

# LED Display Installation Manual

**LH008IWJMWR (P0.84)**

**LH012IWJMWR (P1.26)**

**LH016IWJMWR (P1.68)**

SNOW-1810U (S-Box)

J2014003 (Power Shelf)

CP3500 (Power Rectifier)

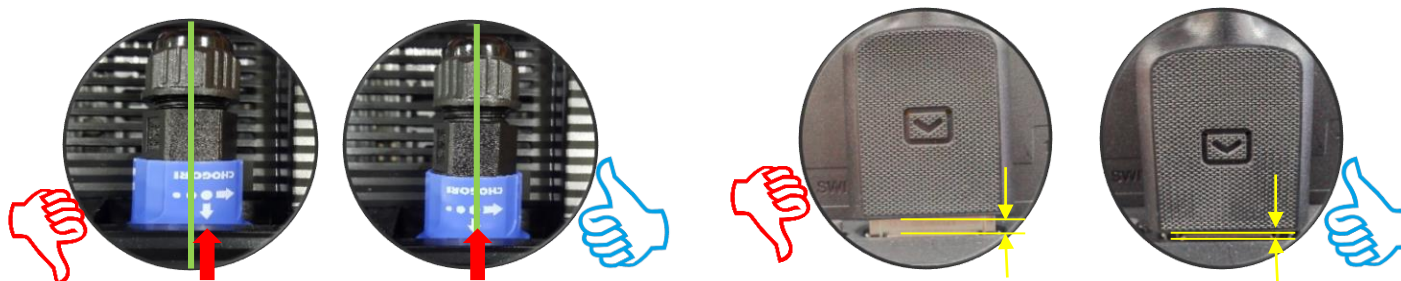
# Installation Manual History Note

Samsung Electronics

| Version | Date         | Last Edited by | Detail  |
|---------|--------------|----------------|---|
| 0.1     | 2020. 06. 26 | Daehwan Sohn   | - Initial Release   |
| 0.2     | 2020. 07. 09 | Daehwan Sohn   | - Global Tech Sales Group, B2B Field Quality Group requirements added |
| 0.3     | 2020. 08. 04 | Daehwan Sohn   | - Monitoring Tool guideline added, VPS code and part number updated   |
|         |              |                |   |
|         |              |                |   |
|         |              |                |   |
|         |              |                |   |

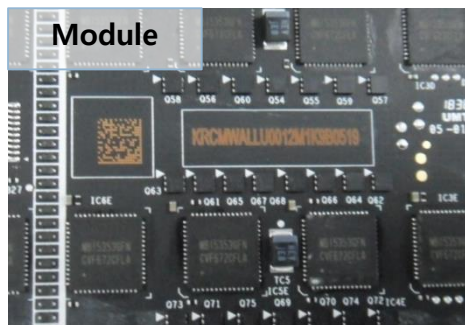
# Check first before installation (1/3)

- All power cables and OCM cables must be connected firmly.



- For HDBT signal stability, use the cable above CAT6 \*STP, \*FTP level. (Length 15m~100m)  
- Do not use "comb" or "pinstripe" cable.  
*"CAT6 UTP cannot be allowed"*
- Do not mix cabinet which have different Project number, since each cabinet has its own project number.

※ You can find Module bin information from 'U\*\*\*' at Module S/N or Box label.





# Check first before installation (2/3)

- Install the device only using **SNOW-1810U** and its supplied IG.
- ※ Please check below Cabinet and S-Box compatibility table information.

| <b>S-Box</b>   | <b>SNOW-1810U</b>   | <b>SNOW-1703ULD</b>  | <b>SNOW-1703U</b>   |
|----------------|---|--|---|
| <b>I/G</b>     | <b>BN91-20525A</b>  | BN91-19993A  | BN91-19100A   |
| <b>Cabinet</b> | IF015H,<br>IF020H,<br>IF025H,<br>IF025H-D,<br>IF040H-D,<br>IF060H-D,<br>IF012J,<br><b>IW008J</b><br><b>IW012J</b><br><b>IW016J</b><br><b>IW008J-R</b><br><b>IW012J-R</b><br><b>IW016J-R</b> | IF015H,<br>IF020H,<br>IF025H,<br>IF025H-D,<br>IF040H-D,<br>IF060H-D,<br>IF012J | IF015H,<br>IF020H,<br>IF025H,<br>IF025H-D,<br>IF040H-D,<br>IF060H-D |



# Check first before installation (3/3)

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- This manual is for LH008IWJMWR / LH012IWJMWR / LH016IWJMWR by Samsung Electronics. Only essential contents are included for Power Shelf / Power Rectifier by GE. Use the link below to see all the instructions for products by GE before installation.

Power Shelf :

[http://apps.geindustrial.com/publibrary/checkout/CP3500%20i2c%20Shelf?TNR=Data%20Sheets%7CCP3500%20i2c%20Shelf%7CPDF&filename=CP3500%20i2c%20Shelf%20DS\\_Aug\\_07\\_2015.pdf](http://apps.geindustrial.com/publibrary/checkout/CP3500%20i2c%20Shelf?TNR=Data%20Sheets%7CCP3500%20i2c%20Shelf%7CPDF&filename=CP3500%20i2c%20Shelf%20DS_Aug_07_2015.pdf)

Power Rectifier :

[https://library.industrialsolutions.abb.com/publibrary/checkout/CP3000-CP3500?TNR=Data%20Sheets%7CCP3000-CP3500%7CPDF&filename=CP3500AC54TE\\_DS\\_20200429.pdf](https://library.industrialsolutions.abb.com/publibrary/checkout/CP3000-CP3500?TNR=Data%20Sheets%7CCP3000-CP3500%7CPDF&filename=CP3500AC54TE_DS_20200429.pdf)

Power Shelf Monitoring Tool :

<http://powertalk.campaigns.abb.com/DigitalPowerInsight.html>

|  |                     |
|--|---------------------|
| <b>1. Product Information and Precautions for Installation</b> | <b>( 6 page )</b>   |
| <b>2. Check Point about the Radiant Heat</b>                   | <b>( 17 page )</b>  |
| <b>3. Preparation for Cabinet Installation</b>                 | <b>( 23 page )</b>  |
| <b>4. Frame Installation</b>                                   | <b>( 30 page )</b>  |
| <b>5. Cabinet + Frame Installation</b>                         | <b>( 38 page )</b>  |
| <b>6. Power OFF Board Installation and Cabinet Connection</b>  | <b>( 49 page )</b>  |
| <b>7. Disassembly &amp; Front Service</b>                      | <b>( 68 page )</b>  |
| <b>8. Cable Connection</b>                                     | <b>( 85 page )</b>  |
| <b>9. S-BOX Installation and Connection</b>                    | <b>( 97 page )</b>  |
| <b>10. LSM Settings and How to Use</b>                         | <b>( 114 page )</b> |
| <b>11. Precaution for LSM Connection</b>                       | <b>( 129 page )</b> |
| <b>12. Color Calibration</b>                                   | <b>( 130 page )</b> |
| <b>13. Bezel Installation</b>                                  | <b>( 133 page )</b> |
| <b>14. Appendix and Reference</b>                              | <b>( 141 page )</b> |

# 1. Product Information and Precautions for Installation

Samsung Electronics

## ◇ Cabinet Product Information

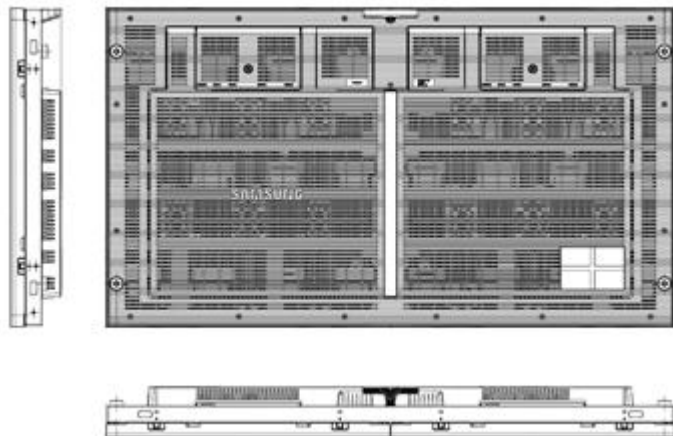
|                     |                         | IW008J (P0.84)  | IW012J (P1.26)     | IW016J (P1.68)      |
|---------------------|-------------------------|---|--------------------|---------------------|
| Basic Spec          | Pitch                   | 0.84 mm   | 1.26 mm            | 1.68 mm             |
|                     | Cabinet Resolution      | 960 X 540   | 640 X 360          | 480 X 270           |
| Picture Spec        | Brightness Peak/Max     | 1000-nit / 500-nit  | 1600-nit / 800-nit | 1400-nit / 1000-nit |
|                     | Contrast Ratio          | 10,000 : 1  |                    |                     |
|                     | Viewing angle (H/V)     | 160° / 140°   | 160° / 140°        | 160° / 140°         |
|                     | Refresh rate            | 1920 Hz ~ 3840 Hz   |                    |                     |
| Power Spec          | Input Power             | 48V DC  |                    |                     |
|                     | Power consumption (Max) | 168 (W/Cabinet)   | 144 (W/Cabinet)    | 125 (W/Cabinet)     |
| Operating Condition | Working Temperature     | 0°C~+40°C / 10~80%RH                                      |                    |                     |
|                     | IP Rating               | IP20  |                    |                     |
|                     | Power Daisy Chain       | Depends on the length of DC Cable (See Page 11 in detail) |                    |                     |
| Rating Spec         | Safety                  | 60950-1   |                    |                     |
|                     | EMC                     | Class A   |                    |                     |

# 1. Product Information and Precautions for Installation

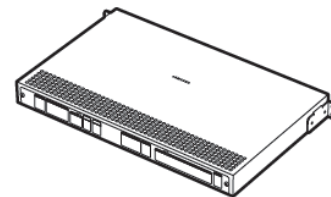
◇ **Screen Configuration by LED Pitch** (Please refer page 22 for Frame Kit Configuration in detail.)

| Spec                 |              | IWJ                  |                      |                      |                                |                      |                                |  |
|----------------------|--------------|----------------------|----------------------|----------------------|--------------------------------|----------------------|--------------------------------|--|
|                      |              | P0.84                |                      | P1.26                |                                | P1.68                |                                |  |
| Cabinet              | Cabinet Size | 806.4 x 453.6 x 72.2 |                      | 806.4 x 453.6 x 72.2 |                                | 806.4 x 453.6 x 72.8 |                                |  |
|                      | Module Size  | 201.6 mm x 151.2 mm  |                      |                      |                                |                      |                                |  |
|                      | Weight       | 12.5kg               |                      | 12.2kg               |                                | 12.5kg               |                                |  |
| Screen Configuration | FHD          | Cabinet Quantity     | 2x2 (4set)           |                      | 3x3 (9set)                     |                      | 4x4 (16set)                    |  |
|                      |              | I/G Quantity         | 1                    |                      | 1                              |                      | 1                              |  |
|                      |              | Size                 | 1612.8mm X 907.2mm   |                      | 2419.2mm X 1360.8mm            |                      | 3225.6mm X 1814.4mm            |  |
|                      |              | Frame Kit            | VG-LFJ08F <b>WW</b>  |                      | VG-LFJ08 <b>T</b> WW           |                      | VG-LFJ08 <b>U</b> WW           |  |
|                      |              | Bezel                | IWJPA-WP008D2X2      |                      | IWJPA-WP008D3X3                |                      | IWJPA-WP008D4X4                |  |
|                      | UHD          | Cabinet Quantity     | 4x4 (16set)          |                      | 6x6 (36set)                    |                      | 8x8 (64set)                    |  |
|                      |              | I/G Quantity         | 4                    |                      | 4                              |                      | 4                              |  |
|                      |              | Size                 | 3225.6mm X 1814.4mm  |                      | 4838.4mm X 2721.6mm            |                      | 6451.2mm X 3628.8mm            |  |
|                      |              | Frame Kit            | VG-LFJ08 <b>U</b> WW |                      | VG-LFJ08 <b>T</b> WW <b>x4</b> |                      | VG-LFJ08 <b>U</b> WW <b>x4</b> |  |
|                      |              | Bezel                | IWJPA-WP008D4X4      |                      | IWJPA-WP008D3X3                |                      | IWJPA-WP008D4X4                |  |

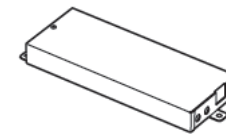
◇ **Cabinet Figure**



◇ **SNOW-1810U** (S-Box, I/G)



<S-Box>



<I/G>  
(Interface Gender)



# 1. Product Information and Precautions for Installation

## ◇ Off-Power Board VPS Unit Configuration

Essential

### VPS 1 (VG-RPWSKIT, Power Shelf Set)

| Index | Product Name        | Vendor   | Part Number        | Qty |
|-------|---------------------|----------|--------------------|-----|
| 1     | Power Shelf         | ABB (GE) | J2014003L001A      | 1   |
| 2     | Power Rectifier     | ABB (GE) | CP3500AC54TEZ      | 4   |
| 3     | AC Cable            | Longwell | P200062            | 5   |
| 4     | LUG, 2 AWG          | BURNDY   | YAV2C-L2TC14-FX-90 | 6   |
| 5     | Heat Shrinking Tube | -        | -                  |     |

### VPS 2 ((VG-RPWC100, DC Cable 100m [300ft])

| Index | Product Name                         | Vendor   | Part Number | Qty |
|-------|--------------------------------------|----------|-------------|-----|
| 1     | AWG 12, 2C, 300V, UL1277 <b>100m</b> | KDC      |             | 2   |
| 2     | Daisy Power Cable 1.5m               | KDC      |             | 4   |
| 3     | MCB (Miniature Circuit Break)        | ABB (GE) | S201-C25    | 2   |

Essential : Selective by installation condition

### VPS 3 (VG-RPWC065, DC Cable 65m [200ft])

| Index | Product Name                        | Vendor   | Part Number | Qty |
|-------|-------------------------------------|----------|-------------|-----|
| 1     | AWG 12, 2C, 300V, UL1277 <b>65m</b> | KDC      |             | 2   |
| 2     | Daisy Power Cable 1.5m              | KDC      |             | 6   |
| 3     | MCB (Miniature Circuit Break)       | ABB (GE) | S201-C25    | 2   |

### VPS 4 (VG-RPWC035, DC Cable 35m[100ft])

| Index | Product Name                        | Vendor   | Part Number | Qty |
|-------|-------------------------------------|----------|-------------|-----|
| 1     | AWG 12, 2C, 300V, UL1277 <b>35m</b> | KDC      |             | 2   |
| 2     | Daisy Power Cable 1.5m              | KDC      |             | 10  |
| 3     | MCB (Miniature Circuit Break)       | ABB (GE) | S201-C25    | 2   |

### VPS 5 (VG-RPWACBR, MCB Rack Mount Frame)

| Index | Product Name         | Vendor     | Part Number   | Qty |
|-------|----------------------|------------|---------------|-----|
| 1     | MCB Rack Mount Frame | PEN ELECOM | R1299/3UK-KIT | 1   |

### VPS 7 (VG-RPWAMIB, Monitoring Tool Kit)

Optional

| Index | Product Name          | Vendor   | Part Number | Qty |
|-------|-----------------------|----------|-------------|-----|
| 1     | Shelf Interface Board | KDC      | 150045498   | 1   |
| 2     | Interface Cable       | KDC      | CC848848960 | 1   |
| 3     | Interface Adapter Kit | ABB (GE) | 150036482   | 1   |
| 4     | Monitoring Data Cable | ABB (GE) | CC848848952 | 1   |

### VPS 6 (VG-RPWASPM, Service Rectifier)

| Index | Product Name           | Vendor   | Part Number   | Qty |
|-------|------------------------|----------|---------------|-----|
| 1     | Power Rectifier CP3500 | ABB (GE) | CP3500AC54TEZ | 1   |

# 1. Product Information and Precautions for Installation

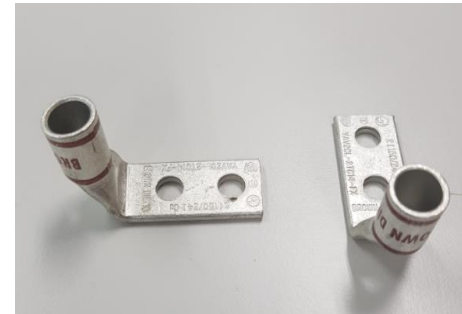
## ◇ Off-Power Board VPS Unit Configuration - Detail

### VPS 1 (VG-RPWSKIT, Power Shelf Set)

| Index | Product Name     | Vendor   | Part Number        | Qty   |
|-------|------------------|----------|--------------------|-------|
| 1     | Power Shelf      | ABB (GE) | J2014003L001A      | 1     |
| 2     | Power Rectifier  | ABB (GE) | CP3500AC54TEZ      | 4     |
| 3     | AC Cable         | Longwell | P200062            | 3     |
| 4     | LUG, 2 AWG       | BURNDY   | YAV2C-L2TC14-FX-90 | 6     |
| 5     | Heat Shrink Tube | dalincom | S-901-600          | 300mm |



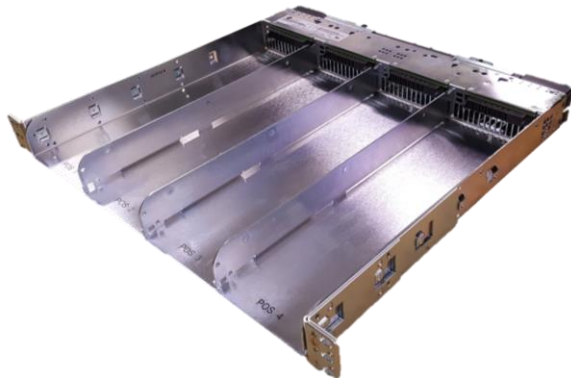
3. AC Cable



4. LUG, 2 AWG



5. Heat Shrink Tube



1. Power Shelf



2. Power Rectifier

## ◇ Off-Power Board VPS Unit Configuration - Detail

### VPS 2 (VG-RPWC100, DC Cable 100m[300ft])

| Index | Product Name                         | Vendor   | Part Number  | Qty |
|-------|--------------------------------------|----------|--------------|-----|
| 1     | AWG 12, 2C, 300V, UL2464 <b>100m</b> | KDC      | JWHARNESS004 | 2   |
| 2     | Daisy Power Cable 1.5m               | KDC      | JWHARNESS001 | 4   |
| 3     | MCB (Miniature Circuit Breaker)      | ABB (GE) | S201-C25     | 2   |



1. AWG 12 Cable (100m / 65m / 35m)

### VPS 3 (VG-RPWC065, DC Cable 65m[200ft])

| Index | Product Name                        | Vendor   | Part Number  | Qty |
|-------|-------------------------------------|----------|--------------|-----|
| 1     | AWG 12, 2C, 300V, UL2464 <b>65m</b> | KDC      | JWHARNESS003 | 2   |
| 2     | Daisy Power Cable 1.5m              | KDC      | JWHARNESS001 | 6   |
| 3     | MCB (Miniature Circuit Breaker)     | ABB (GE) | S201-C25     | 2   |



2. Daisy Power Cable 1.5m

### VPS 4 (VG-RPWC035, DC Cable 35m[100ft])

| Index | Product Name                        | Vendor   | Part Number  | Qty |
|-------|-------------------------------------|----------|--------------|-----|
| 1     | AWG 12, 2C, 300V, UL2464 <b>35m</b> | KDC      | JWHARNESS002 | 2   |
| 2     | Daisy Power Cable 1.5m              | KDC      | JWHARNESS001 | 10  |
| 3     | MCB (Miniature Circuit Breaker)     | ABB (GE) | S201-C25     | 2   |



3. Miniature Circuit Breaker

## ◇ Off-Power Board VPS Unit Configuration - Detail

### VPS 5 (VG-RPWACBR, MCB Rack Mount Frame)

| Index | Product Name         | Vendor     | Part Number   | Qty |
|-------|----------------------|------------|---------------|-----|
| 1     | MCB Rack Mount Frame | PEN ELECOM | R1299/3UK-KIT | 1   |



VPS 5  
1. MCB Rack Mount Frame

### VPS 6 (VG-RPWASPM, Service Rectifier)

| Index | Product Name    | Vendor   | Part Number   | Qty |
|-------|-----------------|----------|---------------|-----|
| 1     | Power Rectifier | ABB (GE) | CP3500AC54TEZ | 1   |



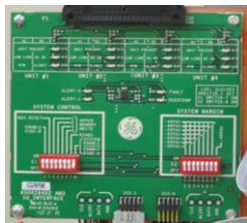
VPS 6  
1. Power Rectifier

### VPS 7 (VG-RPWAMIB, Monitoring Tool Kit)

| Index | Product Name          | Vendor   | Part Number | Qty |
|-------|-----------------------|----------|-------------|-----|
| 1     | Shelf Interface Board | KDC      | 150045498   | 1   |
| 2     | Interface Cable       | KDC      | CC848848960 | 1   |
| 3     | Interface Adapter Kit | ABB (GE) | 150036482   | 1   |
| 4     | Monitoring Data Cable | ABB (GE) | CC848848952 | 1   |

※ The manual for Monitoring Tool locates at installed path that can be found in the link below.

