DATA	VARIABLE	1 BYTE	DATA : n BYTE
Dn	nTH DATA	VARIABLE	1 BYTE	
CS	CHECKSUM	VARIABLE	1 BYTE	SUM = "FF"
EXT	END OF CODE	0x03	1 BYTE	

7.3. Command

7.3.1 Power Control Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
POWER ON/OFF		0x0100	D1 : 0x01-ON, 0x00-OFF	
AUTO POWER ON ON/OFF		0x0110	D1 : 0x01-ON, **0x00-OFF**	
DIALOG BOX OPEN (AUTO POWER)		0x01F0	-	READ ONLY
DIALOG BOX OPEN (AUTO POWER)		0x01F0	D1 : 0x01-ON, **0x00-OFF**	RECEIVE ONLY

7.3.2 Display Control Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
INPUT SOURCE		0x0210	D1 : 0x30-**DP**, 0x20-HDMI, 0x10-DVI, 0x80-AUTO	
DIALOG BOX OPEN		0x02F0	-	READ ONLY
DIALOG BOX OPEN (MONITOR DATA)		0x02F0	D1 : 0x00 (FIXED, NOT USED) D2 : POWER ON INPUT	RECEIVE ONLY
RESET (W/ DEFAULT DATA)		0x02FE	D3 : ROTATE	WRITE ONLY

7.3.3 Picture Control Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
BRIGHTNESS		0x0300	D1 : 0 ~ 100 (**DEFAULT 50**)	
CONTRAST		0x0301	D1 : 0 ~ 100 (**DEFAULT 50**)	
SHARPNESS		0x0302	D1 : 0 ~ 4 (**DEFAULT 2**)	
BACKLIGHT		0x0310	D1 : 0 ~ 100 (**DEFAULT 90**)	
GAMMA		0x0320	D1 : **0x00-OFF**, 0x01-1.8, 0x02-2.0 0x03-2.2, 0x04-2.4	
COLOR TEMPERATURE		0x0321	D1 : 0x00-USER, 0x03-STUDIO, 0x41-6500, **0x5D-9300**, 0x64-10000	
USER RED/GREEN/BLUE		0x0322	D1 : 0x00-RED, 0x02-GREEN, 0x03-BLUE D2 : 0 ~ 255 (**DEFAULT 127**)	
HUE		0x0323	D1 : 0 ~ 100 (**DEFAULT 50**)	
SATURATION		0x0324	D1 : 0 ~ 100 (**DEFAULT 50**)	
COLOR RANGE		0x0334	D1: 0x00(Full), 0x01(LIMIT)	

FUNCTION	MCMD	SCMD	DATA	REMARK
DIALOG BOX OPEN		0x03F0	-	READ ONLY
DIALOG BOX OPEN (W/ MONITOR DATA)		0x03F0	D1 : BRIGHTNESS D2 : CONTRAST	RECEIVE ONLY
RESET (W/ DEFAULT DATA)			D3 : SHARPNESS	WRITE ONLY
			D4 : BACKLIGHT	
			D5 : GAMMA	
			D6 : COLOR TEMPERATURE	
		0x03FE	D7 : USER COLOR TEMPERATURE RED	
			D8 : USER COLOR TEMPERATURE GREEN	
			D9 : USER COLOR TEMPERATURE BLUE	
			D10 : HUE	
			D11 : SATURATION	