<http://powertalk.campaigns.abb.com/DigitalPowerInsight.html>



VPS 7  
1. Shelf Interface Board



2. Interface Cable



3. Interface Adapter Kit



4. Monitoring Data Cable

# 1. Product Information and Precautions for Installation

## ◇ The Wall Pro UHD Screen and Power Shelf Installation Guide by Installation Condition

| Model | Cable Length | Cabinets per cable | Cabinets for UHD Screen | Cable Qty Needed | Power Shelf Qty Needed (by Cable Qty*) | Power Shelf Qty Needed (110V) | Power Shelf Qty Needed (220V) |
|-------|--------------|--------------------|-------------------------|------------------|--|-------------------------------|-------------------------------|
| P0.84 | 35m          | 5                  | 16                      | 4                | 1                                      | 1                             | 1                             |
|       | 65m          | 3                  | 16                      | 6                | 1                                      | 1                             | 1                             |
|       | 100m         | 2                  | 16                      | 8                | 1                                      | 1                             | 1                             |
| P1.26 | 35m          | 5                  | 36                      | 8                | 1                                      | 2                             | 1                             |
|       | 65m          | 3                  | 36                      | 12               | 1                                      | 2                             | 1                             |
|       | 100m         | 2                  | 36                      | 18               | 2                                      | 2                             | 2                             |
| P1.68 | 35m          | 5                  | 64                      | 13               | 2                                      | 3                             | 2                             |
|       | 65m          | 3                  | 64                      | 22               | 2                                      | 3                             | 2                             |
|       | 100m         | 2                  | 64                      | 32               | 3                                      | 3                             | 3                             |

\* Max 12 Cables connectable per 1 Power Shelf

| Model | Cable Length | Cabinet Qty for 110V | Cabinet Qty for 220V |
|-------|--------------|----------------------|----------------------|
| P0.84 | 35m          | 16                   | 40**                 |
|       | 65m          | 16                   | 36                   |
|       | 100m         | 16                   | 24                   |
| P1.26 | 35m          | 20                   | 45**                 |
|       | 65m          | 20                   | 36                   |
|       | 100m         | 20                   | 24                   |
| P1.68 | 35m          | 24                   | 60                   |
|       | 65m          | 24                   | 36                   |
|       | 100m         | 24                   | 24                   |

### ※ Important

\*\* In case of 35m DC Cable / 220V, it is available of connecting maximum 5 cabinets per DC Cable, totally 60 Cabinets connected per 1 Power Shelf but that exceeds the maximum rating power of Power Shelf. Do not connect more than 5 FHD Screen (40 Cabinets for P0.84, 45 Cabinets for P1.26) per 1 Power Shelf.

## ▪ Example for VPS purchase according to installation condition

### Example 1)

Screen : UHD X 3, Model : P1.26, Distance : 80m, Supply Voltage : 220V

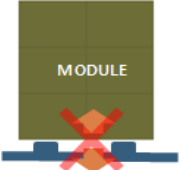
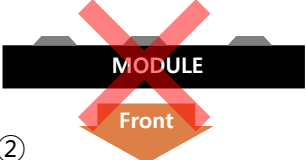

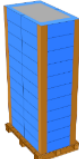


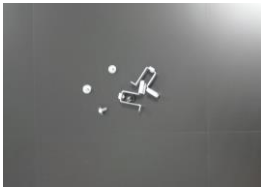
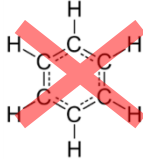


→ Cabinet 108(=36 \* 3)EA, Shelf 5EA Needed, Cable Length and Quantity : 100m / 54 EA

∴ VPS 1 – 5EA / VPS 2 – 54EA / VPS 5 – 3EA (∵ MCB 24 EA mountable per 1 MCB Mount Frame)

# 1. Product Information and Precautions for Installation



## ◇ Precautions for Installation (LED damage)

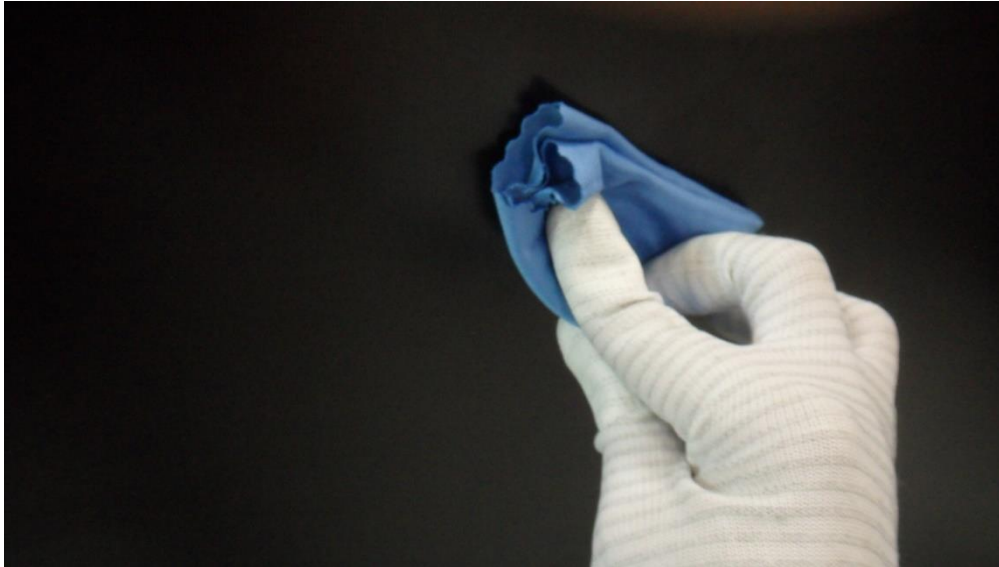
| Caution  | Image   |
|--|---|
| <p><b>[ Beware of Outside Impact, Fall]</b></p> <p>① Beware not to cause any impact on the LED screen or drop the product on the floor after the protection gets taken off for installation.</p> <p>② Beware not to put the LED side headed downwards to the floor after the protection gets taken off for installation.</p> <p>③ Beware not to have the corner area of LED module be damaged due to the contact with the outside.</p> <p>④ Beware not to put more than 12 layers.</p>   |     <p>① ②</p> <p>③ ④</p> |
| <p><b>[Beware of LED Damage due to Static Electricity]</b></p> <p>▶ Beware not to touch LED screen with bare hands without putting gloves on.</p>  |     |
| <p><b>[Beware of LED &amp; Film Damage due to Metallic Substances]</b></p> <p>▶ Beware not to have metallic substances pulled in to the surface due to the magnetic force on the front side of the LED.</p> <p>▶ If any metallic substances get drawn in on the surface, please disassemble the module and then remove the pollutants by using a magnet.</p>   |   |
| <p><b>[Beware of LED Damage due to chemicals.]</b></p> <p>▶ Beware not to contact water, waxes, benzene, thinners, mosquito repellents, lubricants, cleaners, solvents or surfactants on edge of LED Module.</p> <p>▶ When installing on the construction site, it should be installed after construction &amp; cleaning.</p> <p>▶ If the installation site requires construction work, the product is covered with a curtain and operated 50% white or video for 2 hours every day.</p> |      |

# 1. Product Information and Precautions for Installation

Samsung Electronics

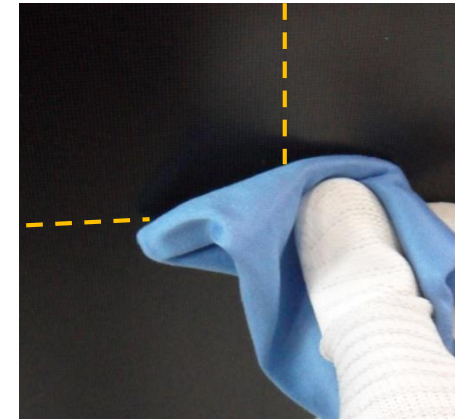


## ◇ Caution for cleaning screen



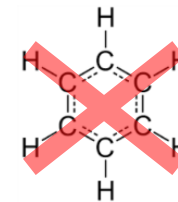
- Wipe lightly with the soft cleaning cloth provided with the product. (Watch out for surface LED damage)
- Hard stuff on screen surface can damage LED chip and film during cleaning. Clear screen surface before cleaning.

## ★Caution★



- Watch out for damage when cleaning gap between Half-Cabinets.
- Watch out for damage when cleaning gap between Modules.
- Do not insert any cleaning tool or spray cleaner directly into the gap.

Horse hair  
duster attachment



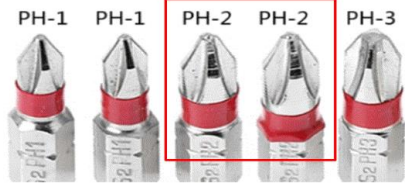
- Do not wipe the LED surface with hard materials such as paper towels, brushes comb or brush, acrylic or steel.
- Do not use chemicals such as wax, benzene, cinna, mosquito repellent, air freshener, lubricant, and detergent in products



## ◇ 설치 준비



※ 권장 규격



- Provided as Cabinet Accessory (BN96-48298A)

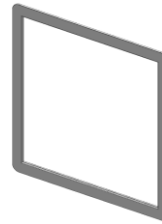


**Cover-PCB**  
(BN63-18008A)



※ Packed in a small zipper bag

- Provided in Accessory Kit (CY-WJJPWP).



**PROTECTION**  
(BN81-17111A)



**EDGE PROTECTION V/H**  
(BN81-17514A/BN81-17515A)



**MAGNET JIG**  
(BN81-17114A)



**GAP TOOL**  
(BN81-17113A)



**Adjustment JIG**  
(BN81-17112A)



**PLIER**  
(BN81-17541A)



**Absorber**  
(BN81-17124A) X 4



**Glove**  
(RA00400E-002539)

- Provided in Frame Kit (VG-LFJ08\*WW).



**Hex Wrench**  
2mm, 6mm

## 2. Check Point about the Radiant Heat

### ▪ Standard and condition for indoor installation

※ Written under 'Full white, (back light 7)' standard  
Written under 'Video, (back light 10)' standard

※ ADA(American's with Disabilities Act)

- Standard for using 'SAMSUNG WALL MOUNT' (Fulfill ADA)

- Ceiling installation, outdoor installation, cannot be installed where there is vibration

It is not possible to install it in a special case, and it is necessary to consult technical sales separately.

- In principle, solar window direct radiation condition installation is avoided.

- Window side, adjacent installation

- . A weak solar scan of the time zone except for the noon time zone during work is allowed

- . If surface temperature rise is minor (1 ~ 2 degrees) allowed

- . Use UV blocking / light blocking film when installation of window adjacent is inevitable.

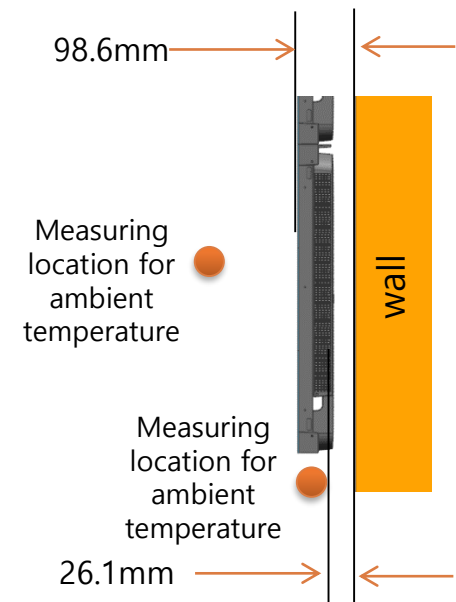
- Room temperature is recommended to be 0 ~ 25 °C

- Effect of Cold / Hot Wind on Air Conditioning System

- . If the cold or hot air is the same air conditioning system, be careful not to affect the product.

- Air temperature measurement position

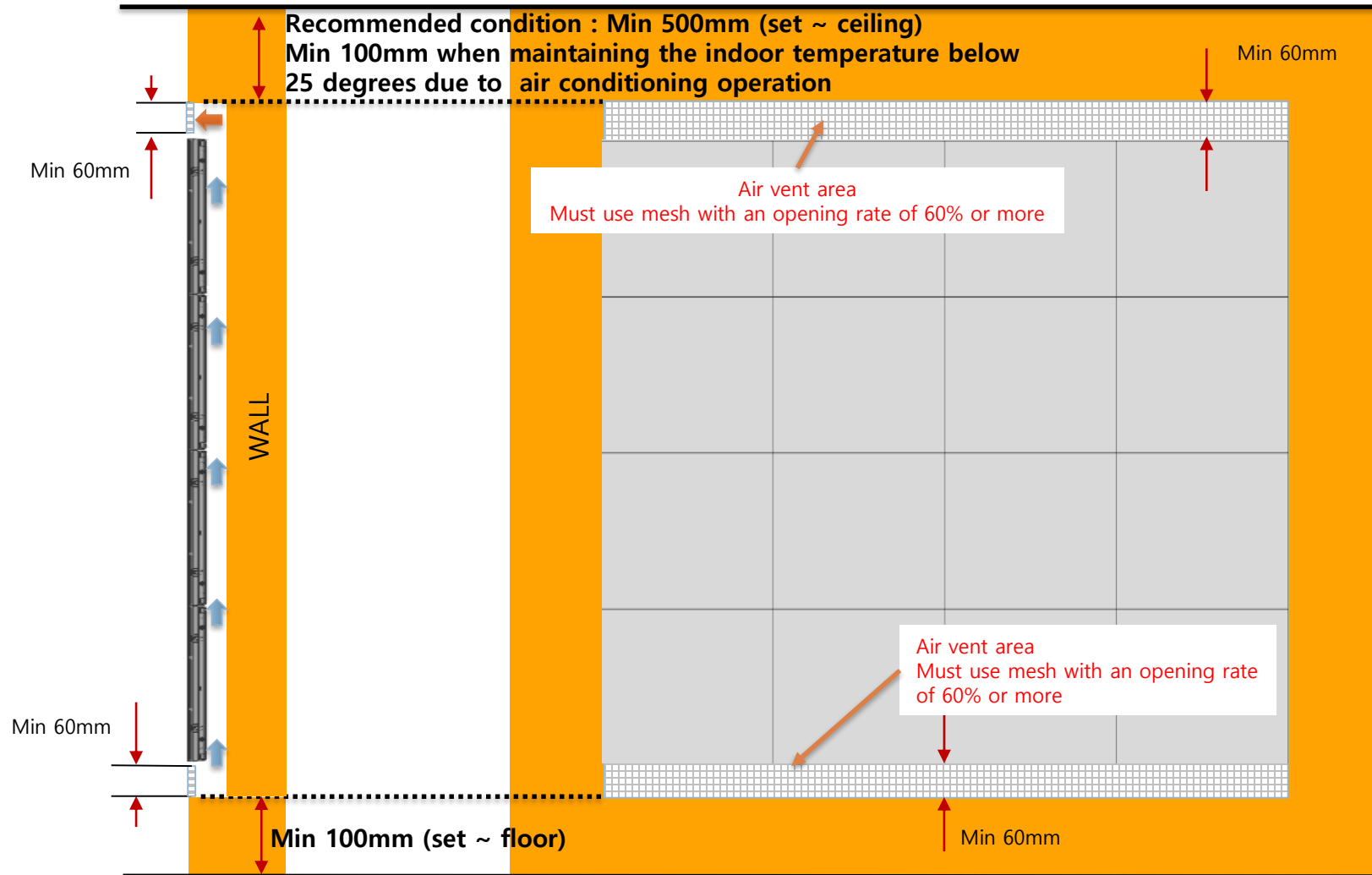
- . Based on product center or air let part



## 2. Check Point about the Radiant Heat– without Fan

### ➤ Minimum spacing for buried installation

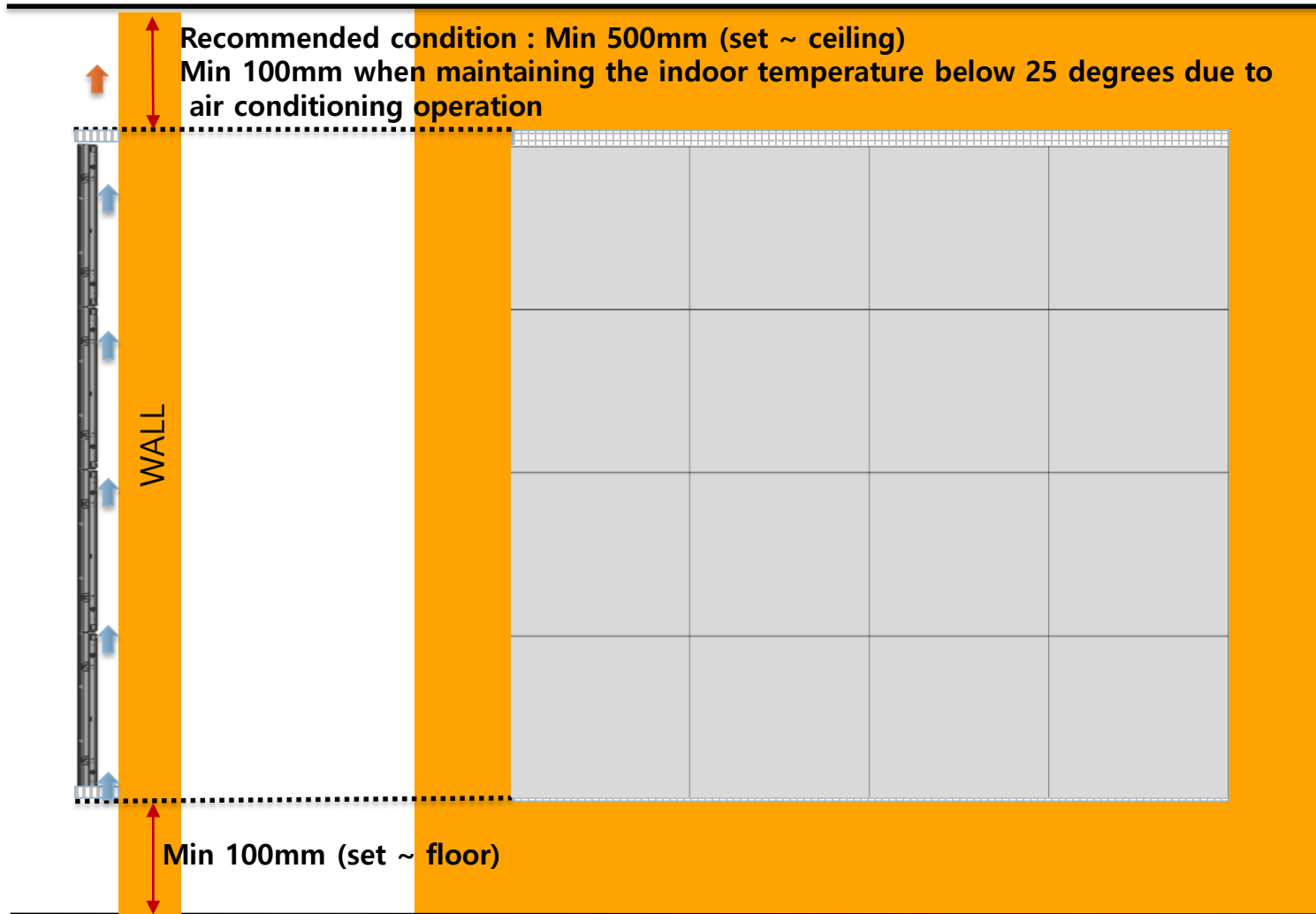
※ At least 60mm installation space required for upper, lower, left, and right  
All interior finishes proceed after screen installation



※ Vent and interior finishing work will proceed after screen installation

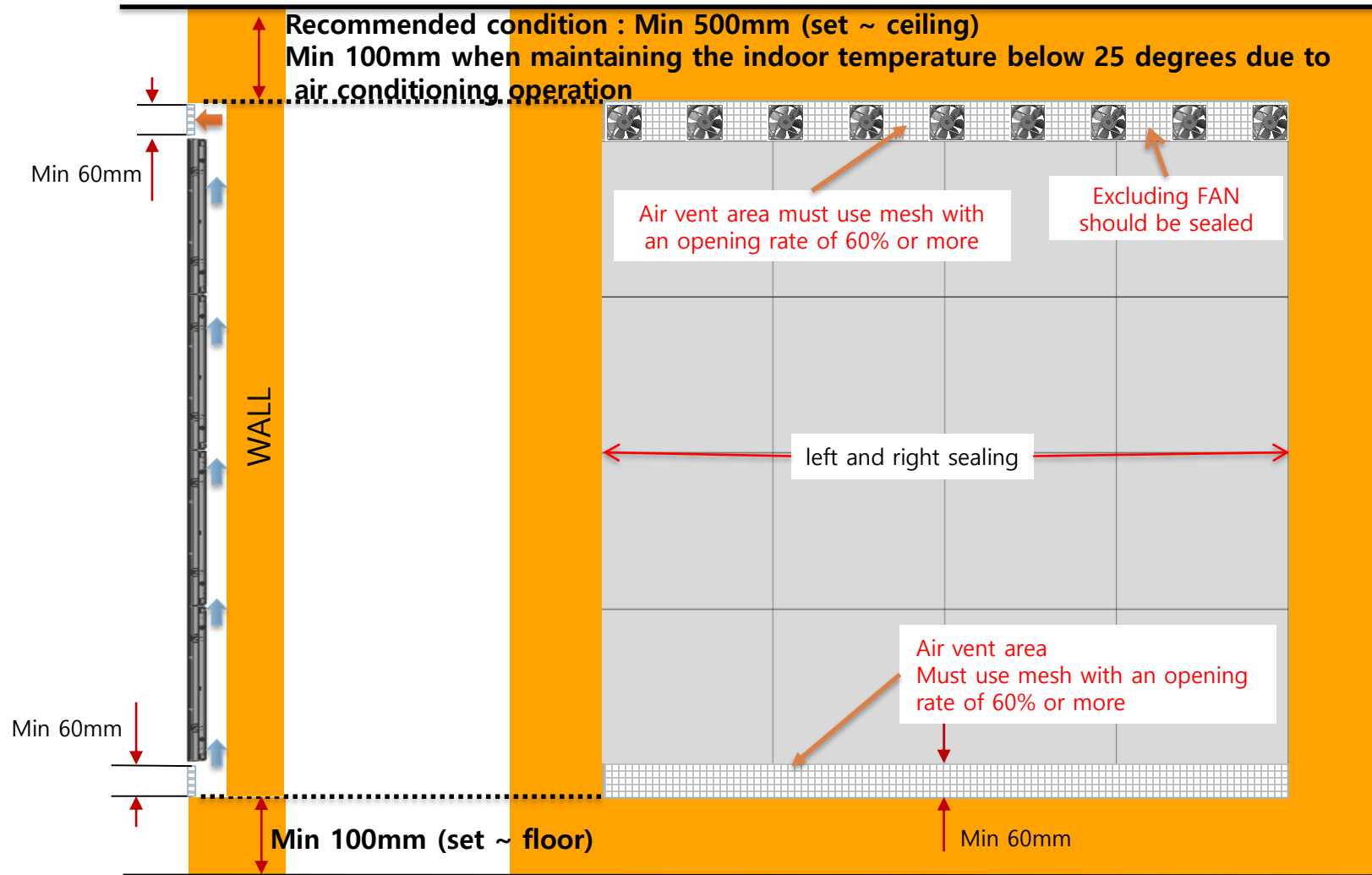
## 2. Check Point about the Radiant Heat– without Fan

### ➤ Minimum spacing for buried installation



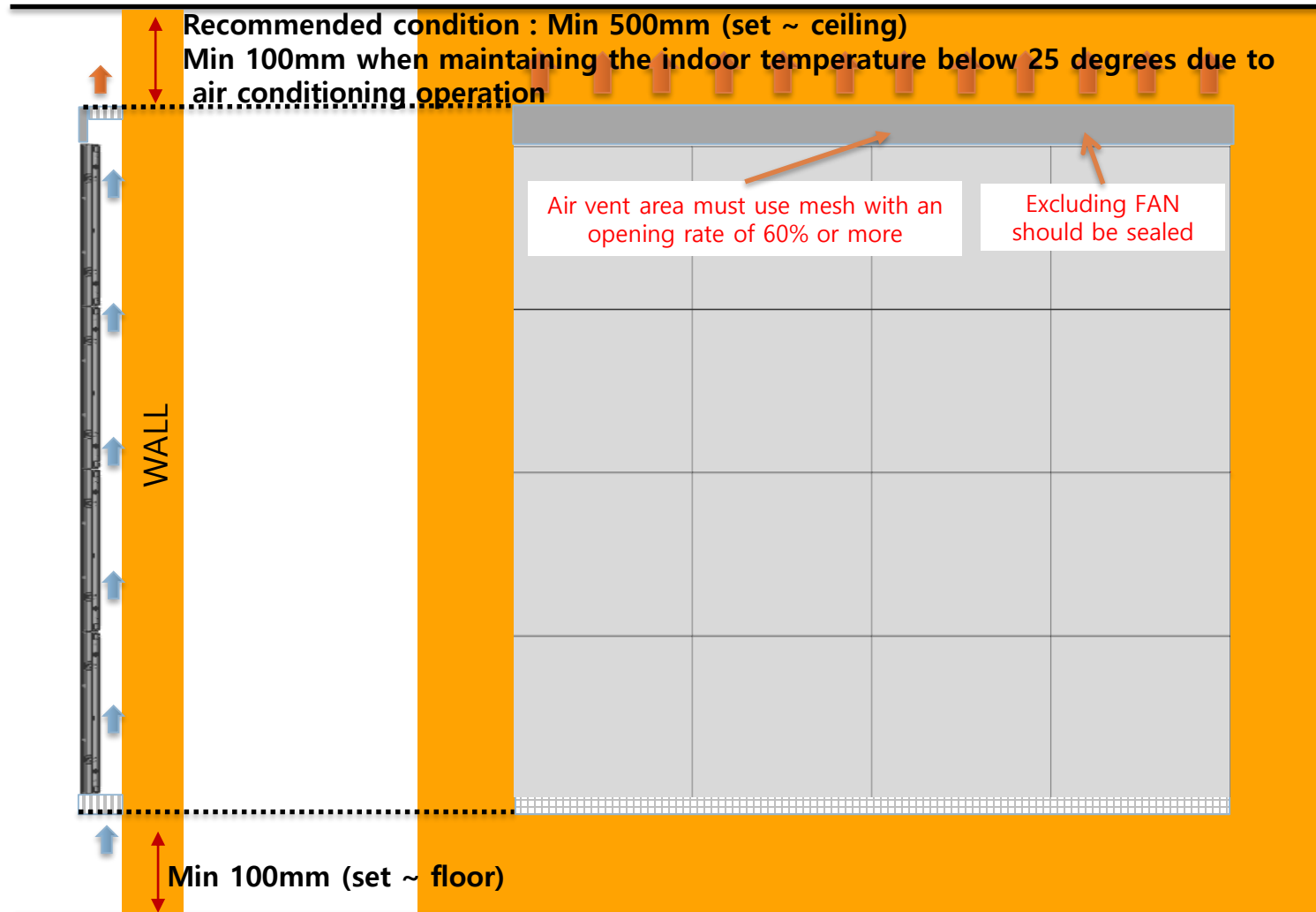
## 2. Check Point about the Radiant Heat- with Fan

### ➤ Example of minimum spacing and placement during landfill installation



## 2. Check Point about the Radiant Heat– with Fan

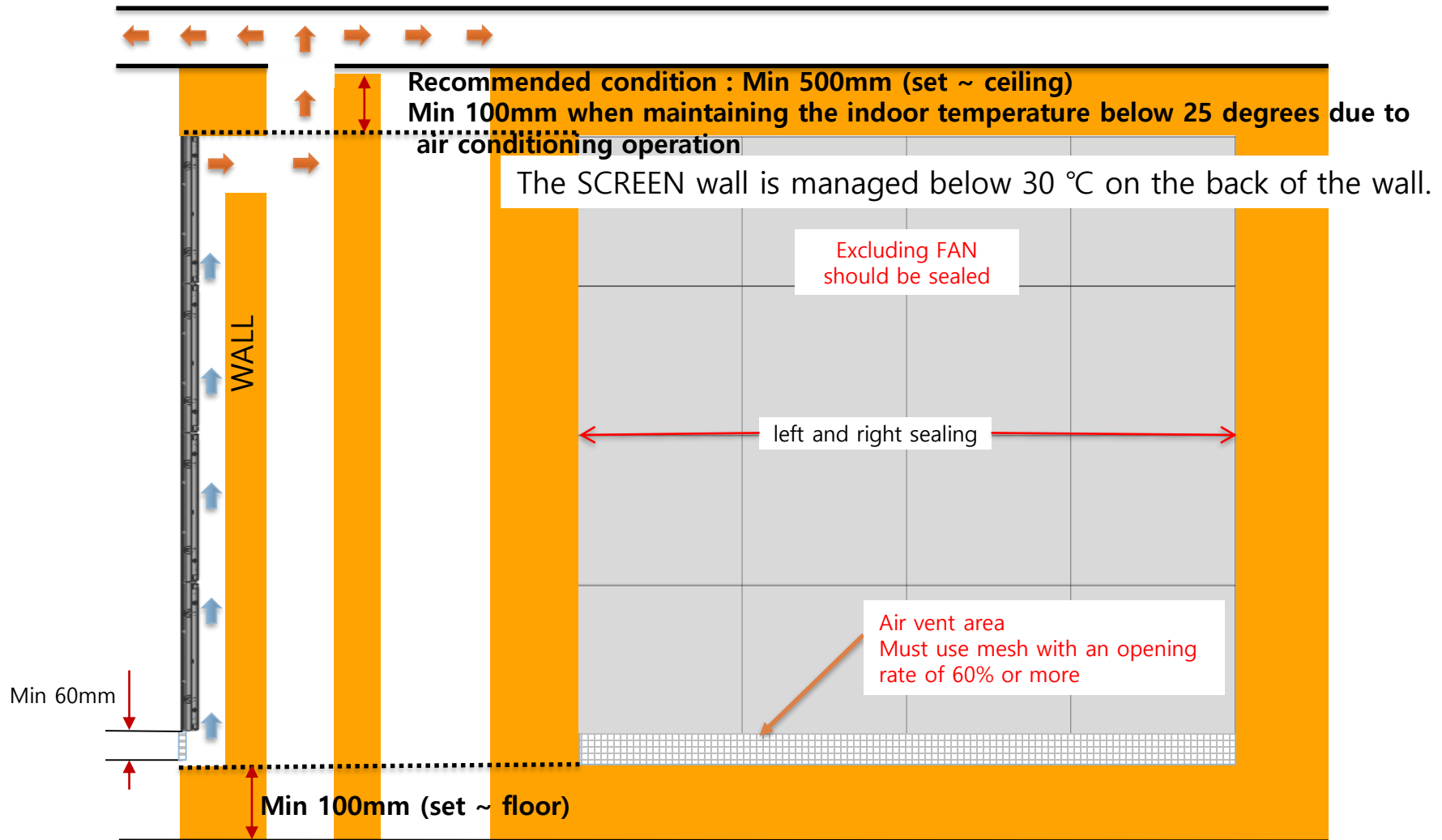
### ➤ Example of minimum spacing and placement when installing walls



※ Vent and interior finishing work will proceed after screen installation

## 2. Check Point about the Radiant Heat– with Fan

### ➤ Example of minimum spacing and placement during rear exhaust



※ Vent and interior finishing work will proceed after screen installation

# 3. Preparation for Cabinet Installation

## ◇ Preparations Before Installation

- ① Remove the Box tape at the upper area and then open up the box. (Fig.2)
- ② Remove the Top-Cushion and cut out Vacuum bag, and pull out the set. (Fig.2)
- ③ Check whether there is any abnormality on the screen by connecting the power cable. (Fig.3)

※ Process of Screen Check (Page.21)

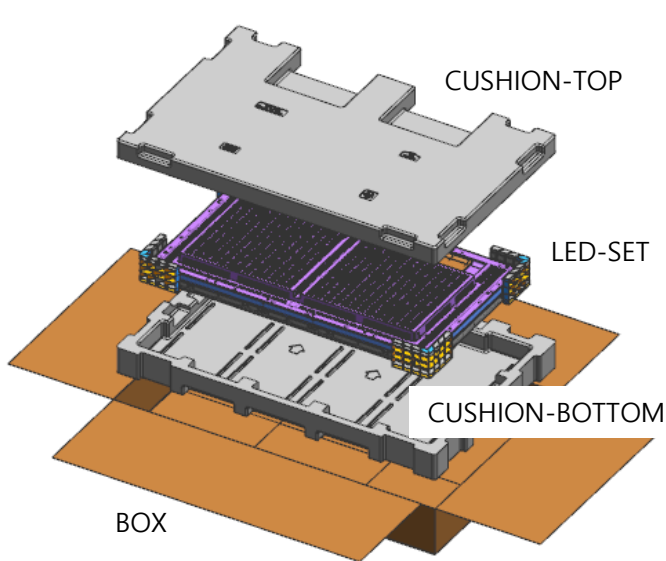


Fig.1 Packing & Product

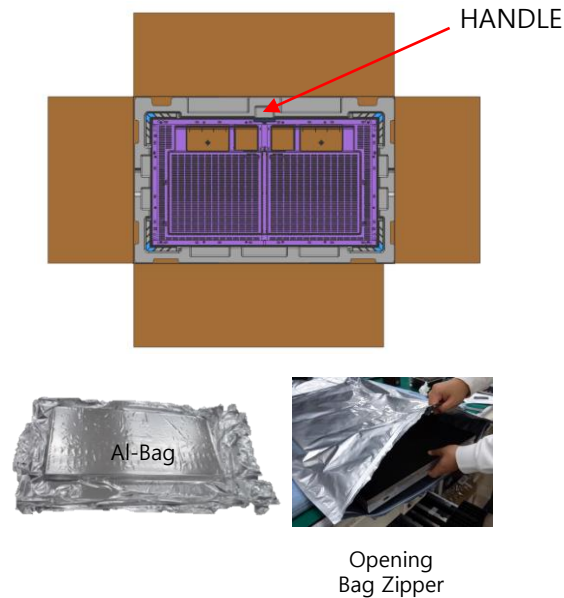


Fig. 2 Opening up and Al-Bag Removal

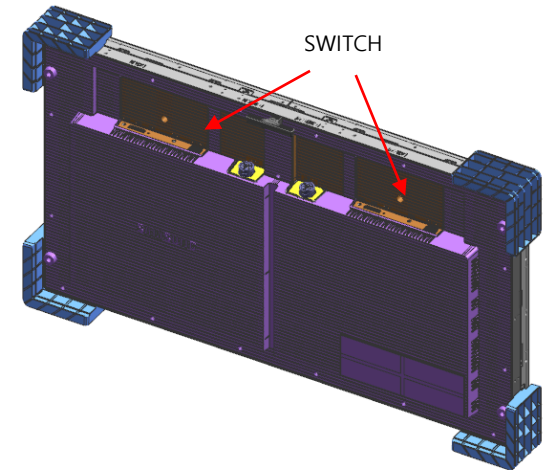


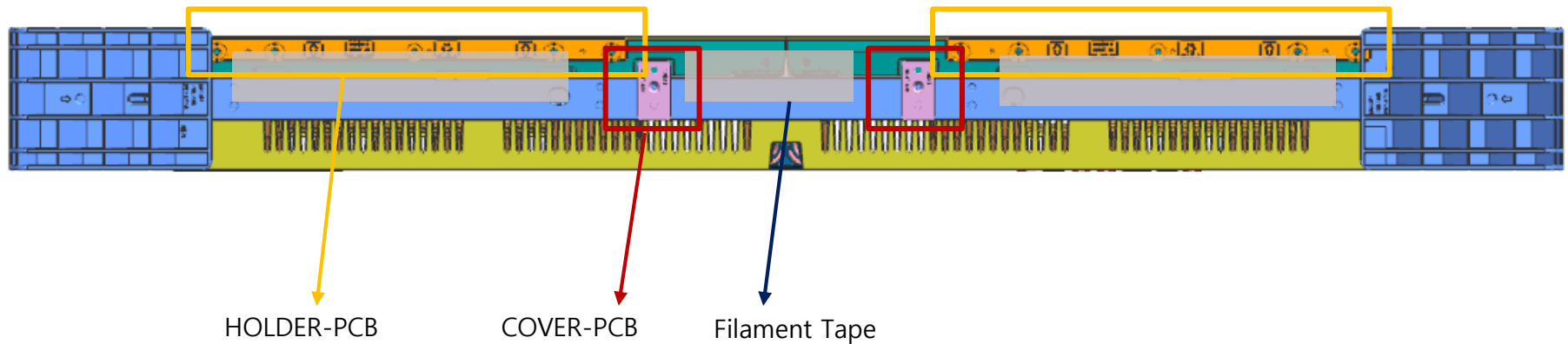
Fig.3 Screen Check



### 3. Preparation for Cabinet Installation

- ④ 18ea Holder-PCB fixing screws and 4 Cover-PCB fixing screws are released.
- ⑤ Remove the filament tape attached to the top / bottom / left / right.

Fig.4 Holder-PCB & Cover-PCB & Protective Sheet Removal



**X18** SCREW-MACHINE (6003-000133, M4,L8)



**X4** SCREW-MACHINE (6003-001501, M3,L6)

※ Remove Cover-PCB and screws and keep them separately.  
It is required when working on the back.

※ The Cover-PCB, Screw, and Bolt are included in the accessory of the Cabinet

### 3. Preparation for Cabinet Installation

⑥ Unfasten the 4 screws on the Cover Corner area (Fig.4)

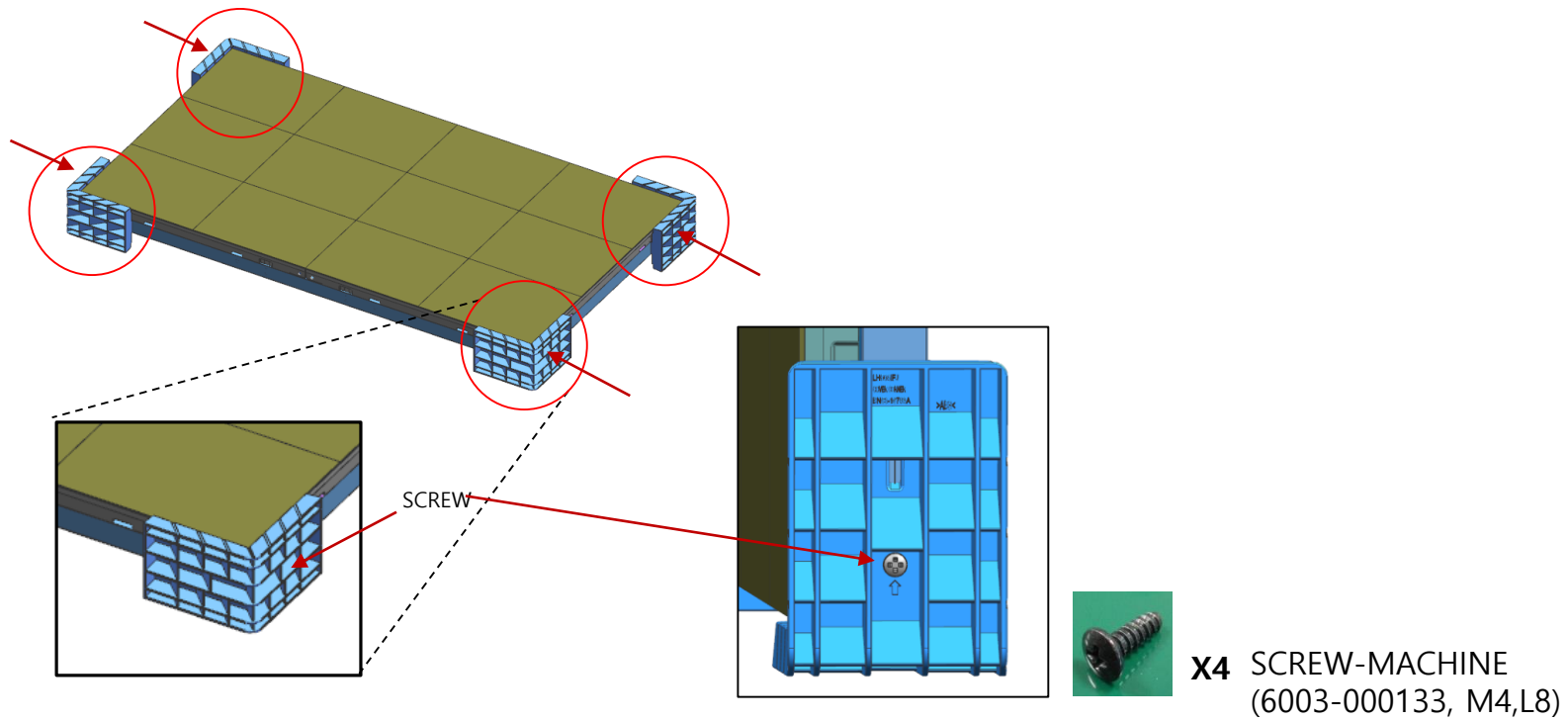


Fig.4 Cover Corner Removal

### 3. Preparation for Cabinet Installation

- Using Spacer-PET

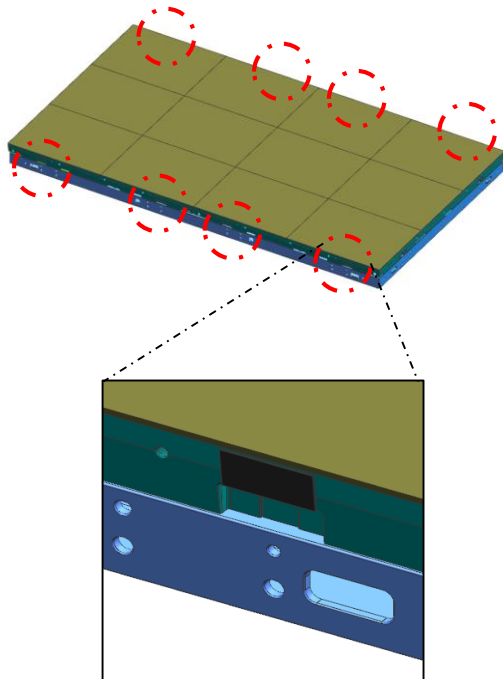
⑦ When Black Seam occurs, remove the Spacer-PET of the point.

※ Spacer-PET should not be protruded more than module

⑧ If necessary, attach Spacer-PET. (Fig.5)

※ Check the gap between the module and the Bracket-Sub using a gap gauge.

※ If the step is 0.06mm or more, attach Spacer-PET (0.05t / 0.1t).



※ **Spacer-PET :**

- In order to minimize the load applied to the module during large size installation, Attach it to the Bracket-Sub to minimize the gap between the module and the Bracket-Sub.

- Cabinet 8point attached to Spacer-PET

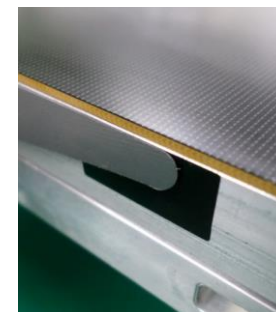
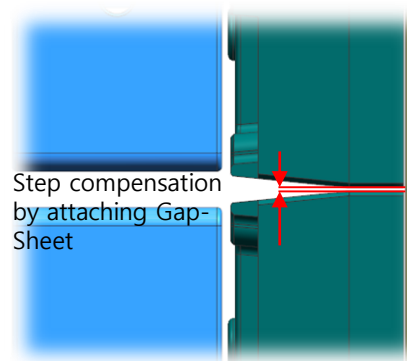


Fig.5 Check the difference between the module and B/SUB

## ◆ Dehumidification

① In order to protect the LED device, dehumidification is required if the following conditions apply.