7.3.4 Multi Display Control Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
NEW ID SET		0x0600	D1 : NEW GROUP ID NO. D2 : NEW MONITOR ID NO. (MID1) D3 : NEW MONITOR ID NO. (MID2)	WRITE ONLY
AUTO ID		0x0601	-	WRITE ONLY
MULTI SCALE		0x0610	D1 : TOTAL COLUMN NO. D2 : TOTAL ROW NO. D3 : GROUP ID NO. D4 : MONITOR ID NO. (MSB) D5 : MONITOR ID NO. (LSB)	
BEZEL COMP. ON/OFF		0x0620	D1 : 0x01-ON, **0x00-OFF**	
BEZEL COMP. VALUE		0x0621	D1 : 0 ~ 30 (**DEFAULT 0**)	
DIALOG BOX OPEN		0x06F0	-	READ ONLY
DIALOG BOX OPEN (W/ MONITOR DATA)		0x06F0	D1 : BEZEL COMP. ON/OFF D2 : BEZEL COMP. VALUE	RECEIVE ONLY
RESET (W/ DEFAULT DATA)		0x06FE	D3 : POWER ON DELAY	WRITE ONLY

7.3.5 OSD Control Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
INFORMATION OSD ON	0x0710		-	WRITE ONLY
OSD ON/OFF TIME	0x0700		0x0701	
OSD POSITION	0x0701		D1 : 0~100 OSD Horizontal POSITION, D2 : 0~100 OSD Vertical POSITION	
OSD TRANSPARENCY	0x0702		D1 : 0~10	
OSD ROTATION	0x0703		D1 : 0~2, 0: 0°, 1: 90°, 2: 270°	WRITE ONLY
OSD LANGUAGE	0x0720		D1 : 0~7, 0-ENGLISH, 1-DEUTSCH, 2-FRENCH, 3-ESPANOLA, 4-NETHERLANDS, 5-POLISH, 6-RUSSIAN, 7-ITALIAN	

7.3.6 E.T.C Control Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
FAN ON/OFF	0x07A0		D1 : **0x01-ON**, 0x00-OFF	
IR LOCK	0x0800		D1 : 0x01-ON, **0x00-OFF**	
Alert Message	0x0820		D1 : 0x00(DISABLE), 0x01(ENABLE)	
DIALOG BOX OPEN	0x08F1		-	READ ONLY
DIALOG BOX OPEN (W/ MONITOR DATA)	0x08F1		D1-FAN ON/OFF, D2-IR LOCK	RECEIVE ONLY

7.3.6 Wall Function Control Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
Wall Function	0x0670		D1 : 0x33-LOAD SCENE, 0x44-SAVE SCENE, 0x22-GET SCENE STATUS D2 : 0~3 - SCENE NUMBER D3 : WALL FUNCTION DATA1 　[7:6] 0x00 - INPUT, 0x01 - DP, 0x10 - DVI 　[5] MULTI-ON/OFF, 0 - OFF, 1- ON 　[4] BEZEL.COMP ON/OFF, 0 - OFF, 1- ON 　[3:0] BEZEL.COMP VALUE, 0~10 D4 : WALL FUNCTION DATA2 　[7:4] H-monitor 　[3:0] V-monitor D5 : WALL FUNCTION DATA3 　[7:0] Monitor Position	D3 ~ D5 RECEIVE ONLY

7.3.7 LAN Configuration Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
LAN ON/OFF	0x0750		D1 : 0x01-ON, **0x00-OFF**	
GET TCP/IP	0x0760		D1~D4 : IP ADDRESS D5~D8 : SUBNET MASK D9~D12 : GATEWAY D13~D17 : DNS PORT NUMBER	READ ONLY
SET TCP/IP	0x0761		D1~D4 : IP ADDRESS D5~D8 : SUBNET MASK D9~D12 : GATEWAY	
RESET TCP/IP	0x07FE		D1~D4 : IP ADDRESS **(192.168.0.2)** D5~D8 : SUBNET MASK **(255.255.255.0)** D9~D12 : GATEWAY **(192.168.0.1)**	
DIALOG BOX OPEN	0x07F0		-	READ ONLY
DIALOG BOX OPEN (W/ MONITOR DATA)	0x07F0		D1-LAN ON/OFF D2~D5 : IP ADDRESS D6~D9 : SUBNET MASK D10~D13 : GATEWAY D14~D18 : DNS PORT NUMBER	RECEIVE ONLY