[ Dehumidification while installing ]

- When installed in a vacuum-packed state after factory shipment for more than 6 months
- When installing after storing for more than one week in a non-vacuum packaging.

[ Dehumidification while operating ]

- Dehumidification when not operated for more than 30 days in an environment of 40°C / 80% or less (dehumidification through LSM, see page 102)

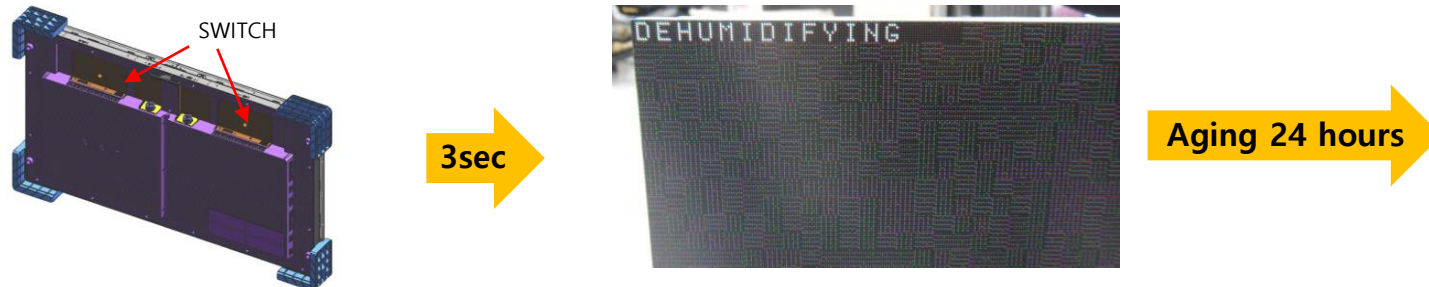
② How to dehumidificate before installation

- After the Cabinet is turned on, press the button for 3 seconds.

※ When the power is turned on for the first time, the time required for the operation of the AM3352 IC is required.  
Wait about 30 seconds and let it run.

When the button is released, Dehumidifying Mode is activated. (Module display at the top left)

- Aging for 24 hours.



### ※ Caution

◆ Normal installation mode for IWJ (LH008IWJMWS, LH012IWJMWS, LH016IWJMWS)의 is “STB” mode(Switch)입니다.

Use “O” mode only for cabinet inspection, and be sure to change to “STB” mode after inspection.

◆ The switch that performs the dehumidification mode and factory reset function is the same, and when pressed for 3 seconds, it enters the dehumidification mode, and when pressed for 10 seconds or more, it becomes the factory reset.

# 3. Preparation for Cabinet Installation

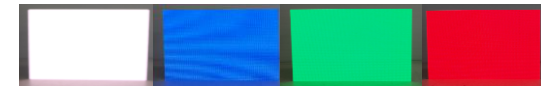
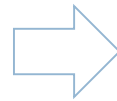
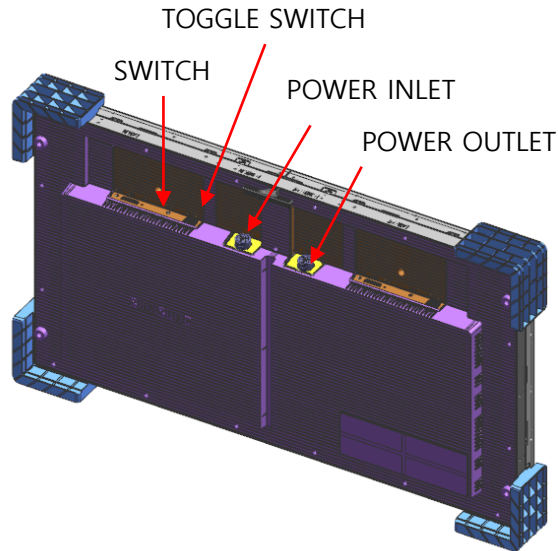
## ◆ Process of Dehumidification

- Dehumidification process goes on automatically for 24 hours as the brightness increases gradually.

| Step | condition                               | Brightness | Time |
|------|---|------------|------|
| 1    | Lighting up display with 10 gray scale  | 5%         | 2 hr |
| 2    | Lighting up display with 20 gray scale  | 8%         | 2 hr |
| 3    | Lighting up display with 30 gray scale  | 10%        | 2 hr |
| 4    | Lighting up display with 40 gray scale  | 15%        | 2 hr |
| 5    | Lighting up display with 50 gray scale  | 20%        | 2 hr |
| 6    | Lighting up display with 70 gray scale  | 25%        | 2 hr |
| 7    | Lighting up display with 90 gray scale  | 35%        | 2 hr |
| 8    | Lighting up display with 120 gray scale | 45%        | 2 hr |
| 9    | Lighting up display with 150 gray scale | 60%        | 2 hr |
| 10   | Lighting up display with 180 gray scale | 70%        | 2 hr |
| 11   | Lighting up display with 200 gray scale | 80%        | 2 hr |
| 12   | Lighting up display with 255 gray scale | 100%       | 2 hr |

# 3. Preparation for Cabinet Installation

## ◆ Reference : Process of Screen Check



Check the picture of the screen

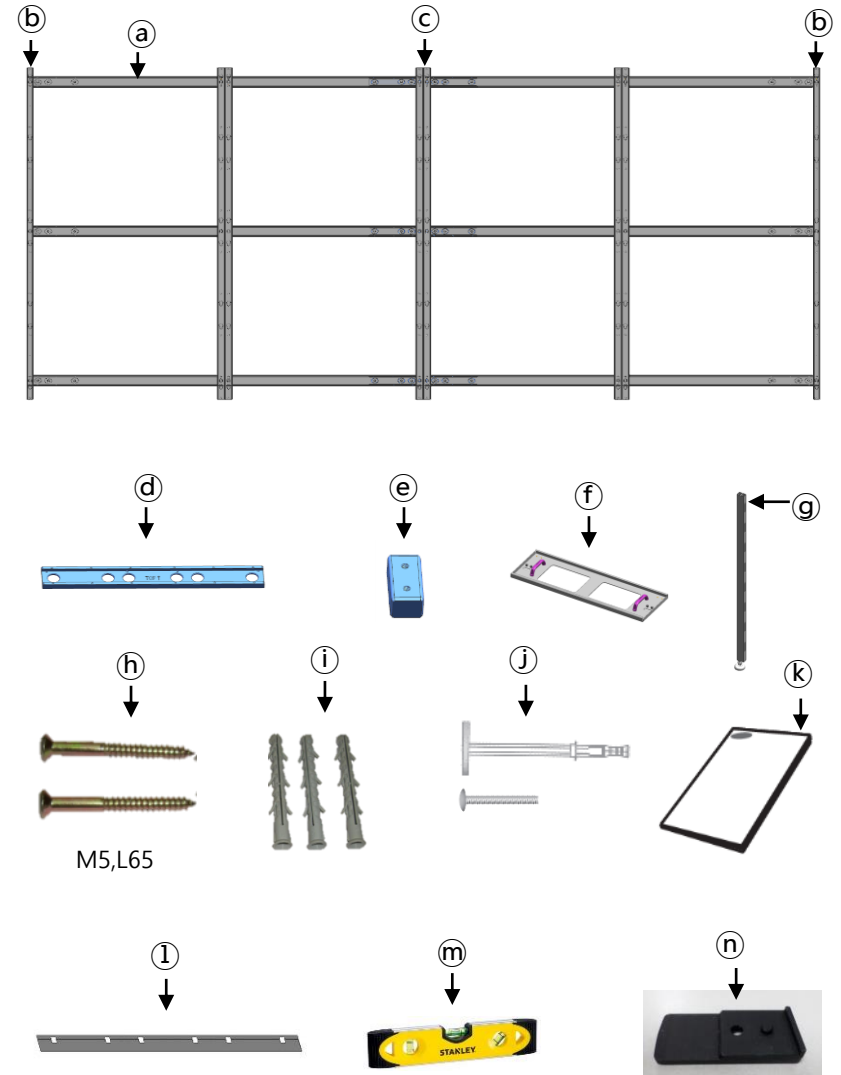
## ◆ Internal White Pattern

1. After turning power on, press the toggle switch button for 5 seconds.
2. Dehumidifying screen comes out, push the toggle switch twice.
3. When the white screen is displayed, check the defective LED by sequentially pressing toggle switch.
4. If you need more brighter screen pattern, press toggle switch for 5 seconds in darker white pattern.
5. Press toggle switch for 5 seconds again to exit factory OSD.

# 4. Frame Installation

## ◇ Frame Kit Composition

| No               | Item                      | VG-LFJ08S <b>WW</b> | VG-LFJ08 <b>F</b> WW | VG-LFJ08 <b>T</b> WW | VG-LFJ08 <b>U</b> WW |
|------------------|---------------------------|---------------------|----------------------|----------------------|----------------------|
|                  |                           | 1x1                 | 2x2                  | 3x3                  | 4x4                  |
|                  |                           | Units               | Units                | Units                | Units                |
| (a)              | BRACKET H (horizontal)    | 2                   | 2                    | 2                    | 6                    |
| (b)              | BRACKET SIDE (vertical)   | 2                   | 2                    | 2                    | 2                    |
| (c)              | BRACKET MIDDLE (vertical) | -                   | 2                    | 3                    | 4                    |
| (d)              | JOINT H                   | 2                   | 2                    | 2                    | 3                    |
| (e)              | JOINT V                   | 2                   | 4                    | 6                    | 8                    |
| (f)              | BRACKET JIG               | 1                   | 1                    | 1                    | 1                    |
| (g)              | LEVELER                   | -                   | 2                    | 2                    | 2                    |
| (h)              | SCREW                     | 4                   | 6                    | 6                    | 15                   |
| (i)              | Anchor                    | 4                   | 6                    | 6                    | 15                   |
| (j)              | DRY WALL SCREW            | 4                   | 6                    | 6                    | 15                   |
| (k)              | MANUAL-INSTALL            | 1                   | 1                    | 1                    | 1                    |
| (l)              | ALIGN JIG                 | -                   | -                    | 1                    | 1                    |
| (m)              | LEVEL                     | -                   | 1                    | 1                    | 2                    |
| (n)              | HOLDER PCB                | 15                  | 30                   | 45                   | 60                   |
| Screen Size (mm) |                           | 806.4x453.6         | 1612.8x907.2         | 2419.2*1360.8        | 3225.6*1814.4        |



# 4. Frame Installation

## ① Assemble Bracket Side/Middle with Bracket H.

- First insert Bracket H to assembled Joint H and Bracket H. (Fig.1)
- Second put 3 groups of Bracket H on ground. And insert Bracket Side/Middle to Bracket H. (Fig.2)
  - . ② Bracket Side used at side position, ③ Bracket Middle used at middle position.
- Then fasten up the screws. (Fig.3)

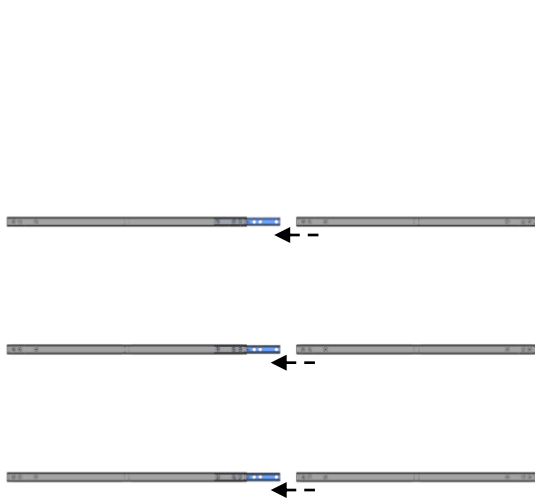


Fig.1 Insert Bracket H

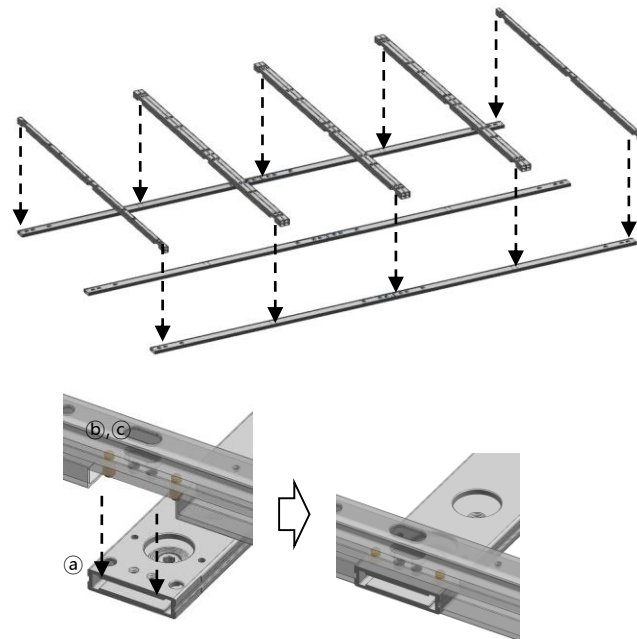


Fig.2 Insert Bracket Side/Middle과 Bracket H

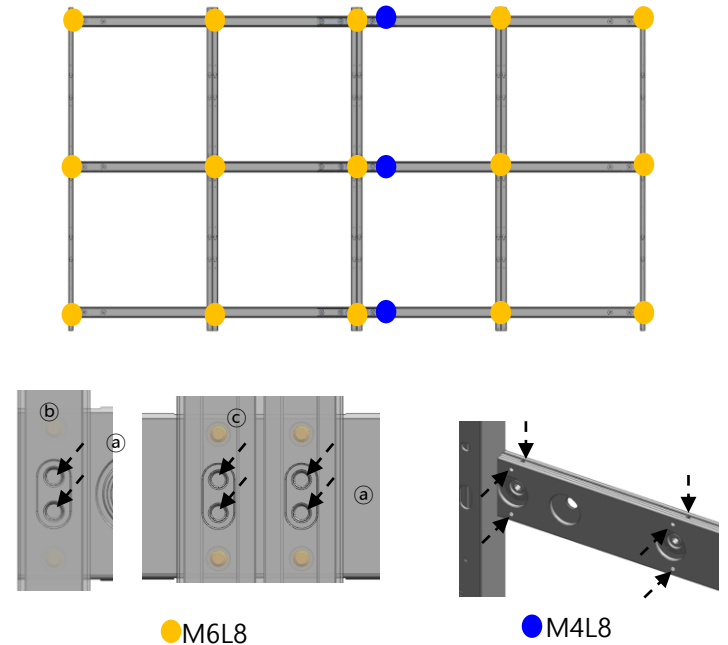


Fig.3 Fix Bracket with Screw



# 4. Frame Installation

② Assemble Leveler on the Bracket Side at required height position.

- Put Leveler on Bracket side at required height position with moving up and down. (Fig.1)

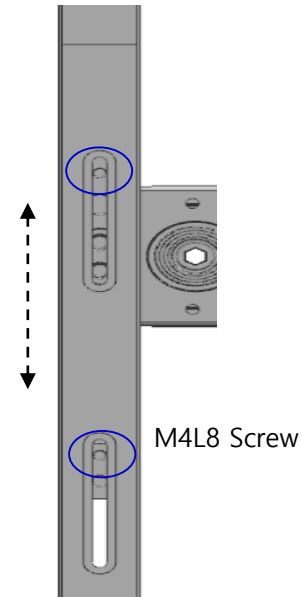
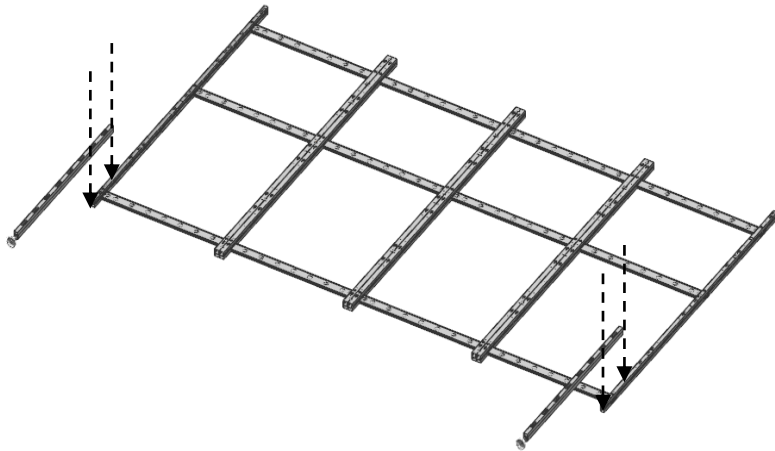


Fig.1 Assemble Leveler

# 4. Frame Installation

## ③ Install assembled Frame on the wall.

- Place the assembled frame on the wall, align it with the desired height and level, and fasten one place at the top center. (Fig.1)
- When attaching the frame to the wall, use the 6mm hexagonal wrench to correct the gap with the leveling bolt. (Fig.2)
- If the leveling bolt is not enough to attach to the wall, add Tape Wash to reinforce it. (Fig.3)

In the above way, make sure that the frame does not follow the flat wall.

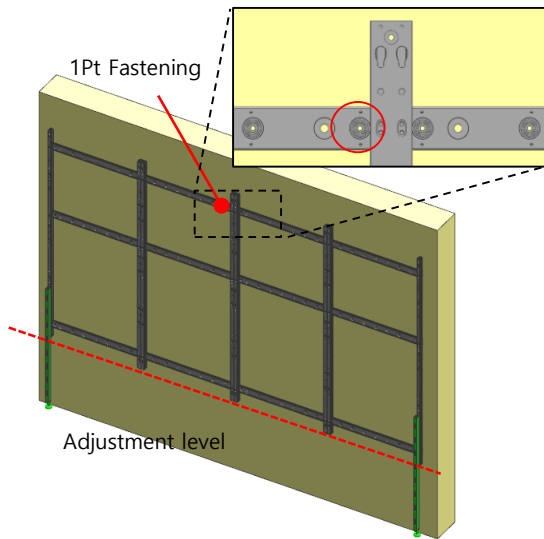


Fig.1 Make horizontal and Fasten 1point

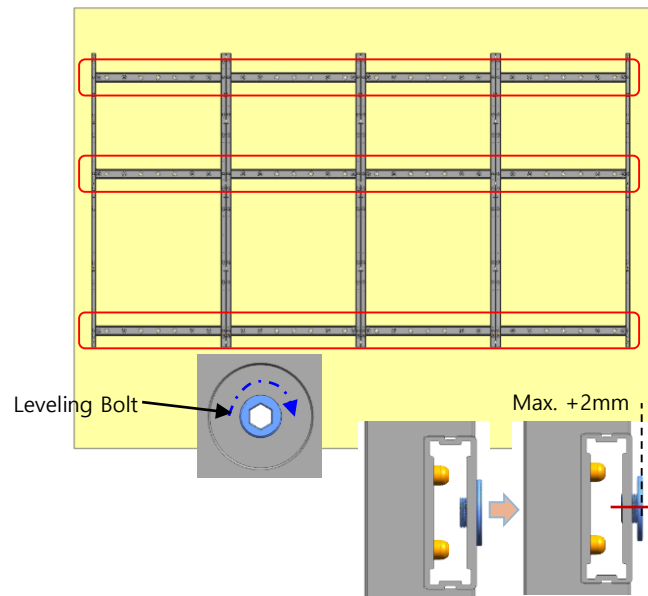


Fig.2 Adjust leveling bolt

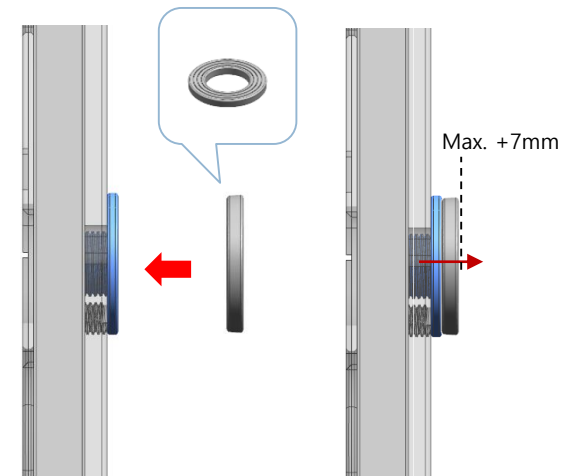
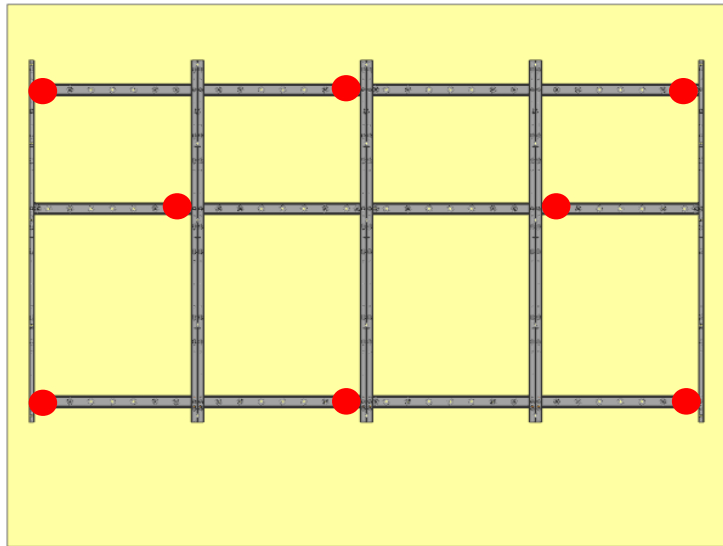


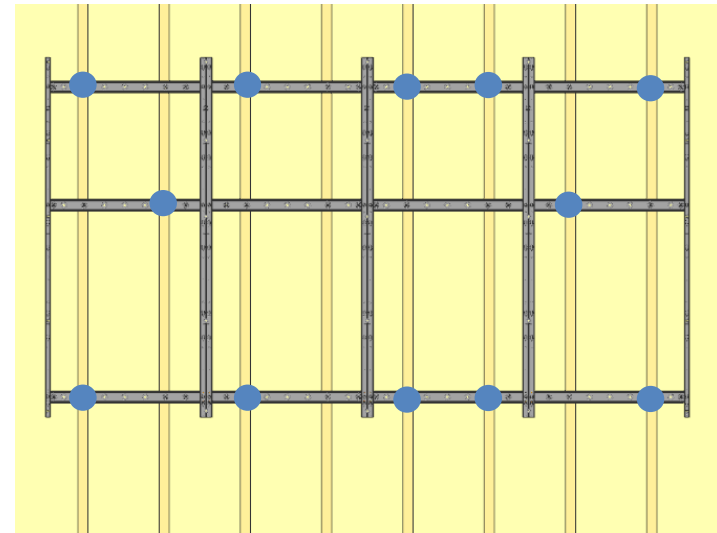
Fig.3 Attachment of Tape Washer

# 4. Frame Installation

- When the leveling work is completed, additional frame and wall should be fastened according to the guide below. (Fig.3)
- Fix the fastening position closest to the bracket side / lid among the fastening holes of the bracket H.
- Additional screws may be required depending on the wall status.
- After the wall is fastened, remove the leveler.