7.3.8 Model Information Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
SET TAG NAME	0x0031		D1~D16 : TAG NAME	
DIALOG BOX OPEN	0xA0F0		-	READ ONLY
DIALOG BOX OPEN (W/ MONITOR DATA)	0xA0F0		D1~D16 : MODEL NUMBER D17~D32 : TAG NAME	RECEIVE ONLY
	0xA0F1		D1~D16 : FIRMWARE VERSION D17~D19 : MAC ADDRESS	RECEIVE ONLY

7.3.9 Monitor Status Command and Data

FUNCTION	MCMD	SCMD	DATA	REMARK
DIALOG BOX OPEN	0xA1F0		-	READ ONLY
DIALOG BOX OPEN (W/ MONITOR DATA)	0xA1F0		D1 : POWER STAUTS (0x01-ON, 0x00-OFF) D2 : AUTO POWER ON (0x01-ON, 0x00-OFF) D3 : GROUP ID (1 ~ 5) D4 : MONITOR ID (MSB, 0x00 FIXED) D5 : MONITOR ID (LSB, 0~254) D6 : INPUT SOURCE (0x30-DP, 0x20-HDMI, 0x10-DVI, 0x80-AUTO) D7 : H RESOLUTION(MSB) D8 : H RESOLUTION (LSB) D9 : V RESOLUTION (MSB) D10: V RESOLUTION (LSB) D11 : VERTICAL FREQUENC D12 : CABLE DETECTION | 7:5	Reserved.
4	DVI, 0:UNPLUG, 1:PLUG.
3:2	Reserved.
1	HDMI, 0:UNPLUG, 1:PLUG.
0	DP, 0:UNPLUG, 1:PLUG.		RECEIVE ONLY

※ ALERT MESSAGE

When the monitor status is "no signal" due to signal loss or cable disconnection, the Monitor Status is returned automatically via communication line. This function works only when the Alert Message Enable.
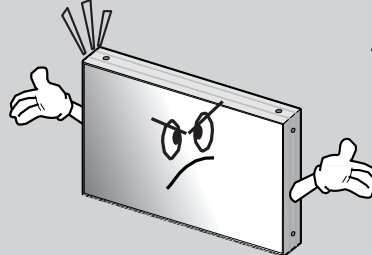
7.3.10 Monitor Status Command and Data

When the monitor status is "no signal" due to signal loss or cable disconnection, the Monitor Status is returned automatically via communication line. This function works only when the Alert Message Enable.

FUNCTION	MCMD	SCMD	DATA	REMARK
NO SIGNAL EVENT	0xA1F0		-	AUTO RETURN
	0xA1F0		D1 : POWER STAUTS (0x01-ON, 0x00-OFF) D2 : AUTO POWER ON (0x01-ON, 0x00-OFF) D3 : GROUP ID (1 ~ 5) D4 : MONITOR ID (MSB, 0x00 FIXED) D5 : MONITOR ID (LSB, 0~254) D6 : INPUT SOURCE (0x30-DP, 0x20-HDMI, 0x10-DVI, 0x80-AUTO) D7 : H RESOLUTION(MSB) D8 : H RESOLUTION (LSB) D9 : V RESOLUTION (MSB) D10: V RESOLUTION (LSB) D11 : VERTICAL FREQUENC D12 : CABLE DETECTION | 7:5	Reserved.
4	DVI, 0:UNPLUG, 1:PLUG.
3:2	Reserved.
1	HDMI, 0:UNPLUG, 1:PLUG.
0	DP, 0:UNPLUG, 1:PLUG.		AUTO RETURN ONLY

8. Before calling for service

· Before calling for any repair, check the following and then refer to a near A/S center.

▶ "Tick" sound from the main body.
- If there is no problem with the screen or sound, the "tick" sound is likely to result from the cabinet lightly shrinking with the change of room temperature. The sound does not affect product's performance. ORION DISPLAY Homepage Log on

▶ No image at upper and lower part of the screen.
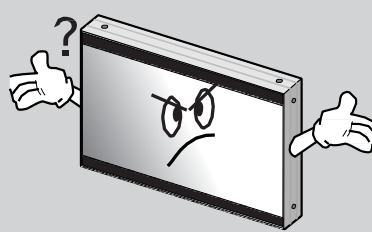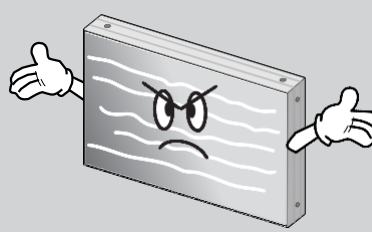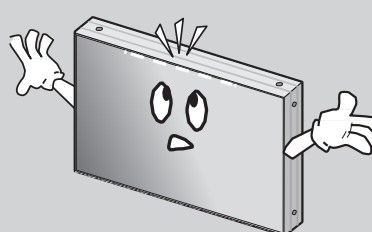- As for a screen which is over 16:9 in width (such as cinema-sized one), no image may be displayed at upper and bottom part of the screen.

▶ Speckles or white lines on the screen
- Check whether the problem is caused by vehicle, streetcar, high- voltage cable or neon sign, which emitting interference wave or electromagnetic induction. Avoid any interfering object.

▶ Light leakage can be found at the edge areas around the screen.
- If the light leakage is not detected at 1m from the screen, the panel is considered as no defect.(LG LCD applies the same inspection standard)
- To minimize the light leakage, the monitor sets should be installed with high accuracy in horizontal and vertical position.

9. Applicable signals

※ Vertical Frequency : Standard ±0.5 Hz, Vertical Lines : Standards ±7 Lines * H [dot] / V [line]

Resolution	Pixel Clock [Mhz]	Horizontal [Pixels]				Vertical [Lines]				Polarity (H. / V.)	Standard Type	Input
		Total	Addr. Width	Sync. Width	Back Porch	Total	Addr. Width	Sync. Width	Back Porch			
640*480*60	25.175	800	640	96	40	525	480	2	25	- / -	DMT	DVI/ HDMI/ DP
800*600*60	40.002	1056	800	128	88	628	600	4	23	- / -	DMT	
1024*768*60	65	1344	1024	136	160	806	768	6	29	- / -	DMT	
1280*768*60	79.5	1664	1280	128	192	798	768	7	20	+ / +	CVT	
1360*768*60	85.5	1792	1360	112	256	795	768	6	18	+ / +	CVT	
1280*1024*60	108	1688	1280	112	248	1066	1024	3	38	- / -	DMT	
1600*1200*60	162	2160	1600	192	304	1250	1200	3	46	+ / +	DMT	
480P	27	858	720	62	60	525	480	6	30	- / -	CEA-861	
576P	27	864	720	64	68	625	576	5	39	- / -	CEA-861	
720P24	59.4	3300	1280	40	220	750	720	5	20	+ / +	CEA-861	
720P25	74.25	3960	1280	40	220	750	720	5	20	+ / +	CEA-861	
720P30	74.25	3300	1280	40	220	750	720	5	20	+ / +	CEA-861	
720P50	74.25	1980	1280	40	220	750	720	5	20	+ / +	CEA-861	
720P60	74.25	1650	1280	40	220	750	720	5	20	+ / +	CEA-861	
1080P24	74.25	2750	1920	44	148	1125	1080	5	36	+ / +	CEA-861	
1080P25	74.25	2640	1920	44	148	1125	1080	5	36	+ / +	CEA-861	
1080P30	74.25	2200	1920	44	148	1125	1080	5	36	+ / +	CEA-861	
1080P50	148.5	2640	1920	44	148	1125	1080	5	36	+ / +	CEA-861	
1080P60	148.5	2200	1920	44	148	1125	1080	5	36	+ / +	CEA-861	
3840*2160*30	297	4400	3840	88	296	2250	2160	10	72	+ / +	-	HDMI/ DP
3840*2160*60	594	4400	3840	88	296	2250	2160	10	72	+ / +	-	