Concrete Wall



Wood Stud Wall

Fig.3 Fix Frame with screw

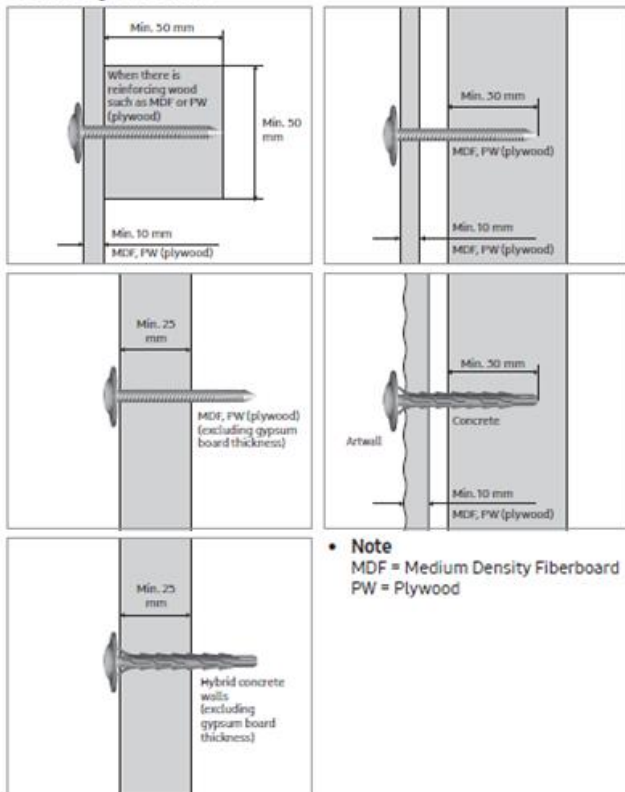
# 4. Frame Installation

## ※ Precautions for fastening the screws

### Standard Installation Requirements by Wall Type

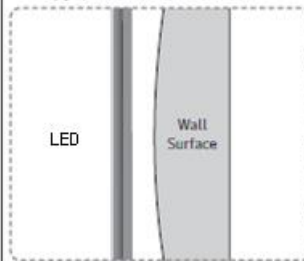
⚠ Check the wall type before installing.

- Can only be mounted on a concrete or interior wall of sufficient thickness. See the diagrams below.

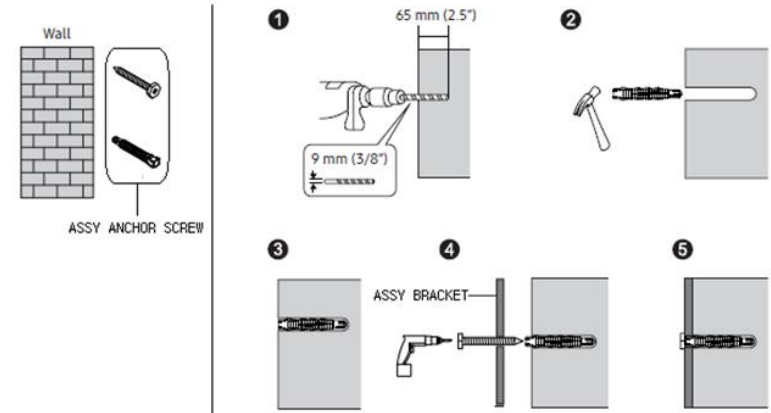


• **Note**  
MDF = Medium Density Fiberboard  
PW = Plywood

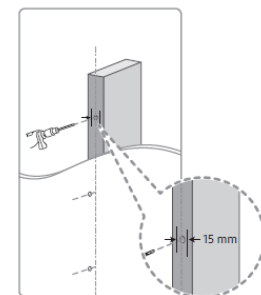
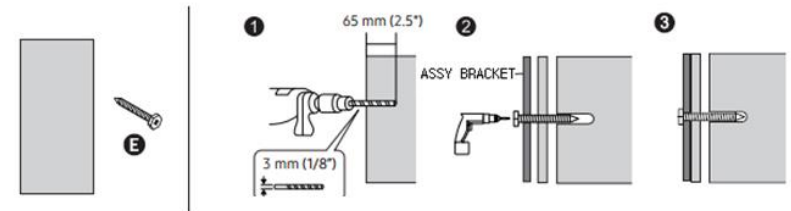
- First, check the status of the wall (type, thickness, flatness).



### ① Walls made of thick enough concrete



### ② Walls made of gypsum board with wood studs or MDF



### Installation Requirements

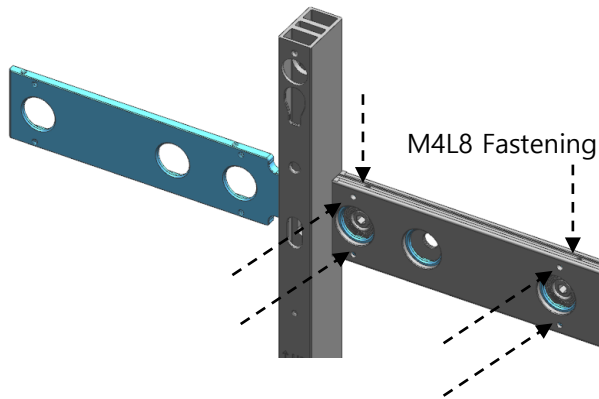
- Be sure to check the location of wooden studs in the wall before installing screws.
- Minimum wood stud size: 51 x 102 mm (2 x 4 in) Make holes (3 mm) first before installing screws.
- Holes for screws must be made at the center of studs.

⚠ Samsung is not responsible for problems that arise when the installation guide is not followed.

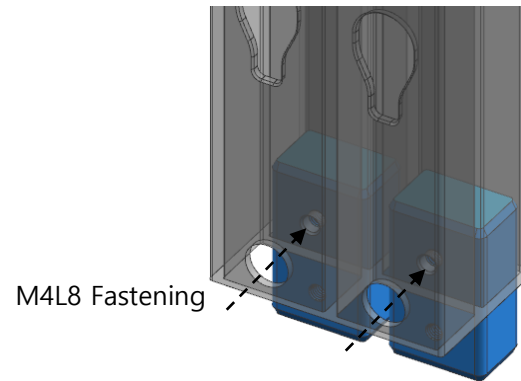
# 4. Frame Installation

※ Frame Extensions for Horizontal / Vertical direction.

- Assemble Joint C (Horizontal) / Joint V (Vertical) into second assembled frame.

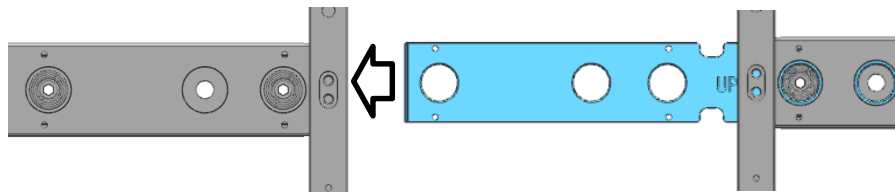


<Horizontal Extension>

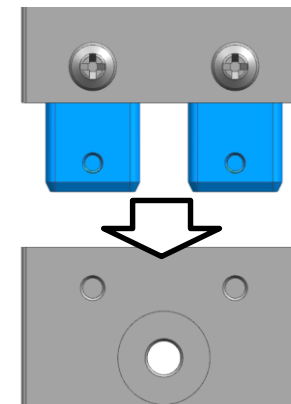


<Vertical Extension>

- Insert the second FRAME to first FRAME.



<Horizontal Extension>

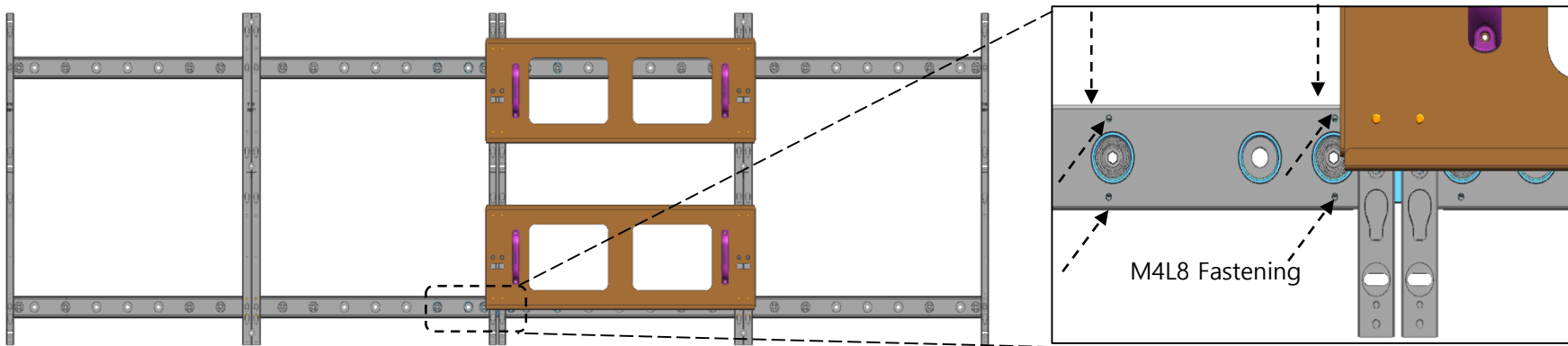


<Vertical Extension>

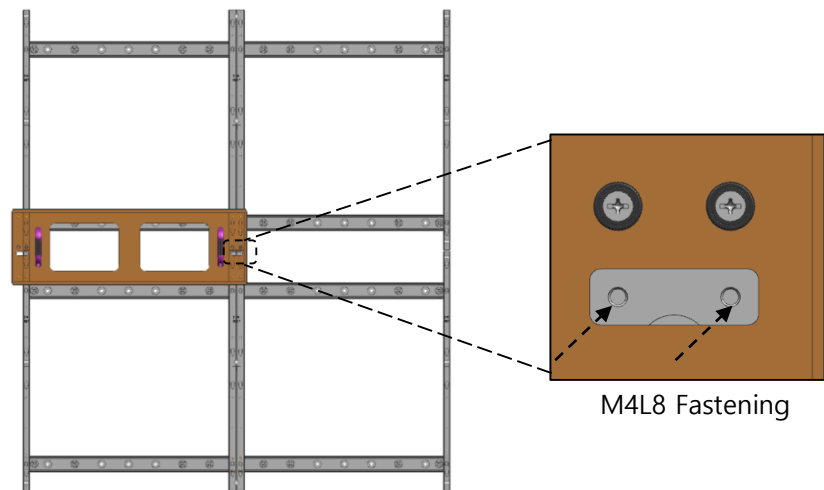
# 4. Frame Installation

※ Frame Extensions for Horizontal / Vertical direction.

- Mount the Jig by connecting first frame to second frame. And fasten screws.



<Horizontal Extension>



<Vertical Extension>

# 5. Cabinet + Frame Installation

## ◇ Fix I/G position

Install I/G first on the back side of the Cabinet (Fig.1)

- ※ Locate the I/G at the point 50~55mm below from the carving at the right side of the frame, and fasten the screw to fix. (Fig.2)
- ※ I/G should be installed at that point to be getting out from the cabinet when providing services.
- ※ Depending on the size of whole screen, I/G can be installed outside of the screen for easy work.

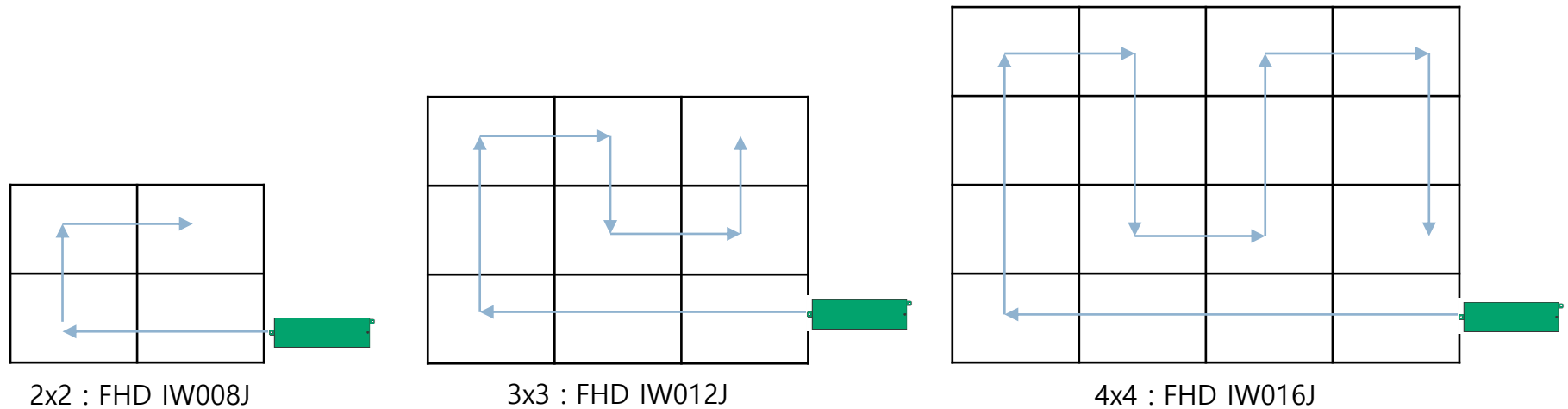


Fig1. Location to Fix the I/G and Order of OCM cable

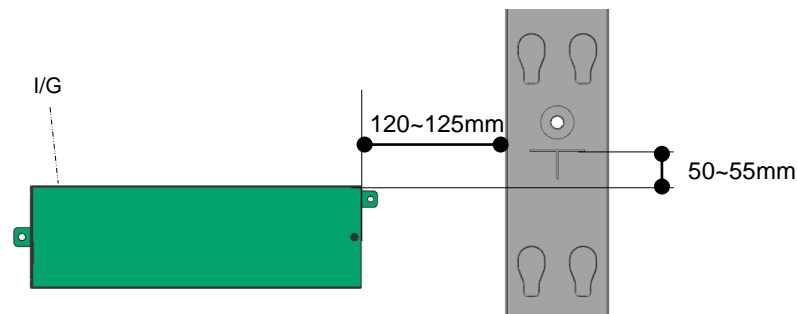


Fig2. Location to Fix I/G

# 5. Cabinet + Frame Installation

## ◇ Cabinet Installation

① After installing frame I/G, install cabinets from the bottom line. (Fig.1)

※ Cabinet should be installed from bottom to top, from left to right.

② Adjust the corners of the cabinet to each carvings to be closer to the frames. (Fig.2)

③ Press the upper side of the frame to be assembled, sliding to lower direction. (Fig.3)

|    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|
| 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |
| 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 |
| 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| 17 | 18 | 19 | 21 | 21 | 22 | 23 | 24 |
| 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  |

Fig.1 Cabinet Installation Order

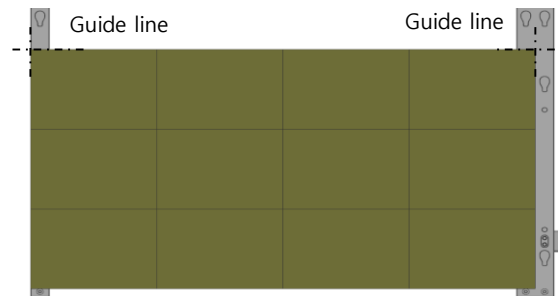


Fig.2 Installation Guidance Carvings

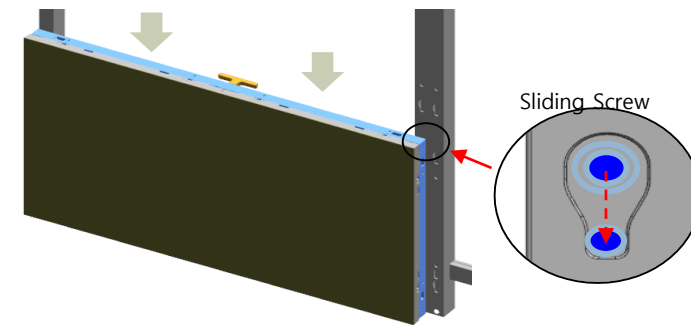


Fig.3 Cabinet Up & Down Sliding



# 5. Cabinet + Frame Installation

## ◇ Cabinet Installation

④ After installing I/G, install Cabinets starting from one end of 1<sup>st</sup> floor. (Fig.3-1)

※ Tighten the cabinet installed using align jig, and then fasten the screws. (Fig.3-2)

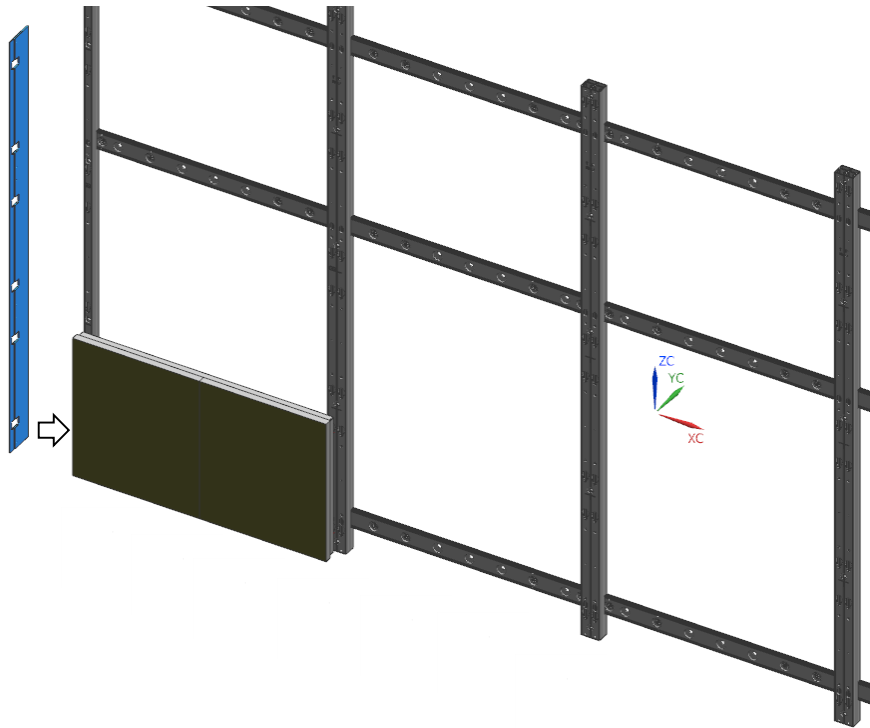


Fig.3-1 Cabinet Installation

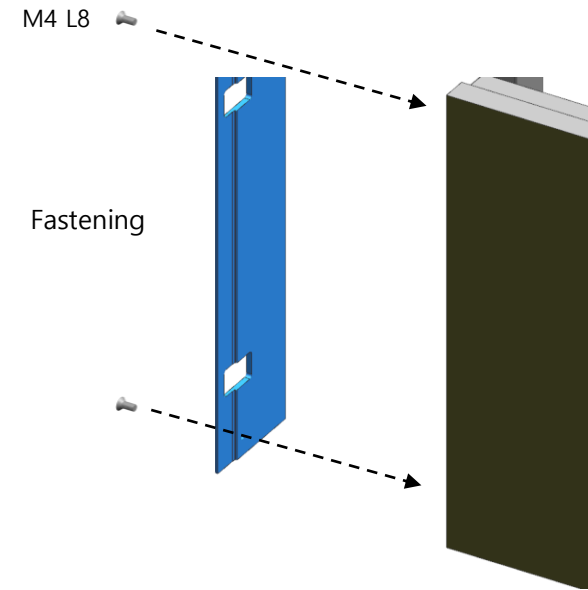


Fig.3-2 Fastening Screw

# 5. Cabinet + Frame Installation

## ◇ Cabinet Installation

- ⑤ Install the 1<sup>st</sup> floor cabinets using align jig. (Fig.4)
  - ⑥ Install other upper floors with the same way. (Fig.5, 6)
- ※ Check the status of switch of the rear cabinet as "STB Mode" after installing each floor.