10. Specification

PRRDUCT NAME		49" UNB MLCD
MODEL NAME		OLMU-K4953
LCD PANEL	Manufacture	LGD
	Diagonal Screen Size	48.5 inch (1232.00 mm)
	Module Dimension(H x V mm)	1077.6 x 607.8
	Active Display Area	1073.8 x 604.0 mm
	Number of Pixel	1920 x 1080
	Luminance of White(Typ. cd/m2)	500
	Contrast Ratio (Typ.)	1,000 : 1
	Backlight Type	DIRECT LED
	Response Time(G to G)	Typ. : 8 ms, Max. : 12 ms
	VIEWING ANGLE	Viewing angle free (R/L 178° (Min), U/D 178° (Min))
	Display Colors	1.06 BILLION (10bit)
	Surface Treatment	HARD COATING (2H), ANTI-GLARE (HAZE 3%)
	Life time (Hrs, Typ.)	60,000
TERMINAL	Video	INPUT : X1 DP, x1 HDMI, x1 DVI
		OUTPUT : x1 DP
	Control	INPUT : x1 RS-232, x1 LAN, x1 EXT-IR, x1 A/S
		OUTPUT : x1 RS-232
DAISY CHAIN	Loop out Port	DP (DisplayPort)
	Source	DP, HDMI, DVI
INPUT SIGNAL	Support Resolution	480p, 576p, 720p, 1080p, UHD (only HDMI, DP)
	Frequency	31 ~ 140 KHz(HOR), 29 ~ 76 Hz(VER)
	HDCP	READY
POWER SUPPLY		AC 100V ~ 240V ± 10% (50/60Hz)
POWER CONSUMPTION	Stand-by(Watt)	≤ 0.5
	Typical.(Watt)	145
	Maximum(Watt)	155
DIMENSION (W x H x D mm)		1213.4x 684.2 x 91.5 (TBD)
SEAM GAP (mm)		3.5 (BEZEL to BEZEL)
MOUNTING (H x V mm)		600 x 400 (TBD)
WEIGHT(kg)		22.2 (TBD)
INSTALLATION ORIENTATION		LANDSCAPE / PORTRAIT
OPERATION HOUR		24 / 7

11. Regulatory Information(TBD)

Manufacturer's Name: ORIONDISPLAY CO.,LTD.

Manufacturer's Address: 217, 1gongdan-ro, Gumi-si, Gyeongsangbuk-do, Korea

Declares that the products Model Numbers: OLME-K5570
Variant Model Name: OLME-K5550, OLME-K5552, OLMR-5550, OLMR-K5552, OLMR-K5570, OLMR-K5572, OLMU-K5550, OLMU-K5552

Electromagnetic Compatibility Directive 2014/30/EU

Including: EN 55032:2015, Class A
        EN 55035:2017
        EN 61000-3-2:2014
        EN 61000-3-3:2013

Council Directive 2006/95/EC on Low Voltage Equipment Safety:

IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013

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 when the   equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
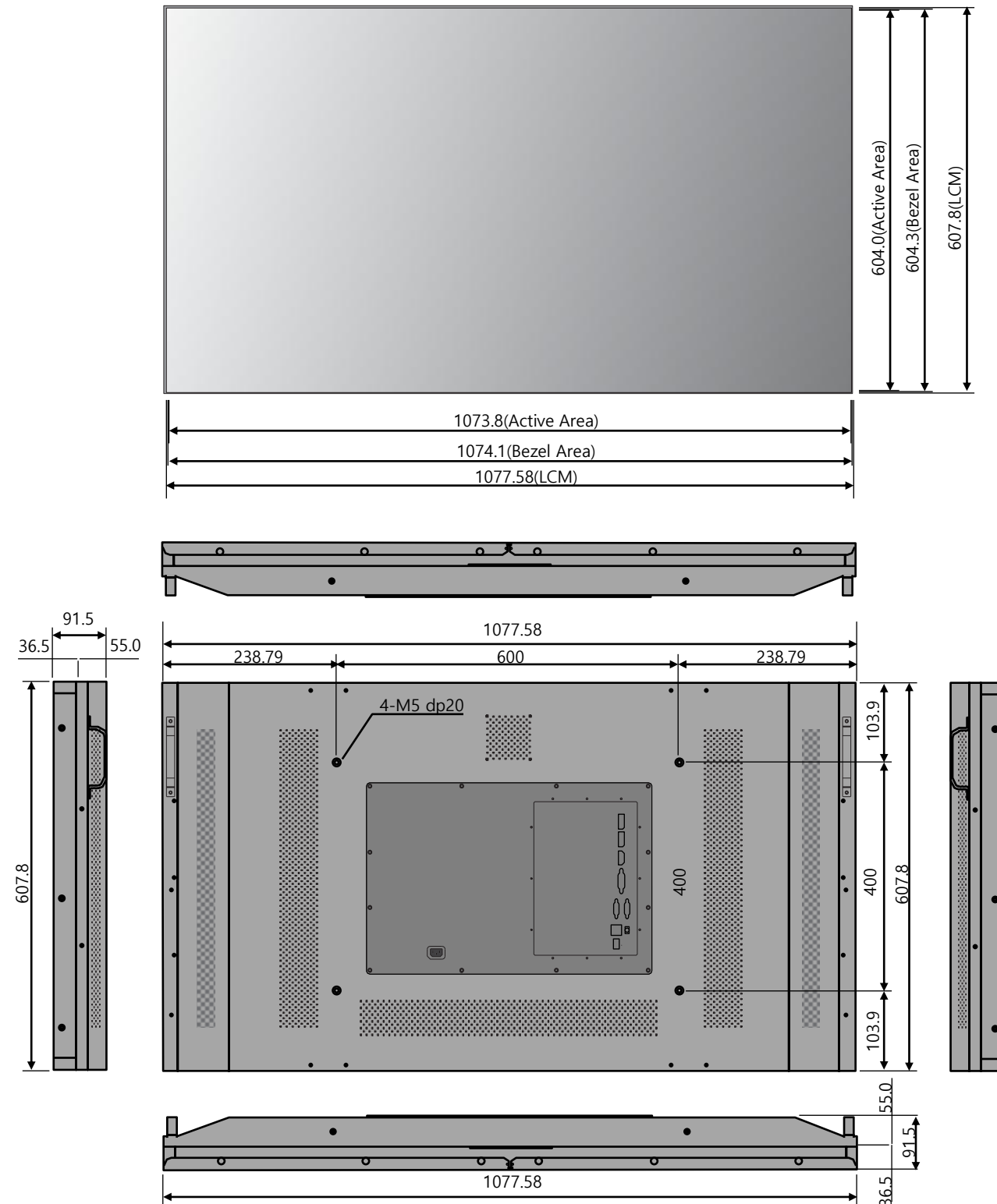
Any changes or modifications to the display not expressly approved by could void the user's authority to operate this equipment.

Other Certifications

CISPR 22

12. Dimension

12.1.OLMU-K4953(TBD)

604.0(Active Area)
604.3(Bezel Area)
607.8(LCM)

1073.8(Active Area)
1074.1(Bezel Area)
1077.58(LCM)

91.5
36.5　55.0

1077.58
238.79　600　238.79

4-M5 dp20

103.9

607.8

400
607.8

103.9

55.0
91.5
36.5

1077.58

-Thank you -