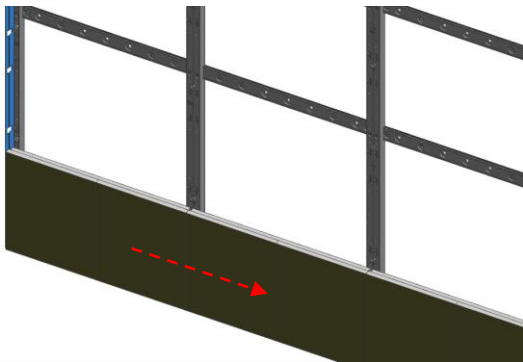


Fig.4 Install 1<sup>st</sup> Cabinet floor

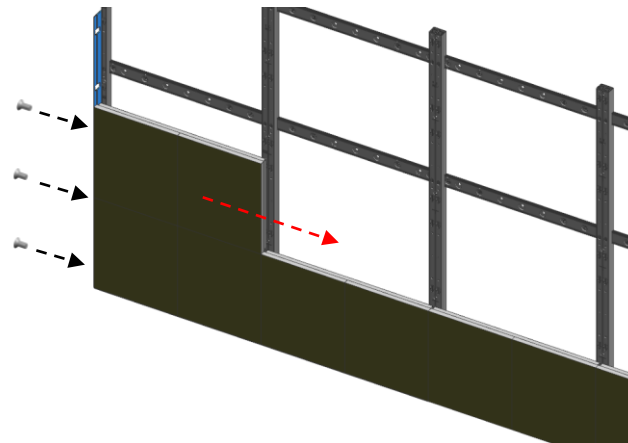


Fig.5 Cabinet of 2<sup>nd</sup> floor should be fixed with align jig.

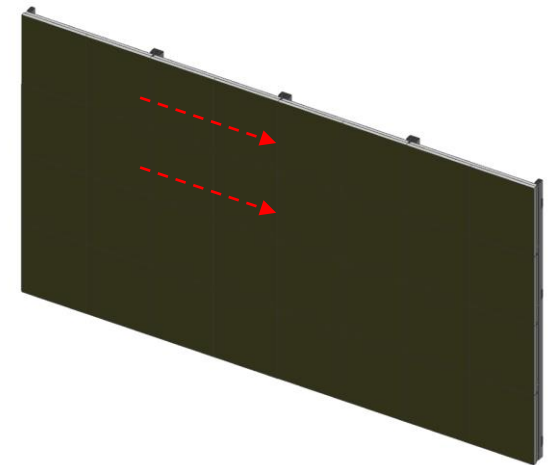


Fig.6 Install Cabinets of 3<sup>rd</sup>, 4<sup>th</sup> floor

# 5. Cabinet + Frame Installation

## ◇ Cabinet Installation

1. When install more than 2 cabinets, follow the instructions below to protect modules
    - Push and slide the modules (①,②) with the opposite direction of cabinet to be installed.
    - Attach the Edge Protection Jig V to edge of installed cabinet. (Fig.1)
    - Push and slide the modules of the cabinet to be installed (③,④) with the direction of empty frame. (opposite direction of ①,②)
    - Carefully slide in new cabinet in direction of ⑤. (Fig.2)
- ※ Do not touch or push the surface of the modules and push the module edge frame instead.

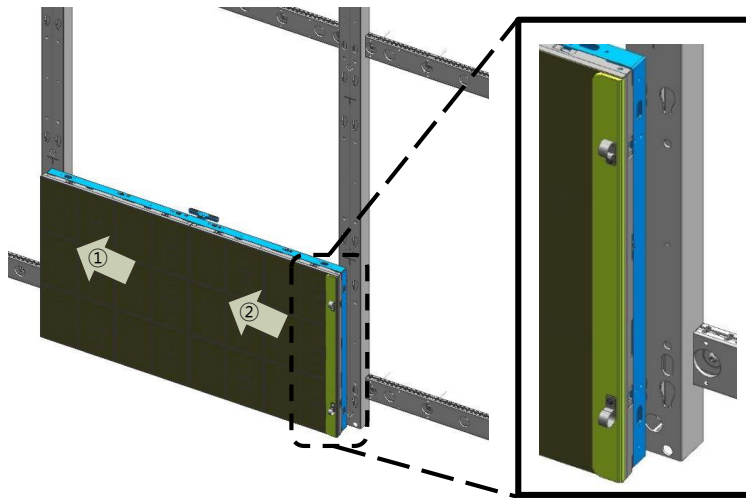


Fig.1 Edge Protection Jig 부착

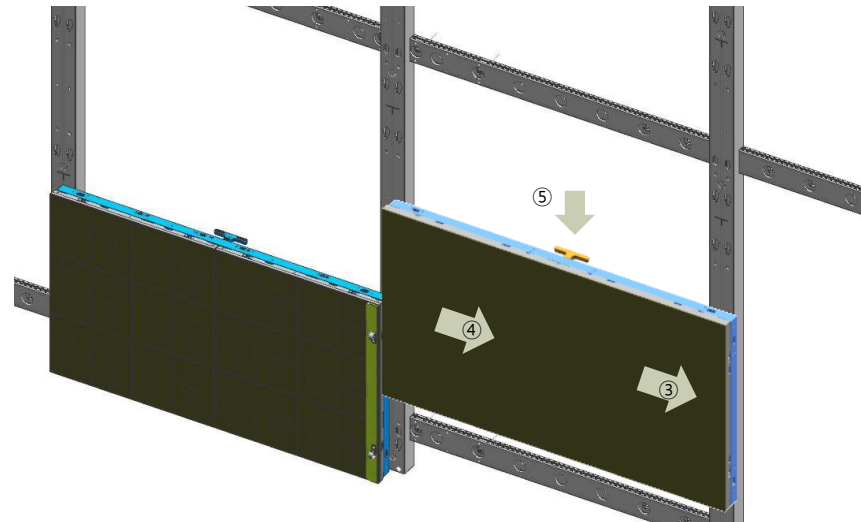


Fig.2 두번 째 Cabinet 설치

# 5. Cabinet + Frame Installation

## ◇ Cabinet Installation

2. When install more than 2 cabinets, follow the instructions below to protect modules
    - Push and slide the modules (①,②) with the opposite direction of cabinet to be installed.
    - Attach the Edge Protection Jig V and H to edge of installed cabinet. (Fig.1)
    - Push and slide the modules of the cabinet to be installed (③,④) with the direction of empty frame. (opposite direction of ①,②)
    - Carefully slide in new cabinet in direction of ⑤. (Fig.2)
- ※ Install other upper floors with the same way.

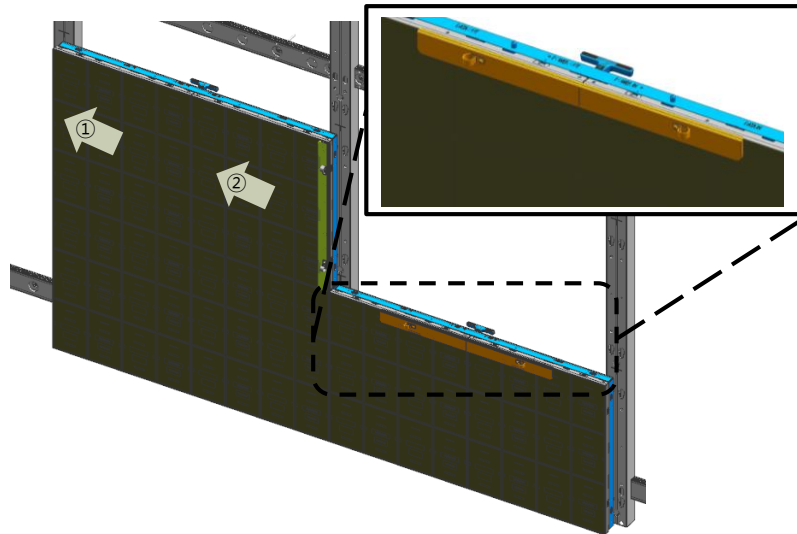


Fig.3 Edge Protection H/V attachment, installing upper floor

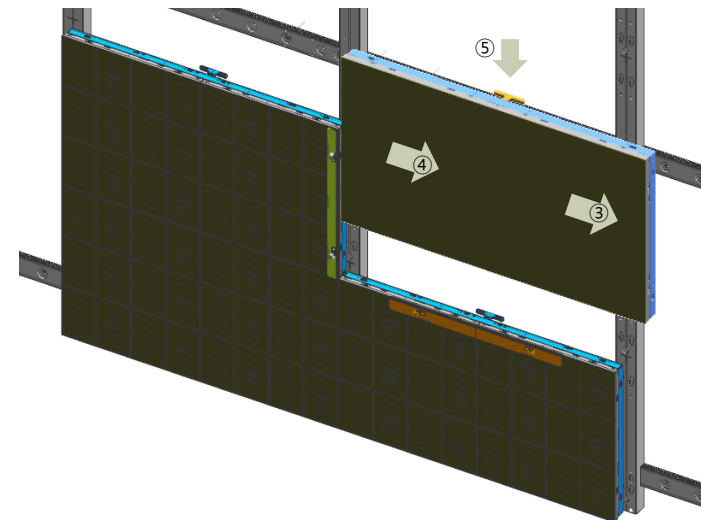


Fig.4 Installation of 2<sup>nd</sup> Cabinet on the upper floor

# 5. Cabinet + Frame Installation

## ◇ Z-axis gap leveling by Half-Cabinet

- Each Half-Cabinet has eight height controls. (4 corners / 4 sides)
- Two Half-Cabinet Z-Step adjustments are as follows

- ① Check the corner of the Half-Cabinet to check if there is a difference.
- ② If the necessary part is the outer part, turn the exposed sawtooth to adjust the step.
- ③ If the internal part of Half-Cabinet needs adjustment, move left and right to secure space for adjustment.

Up, left, and right 2mm can be moved between each half-cabinet.

- ④ Adjust the step by turning the sawtooth using the step control jig. It is possible to flow 1mm in one lap.

※ The product in the shipment state can no longer be lowered because the module is located on the lowest cross section and can be adjusted by raising the height..

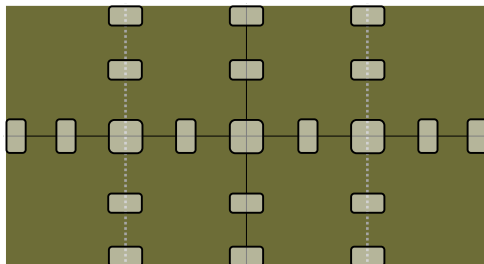


Fig.1 Step check point (2x2 case)

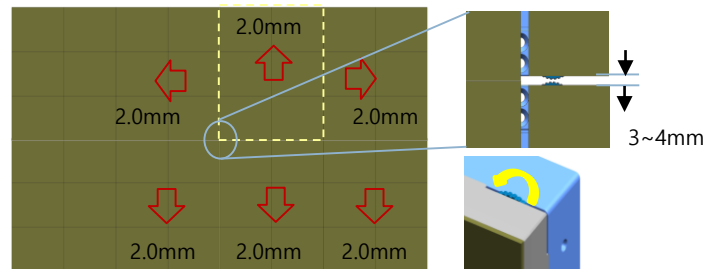
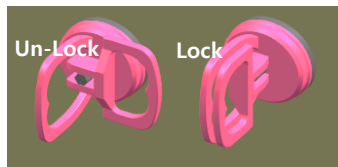
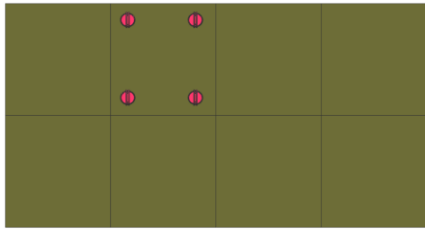


Fig.2 Securing the space between modules when controlling the step

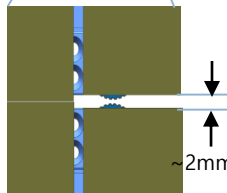
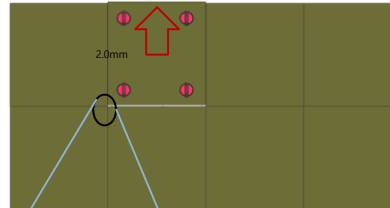
# 5. Cabinet + Frame Installation

## ◇ Adjust Z-leveling between modules

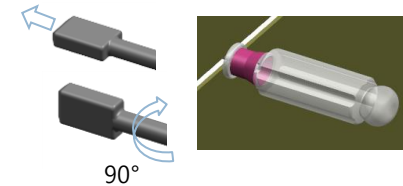
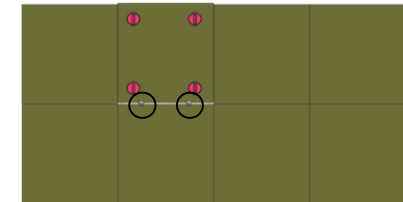
1. Attach Suction-Pad at four corners



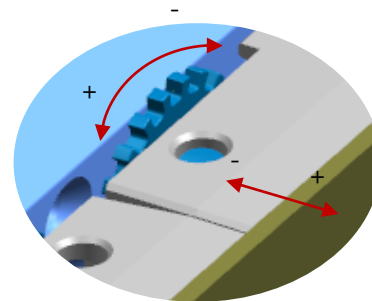
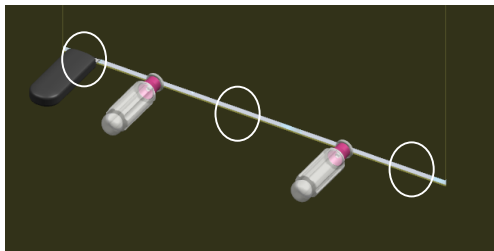
2. Move Module 2.0mm



3. Insert Gap-Tool  
Turn Gap-Tool 90degree

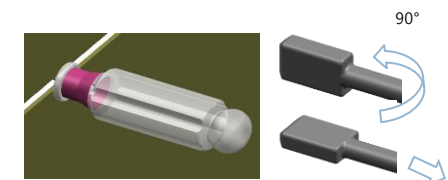
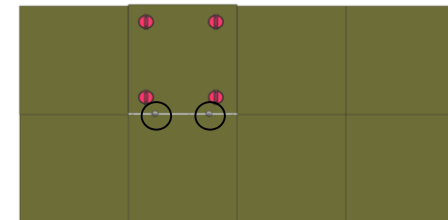


4. Insert Adjustment-Tool  
Turn Holder Magnet



+ : counter clockwise -> module move forward  
- : clockwise -> module move backward  
Turn Holder 360° -> Module move 1.0mm

5. Hold Module by Hand  
Turn Gap-Tool 90degree, Remove Gap-Tool  
Check Flatness, Repeat process if needed



# 5. Cabinet + Frame Installation

- Assemble the cover PCB at the bottom of the cabinet after the first row cabinet installation.
- After assembling the Cover PCB, tighten the braid bolts to align the module pixels.
- \* After installing each unit, make sure that the switch on the back of the cabinet is in the “ STB ” mode

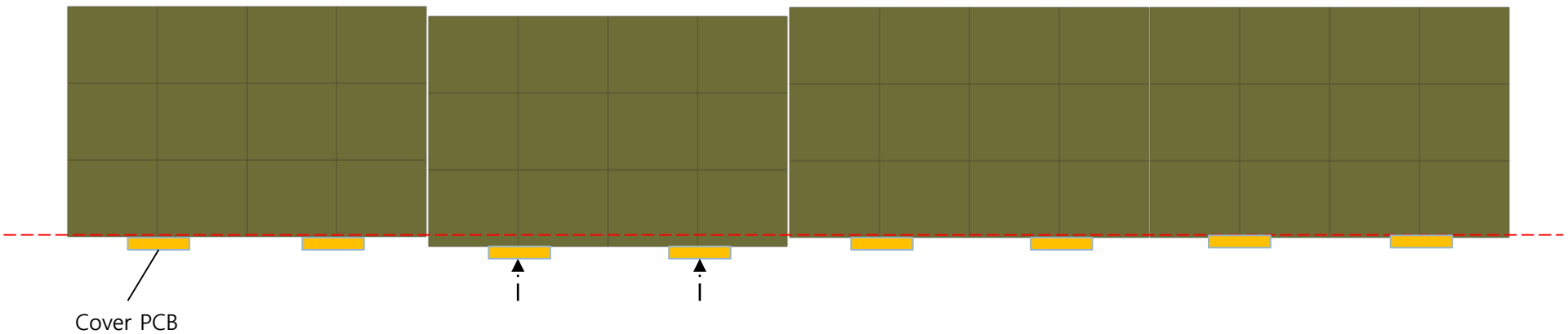
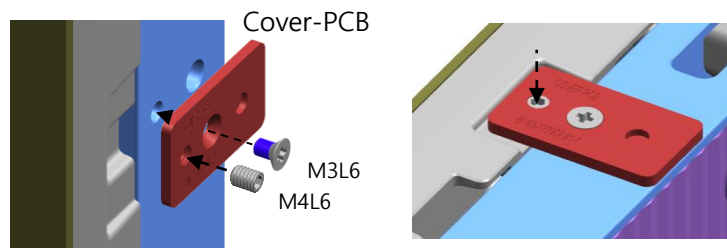


Fig.1 Fastening screw from Cover PCB to adjust pixel alignment



# 5. Cabinet + Frame Installation

## ◇ Aligning modules in X-, Y-axis directions

- Adjust the alignment of modules by attaching Cover PCB on the edge of the screen.

※ X-, Y-axis direction module alignments should be done after Z-axis gap leveling.

- ① Assemble all the Cover PCBs on every side edge by M3L5 screws. (Fig.1) M4L5 set screws must be assembled slightly and fix later alignment.
- ② Push on left / right area to move LED modules to vertical center line.
- ③ Slowly turn set screw on the bottom line and check the alignment of modules at horizontal center line.
- ④ After modules are aligned on horizontal, turn set screws on left and right side until there are no gap between modules.

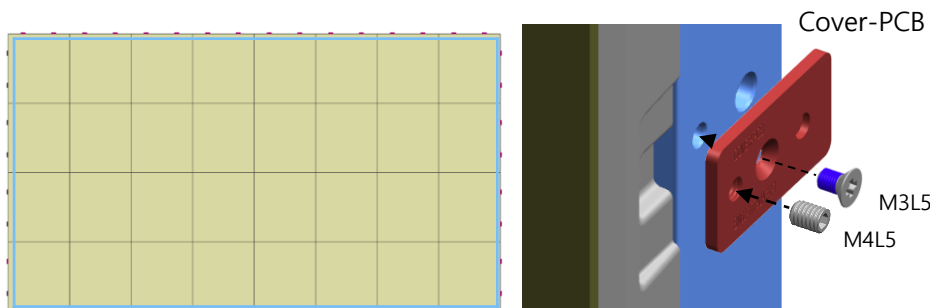


Fig.1 Cover PCB Assembly

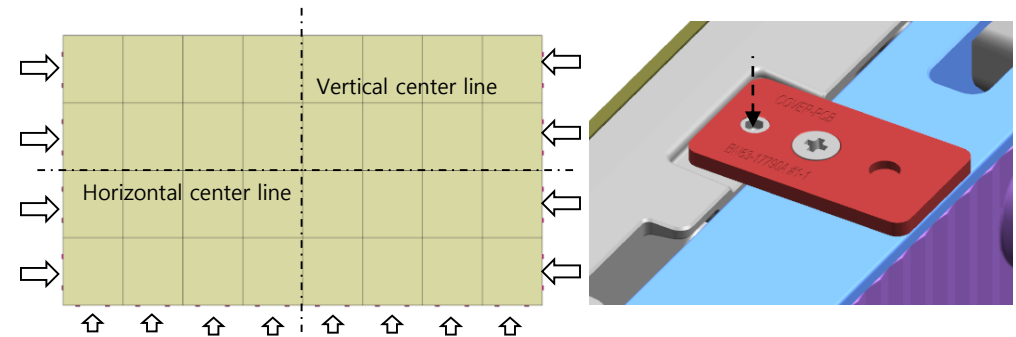


Fig.2 LED Module Alignment using set screw



# 5. Cabinet + Frame Installation

## ◇ Aligning modules in X-, Y-axis directions

- After installing the Cover PCB on each edge, install the Holder PCB.
- ※ The Holder PCB is a device to prevent from being made gaps between modules.
- ① Install the Holder PCB after completing all alignment work using Cover PCB
- ② Assemble the Holder PCB on the outer surface of the screen.
- ③ Fasten the Holder PCB using M4L6 screws.
- ④ Install one Holder PCB on the outside of all modules located at the exterior.

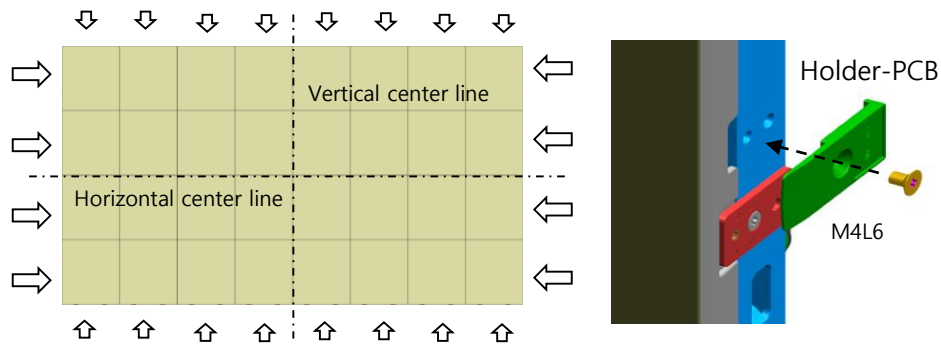


Fig.1 HOLDER PCB Installation

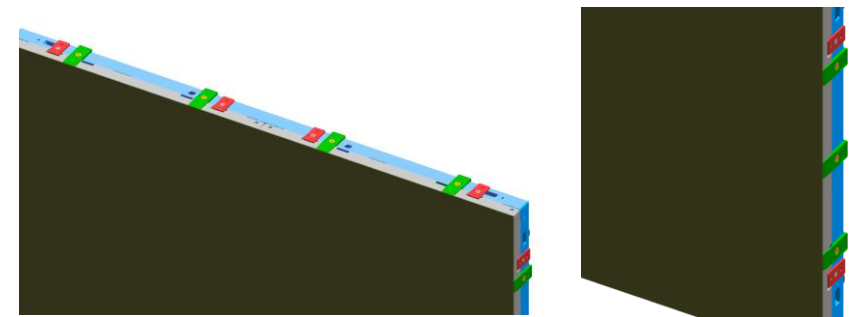


Fig.2 HOLDER PCB location on the cabinet

### ■ Power Shelf / Power Rectifier

- Model Name : J2014003 (Power Shelf) / CP3500 (Power Rectifier) by GE
- 4 Power Rectifier mountable per 1 Power Shelf



**Power Shelf  
J2014003**

+



**Power Rectifier  
CP3500**

×

4

=



### ■ Power Shelf / Power Rectifier Assembly

- Power Rectifier - CP3500

▶ Input : 100-120 / 220-277 Vac

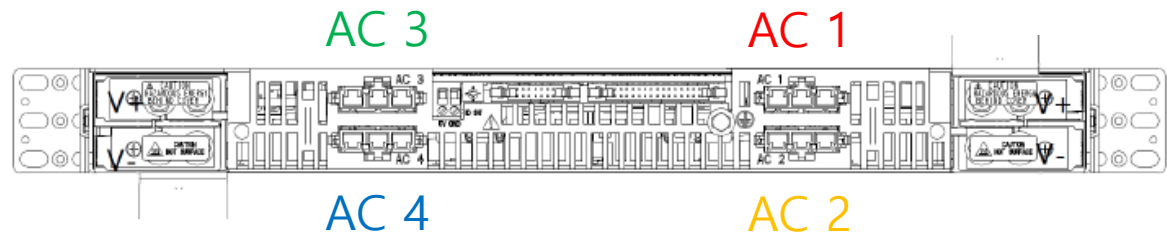
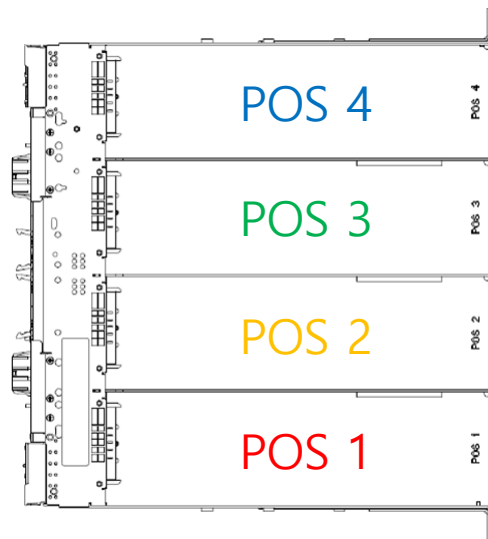
▶ Default Output :  $\pm 54$  Vdc @ 1500W / 3500W; 5 Vdc @ 10W

\* Power Rectifier  $\rightarrow$  Power Shelf : 54V, Power Shelf Output : 48V

- 4 Power Rectifier mountable per 1 Power Shelf

- Connected AC Connector number and mounted Power Rectifier number should match each other.

Ex. If Power Rectifier had mounted on POS 1 and AC Cable had connected on AC 2, Rectifier mounted on POS 1 does not operate.



### ■ Power Cable / Power Daisy Chain Cable / DC Inlet



- Power Cable  
AWG 12, 2C, 300V, UL1277, **35m / 65m / 100m**  
※ Lugs that can make Power cable connectable to the Power Shelf should be attached on the end of the Power Cable manually before all the installation process. (See page 56 in detail.)



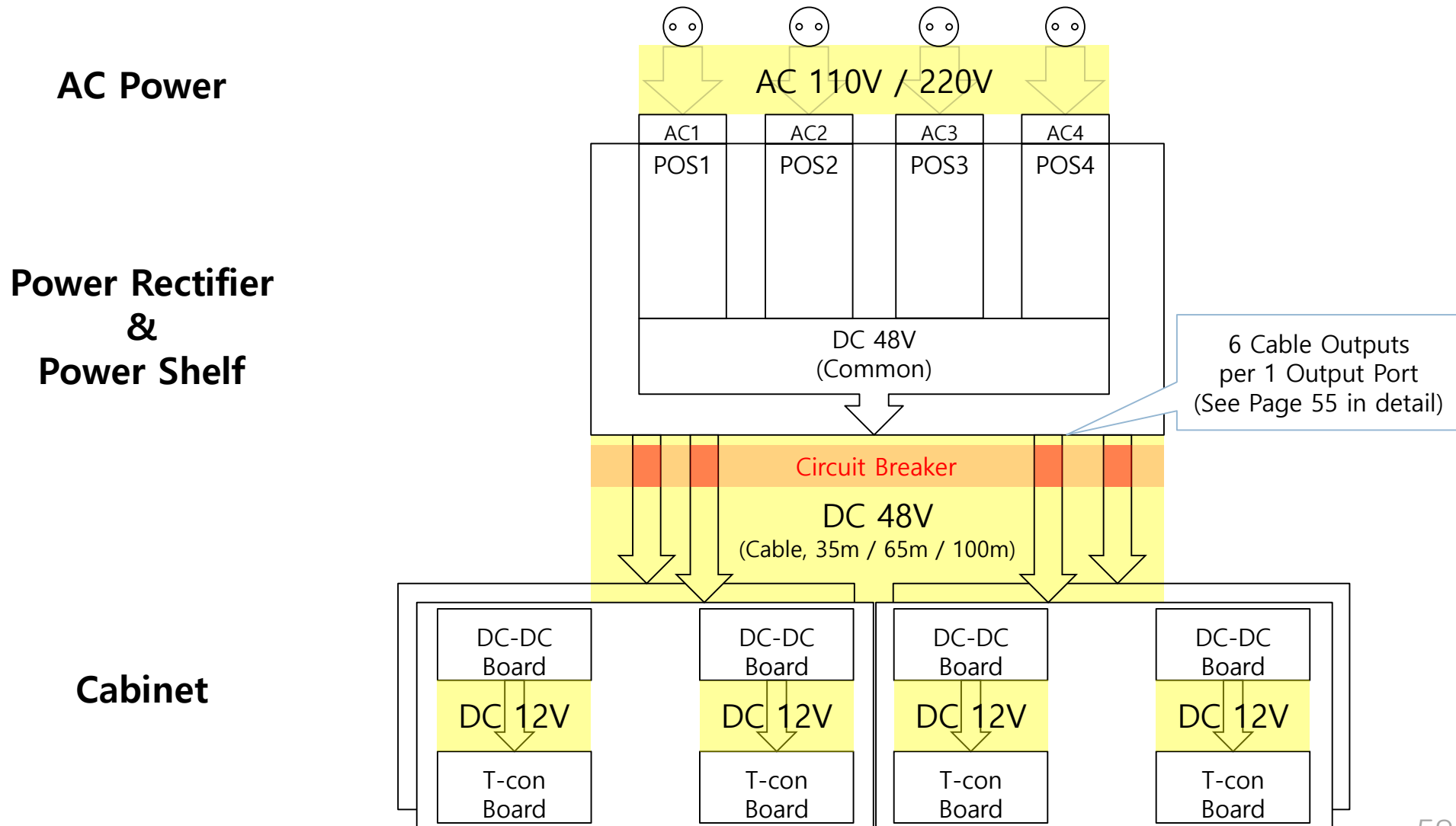
- Power Daisy Chain Cable  
AWG 12, 1.5m

※ The Power Cable / Power Daisy Chain Cable and DC Inlet Connector can be connected only when the color of connector matches each other.

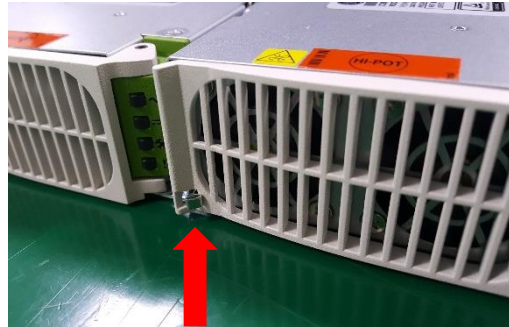


- DC Inlet (Assembled in Cabinet)  
Connector : Blue for DC Input  
Yellow for DC Output

## ■ AC Power to Screen Flow Chart



### ■ Power Shelf / Power Rectifier Assembly / Disassembly



① Push the buckle to open the white cover of front Power Rectifier



② Push the power rectifier fully into the power shelf while the white cover kept opened.



③ Power rectifier can be assembled into the power shelf properly after closing the white cover.



④ Be sure to check if power rectifiers had assembled fully into the power shelf.



⑤ If disassembly needed, push the buckle to open the white cover and pull it outside.



※ Power Rectifiers cannot be fully assembled without opening the white cover.

### ■ Install MCB(Miniature Circuit Breaker) on the Cable

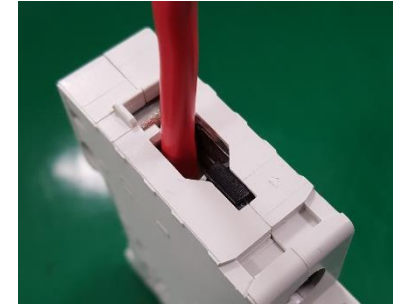
※ MCB should be applied to all the DC cables to be installed.



① Peel off enough length of the covering of AWG12 cable at the proper point.



② Cut off enough length of the one of two cables and peel off the inner covering, showing the copper cable a little.



③ Insert the peeled copper cable into the upper MCB hole.



④ Tighten the built-in screw at the front side of MCB using cross driver not to cable be drawn away from the MCB.



⑤ Repeat this sequence to the cable's other end and MCB lower hole to make cable's both sides connected through MCB



※ Push the peeled cables fully inside the hole of MCB for your safety.

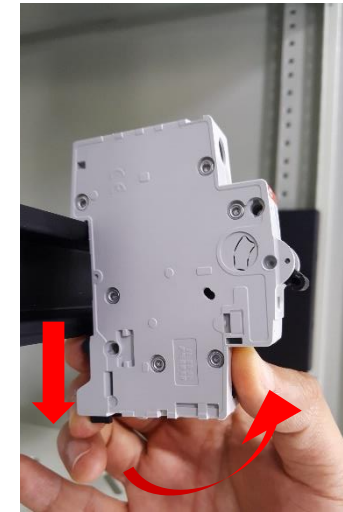
### ■ MCB (Miniature Circuit Breaker) Mounting and Frame install



① Hang the upper rear side of MCB on the mount rack frame and stick the lower side at the frame.



② Push up the lower black side of MCB to fix the MCB on the frame.



③ If needed to detach MCB from the frame, pull down the lower black side of MCB and lift it up.



④ After mounting MCBs on the frame, put on the frame cover and fix with screws together at the rack.

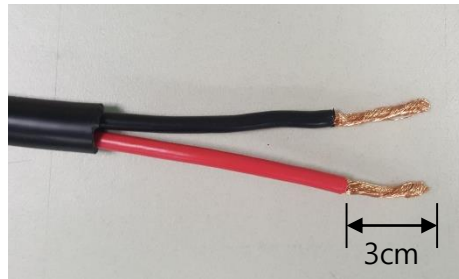
※ This is the install guide for the case when the rack is laid on the floor. If it is impossible to lay on the rack at the floor, be sure to install this MCB Frame at least 2 person together.

※ The sequence of MCB cable connection and frame mounting can be controlled at working person's discretion for his convenience.



### ▪ Attach Lug on the DC Cables

※ All the sequence should be done under the Power shelf and Cables being disconnected from AC Power.



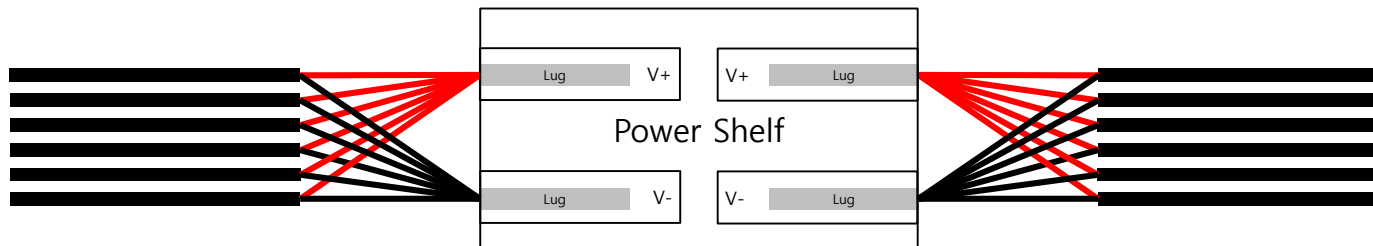
① Peel off the covering of DC Cable enough and also peel off the coverings of inner cable. (Recommended Length : 3cm)



② Put the same color of cables altogether in a lug and put the pressure or do soldering to fix lug and cables together.



③ Use heat shrink tube to prevent damage from electric shock for the exposed part of Lug.



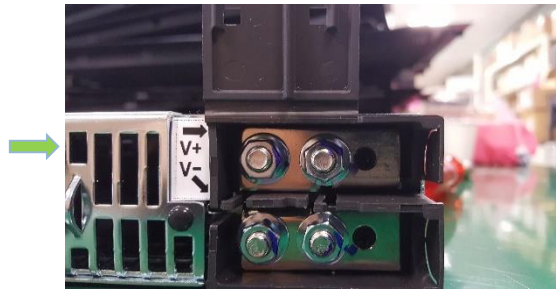
※ Maximum 6 DC Cables are attachable per 1 lug and maximum 12 DC Cables are attachable per 1 Power Shelf.

### ■ Connect Power Shelf and Cabinets

※ All the sequence should be done under the Power shelf and Cables being disconnected from AC Power.



① Insert same colored 6 AWG12 Cables in the Lug and put the pressure or do soldering to fix lug and cables.



② Open the output connector cover at the rear Power Shelf and release all the hex nuts.



③ Insert the cable-connected lugs to the output connectors. Beware of V+ and V-.



④ Tighten the hex nuts on the lug to fix it on the Power shelf.



⑤ Be sure to close the output connector cover of Power Shelf to ensure the safety.



⑥ Connect the other ends of the cable to the next cabinet properly.

- **Precautions for Power Shelf / Power Rectifier – DC Output connection**
  - Routing of the DC output cables should guarantee that cables are not in contact with sources of heat and surfaces that may damage the cable insulation.
  - The DC output is not provided with a fuse or circuit breaker suitable for branch circuit protection. Therefore, the power shelf should be mounted in the same rack or cabinet as the equipment being powered. Use interconnecting power cables suitable for the application and sized to carry the rated output current. The interconnecting cables should be capable of carrying the overload current and short circuit current without damage or risk of fire.
  - The output for the system is SELV and has available power greater than 240VA.
  - Insulation on output field-wired conductors should be rated no less than 90°C. Wiring internal to enclosed equipment cabinets should be rated at 105°C(minimum). The provided DC output cords (red and black wires) are rated for 105°C
  - Before opening the insulating cover to gain access to load and ground connections, ensure all power supplies are disconnected from the AC MAINS.

### ■ Installation of Power Shelf on the Rack

※ All the sequence should be done under the Power shelf and Cables being disconnected from AC Power.



① Power Shelf is high voltage product. Be sure to let it be installed inside the rack or installation structures. This product can be installed and mounted 19" rack.

If installed at small size of rack, lay on the rack on the floor and install. If installed in the larger rack that is hard to be laid on the floor, be sure of installing the whole sequence at least 2 persons together not to be harmed or destroyed.



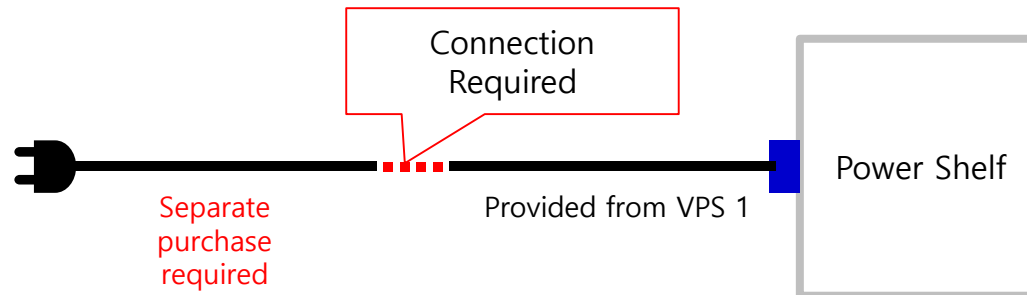
② Specify the point where Power Shelf is to be installed and tighten the screws at the Power Shelf's screw hole to fix inside the rack. For its safety, tighten the screws for all the 6 points of screw hole.



③ There are small screw holes beside the installation screw holes. Be sure to be connected to rack or installation structures using conductors or cables for ground connection.

### ■ Connection of AC Power input on the Power Shelf

- The AC Cable provided from VPS 1 is open-type cable without AC Cord Connector. To connect AC power, it is necessary of using AC Cord and cable compatible and certified for the installed region or country.
- The rating power output of Power Rectifier is max 1.5kW @ 110V / max 3.5kW @ 220V and was evaluated for use with a maximum 20A branch circuit per feed. AC Cord to be connected with AC Cable should meet this specifications.

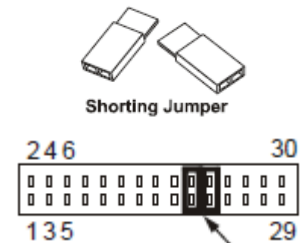
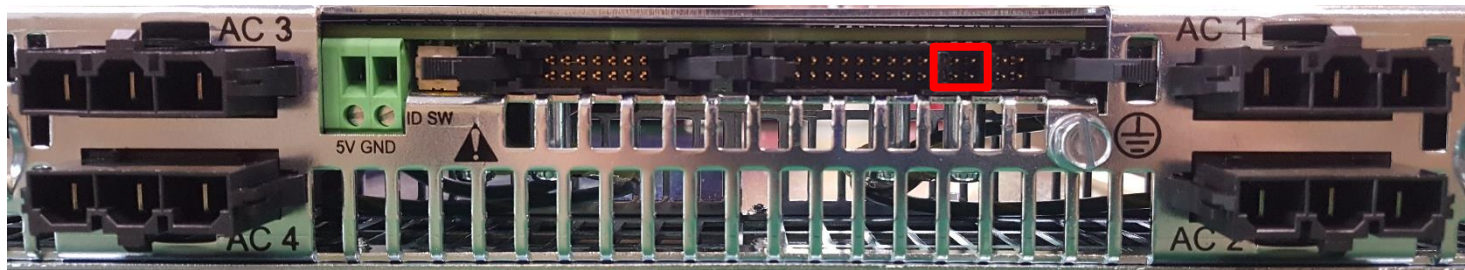


- Connected AC Connector number and mounted Power Rectifier number should match each other. (\* See picture of 50 Page in detail)  
Ex. If Power Rectifier had mounted on POS 1 and AC Cable had connected on AC 2, Rectifier mounted on POS 1 does not operate.
- Power Shelf should be installed at the place where the ground connection with install structure or outer earthing via rear ground screw.

### ■ Precautions for Power Shelf / Power Rectifier – Mounting and Installation

- An accessible AC disconnect/protection device to remove AC power from the equipment in the event of an emergency must be provided.
- The equipment is powered by multiple AC inputs (one per rectifier). Disconnect all AC sources of power before servicing.
- These units are to be used with TN-S power systems only.

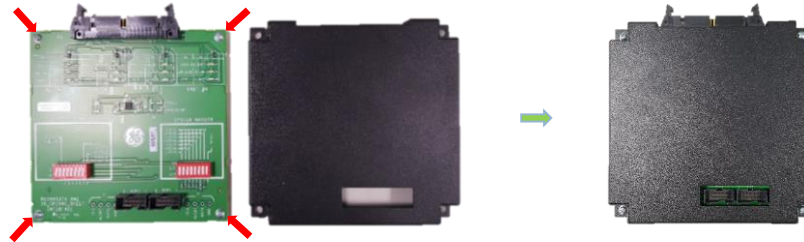
### ■ Precautions for Power Shelf / Power Rectifier – Other Connector



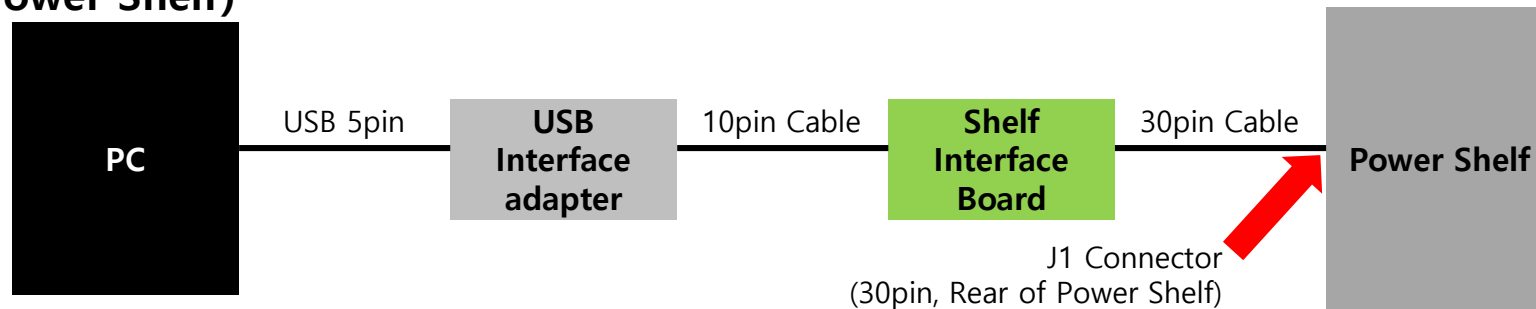
- The case of J1 Connector (30pin Connector) not connecting Interface Cable, Shorting Jumper must be attached. (It is by default provided inserted into the J1 connector or in a separate bag.) If not, DC 48V does not come out properly. (See Power Shelf Data Sheet in detail.)

### ■ Monitoring Tool Installation and Connection

- Using Monitoring Tool Kit included VPS7(VG-RPWAMIB), Power Shelf and Rectifier can be made connected and monitored via PC.
- Cover for Shelf Interface Board should be assembled using its screws from 4 edges before connection and operation.



- Connection between PC and Power Shelf is like below. (All included in VPS7 except PC and Power Shelf)

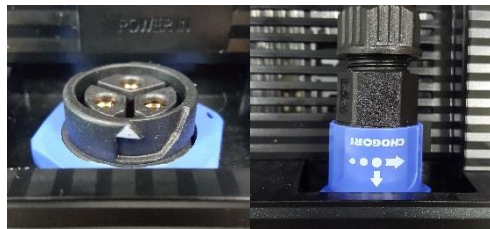


- Manual for Monitoring Tool can be found after program installation using the URL below.  
<http://powertalk.campaigns.abb.com/DigitalPowerInsight.html>

## ■ Connect Cables on the Cabinet properly

※ The processes below are also applied to Power Daisy Chain Cable equally.

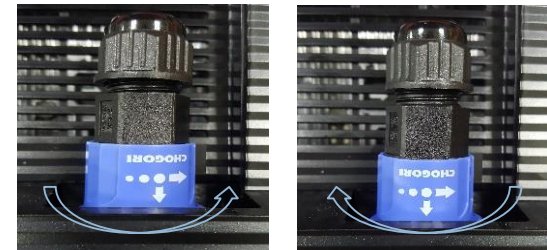
※ It is recommend that the Power Cable and Power Daisy Chain Cable is to be connected to the cabinet **vertically**.



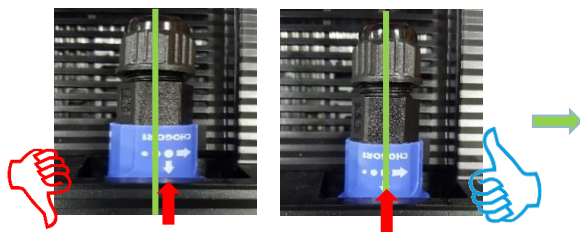
① Check the engraved arrows of cable end and Cabinet DC Inlet.



② Insert the cable into the Cabinet DC Inlet to meet the two arrows.



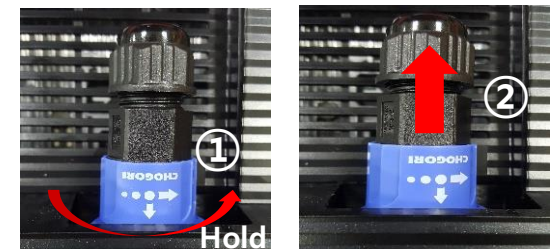
③ The blue cap of cable turns forth and back to be locked.



④ There are some cases that the cabinet kept powered off even though the cable has connected so be sure to check the stance of arrow at the blue cap to be centered and also pull up the cable to check not be disconnected.



⑤ To protect the connectors from damage or stress caused from the heavy weight, hang on the cables on the handles of cabinets like the upward.



⑥ If cable disconnection needed, grab the cap and rotate it to following direction of engraved arrow and pull up.



## ■ Cabinet Power Daisy Chain Connection

※ It is recommend that the Power Cable and Power Daisy Chain Cable is to be connected to the cabinet **vertically**.

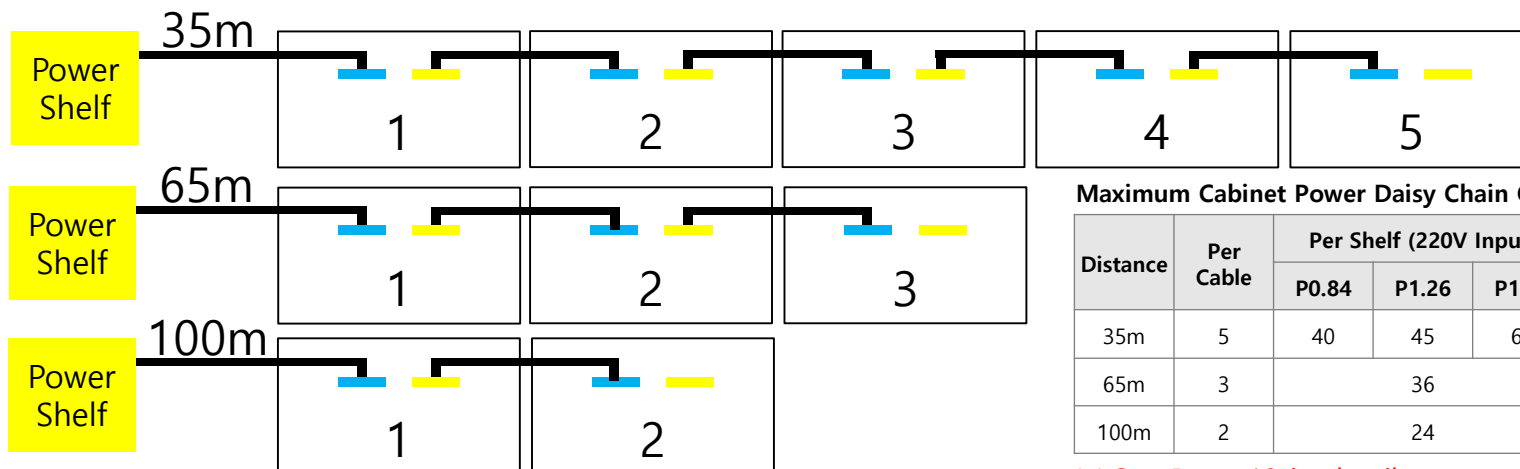


① Connect the Power Daisy Chain Cable to the Cabinet Output Power Connector. (Input – Blue, Output – Yellow)



② Connect the other end of Power Daisy Chain Cable to the Input Power Connector of next cabinet.

※ The quantity of power daisy chain connected cabinet is dependent on the length of DC Cables connecting Power Shelf and Cabinets. Be sure to check the correct installation condition before installation.



Maximum Cabinet Power Daisy Chain Qty

| Distance | Per Cable | Per Shelf (220V Input) |       |       |
|----------|-----------|------------------------|-------|-------|
|          |           | P0.84                  | P1.26 | P1.68 |
| 35m      | 5         | 40                     | 45    | 60    |
| 65m      | 3         | 36                     |       |       |
| 100m     | 2         | 24                     |       |       |

※ See Page 12 in detail.

### ▪ Precautions for Power Shelf / Power Rectifier – Mounting and Installation

- This product must be installed, serviced, and operated only by skilled and qualified personnel who have the necessary knowledge and practical experience with electrical equipment and who understand the hazards that can arise when working on this type of equipment. This product is intended for use in a Restricted Access Location.
  
- This equipment is to be used in controlled environments (an area where the humidity is maintained at levels that cannot cause condensation on the equipment, the contaminating dust is controlled, and the steady-state ambient temperature is within the range specified). **※ Operating Temperature / Humidity : -40~+55°C / 95% max, non-condensing**
  
- A separate protective Earthing terminal is provided at the rear of the shelf
  - ▶ the building installation shall provide a means for connection to protective earth; and
  - ▶ the equipment is to be connected to that means; and
  - ▶ a SERVICE PERSON shall check whether or not the socket-outlet from which the equipment is to be powered provides a connection to the building protective earth. If not, the SERVICE PERSON shall arrange for the installation of a PROTECTIVE EARTHING CONDUCTOR from the separate protective Earthing terminal to the protective earth wire in the building.
  
- The internal AC-DC rectifier connectors have been evaluated for hot swapping. The four main AC input feed Mate-N-Lok connectors at the rear of the shelf have not been evaluated for hot swapping.

### ▪ Precautions for Power Shelf / Power Rectifier Safety Symbols and Guidelines

- Read and understand all instructions before attempting any installation of this product. When installing, operating, or maintaining the J85480S1 Power System, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons. Such precautions include the following :



- This symbol identifies the need to refer to the equipment instructions for important information.



- This symbol identifies the presence of hazardous AC or DC voltages of hazardous energy levels. In the context of this product

- ▶ The DC output cables contain electrical energy levels capable of causing heating and arcing if shorted to metal objects. Make connections with the power disconnected.
- ▶ Hazardous AC voltage and DC electrical energy is contained within the enclosure of the power shelf. No user of field serviceable parts inside.



- This symbol is used to identify safety earth ground connection points within the equipment.

- **Power Shelf, MCB Mount Frame, S-Box installed feature**



Power Shelf & Power Rectifier

MCB Mount Frame

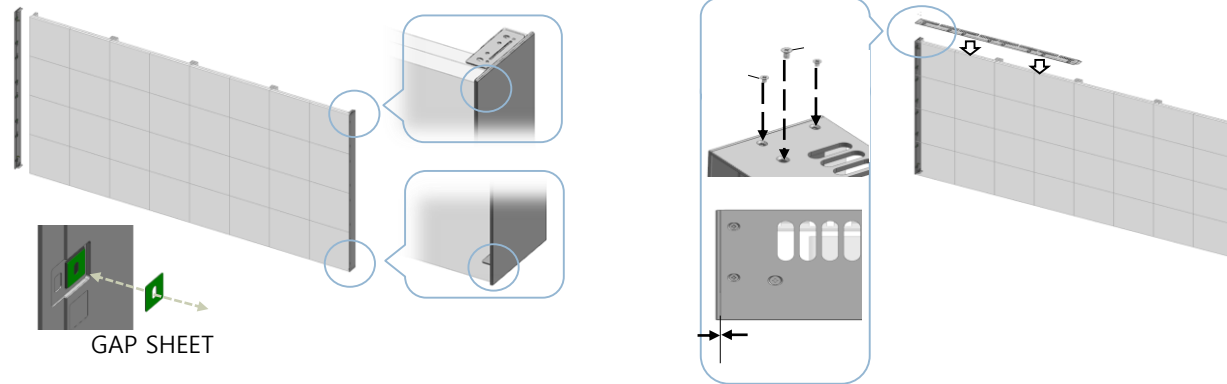
S-Box

※ Installation location, orders and inner cable connection can be controlled at working person's discretion for his convenience.

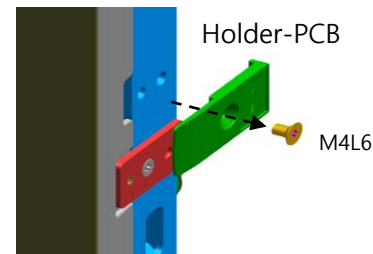
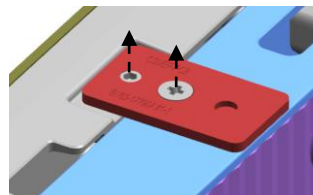
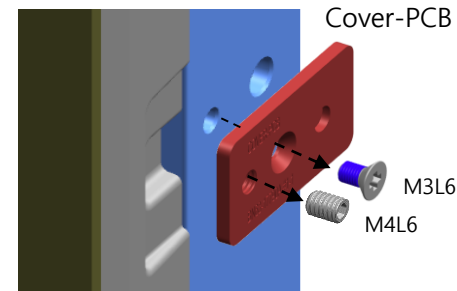
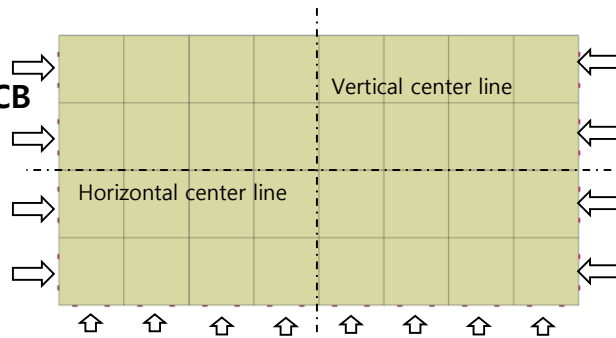
# 7. Disassembly & Front Service

## 0. Disassemble bezel and Cover/Holder PCB

### Remove Bezel



### Remove Cover PCB and Holder PCB



# 7. Disassembly & Front Service

## • How to use Absorber



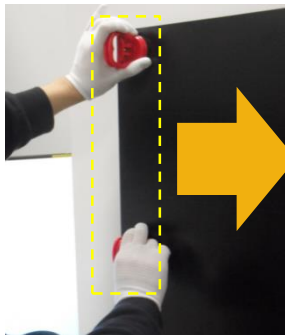
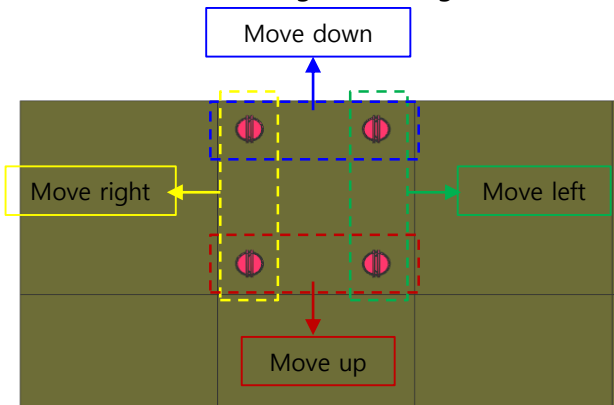
※ **Absorber** : Handle type tool that fixed on cabinet front side(LED side) to prevent damage to LED Modules while assembly/disassembly, moving half-cabinets.



※ grasp as direction of push or pull.

※ attachment location: about 5cm inside from corner of Half-Cabinet.

※ Location can be change according to the direction to move Half-cabinet



※ Handle should be locked in vertical.



★**Caution**★ Absorber must not be attached across the Module line.

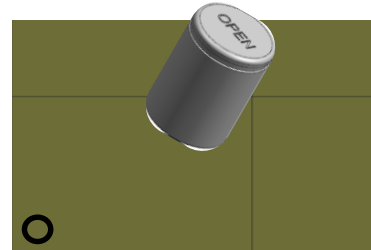
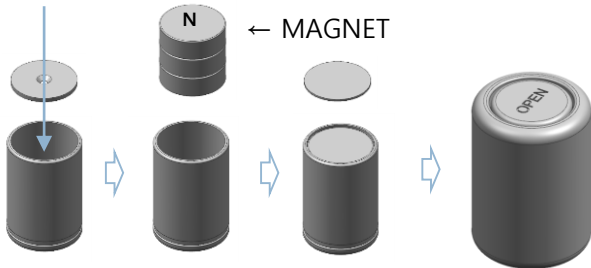
# 7. Disassembly & Front Service

## 0. Magnet Jig

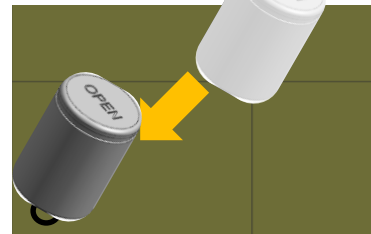
★**Caution**★ Cannot use Magnet JIG of other LED display model. (weak magnetic force)  
Use proper Magnet JIG matching with specification.



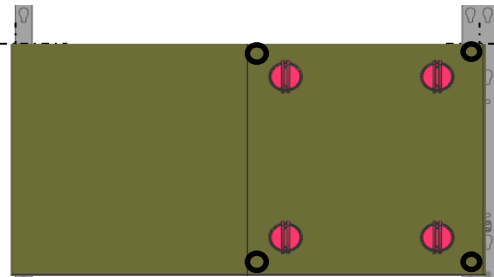
※ MAGNET JIG (model name: CY-WJJPWP)



1. Access carefully on 45° not to damage modules.  
(Do not contact Jig to module, 1cm apart)



2. Access to magnet-locking, from center of module to corner.



○ Magnet Lock location

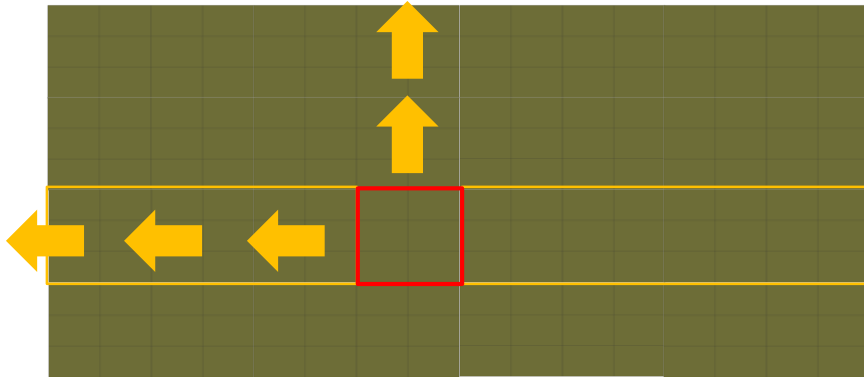


3. Raise the jig vertically and carefully touch module.  
It makes 'Tak' sound when it's done.


★**Caution**★ Be careful not to damage module

# 7. Disassembly & Front Service

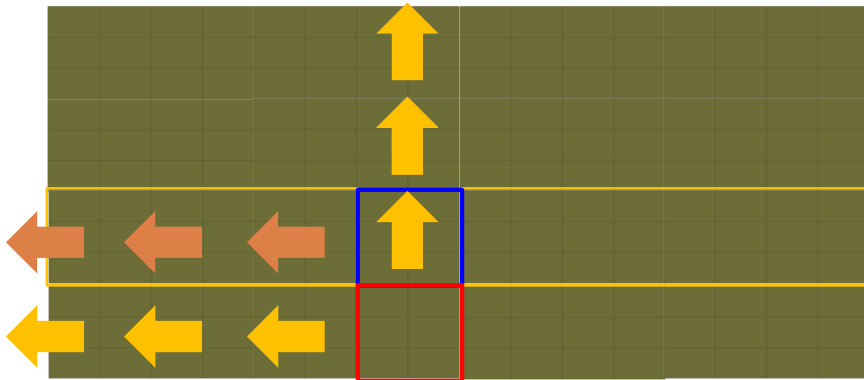
- Half-Cabinet Disassembly



※ P0.84 4 X 4 Screen (16 Cabinet / 32 half-cabinet)

 Repairing Half-Cabinet

- ① Based on the Half-Cabinets to be replaced, the Half-cabinets on the left/right and top should be pushed outward.  
(Edge Protection is needed. Refer to the Next)



※ P0.84 4 X 4 Screen (16 Cabinet / 32 half-cabinet)

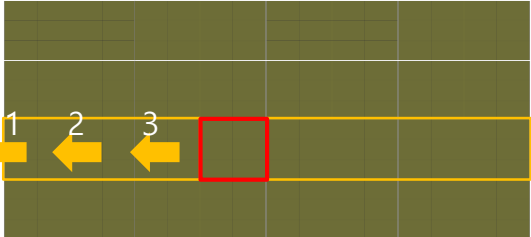
 Repairing Half-Cabinet  Disassembled first before taking out repairing half-cabinet

- ② In case of bottom line cabinet, right upper side of half-cabinet should be disassembled with method of and cut off everything.



# 7. Disassembly & Front Service

## • Edge Protection



※ UHD screen (16Cabinet / 32 half-cabinet)

□ Repairing Half-cabinet



Push cabinets toward outside to get 2mm gap that located on same vertical line with repairing Half-cabinet



※ Cover PCB should be removed.

※ pushing order is important. Follow the numbers on left picture.

※ Use absorbers when you push to keep module from damaged.



※ UHD screen (16Cabinet / 32 half-cabinet)

□ Repairing Half-cabinet



② Push cabinet to upper side to get 2mm gap that located right above repairing Half-cabinet. Hold it until next step..

※ Cover PCB should be removed.

※ Use absorbers when you push to keep module from damaged.

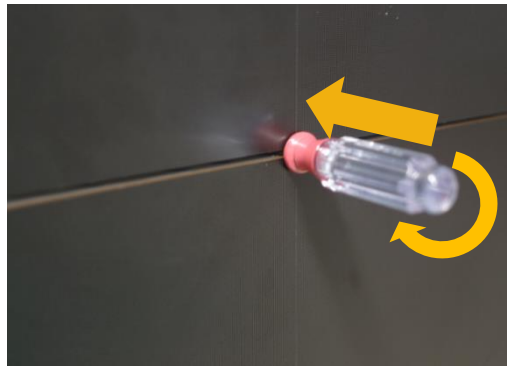
**★Caution★ Be careful not to damage module**

# 7. Disassembly & Front Service

- Edge Protection Attachment



A/S-ASSY GAP TOOL  
(BN81-17113A)



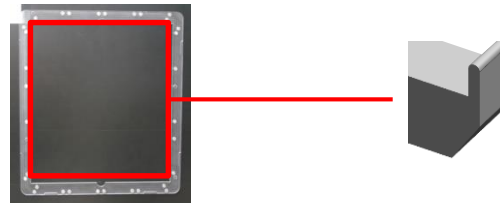
A/S-ASSY COVER PROTECTION  
(BN81-17111A, Edge Protection)

**★Caution★ Be careful not to damage module**

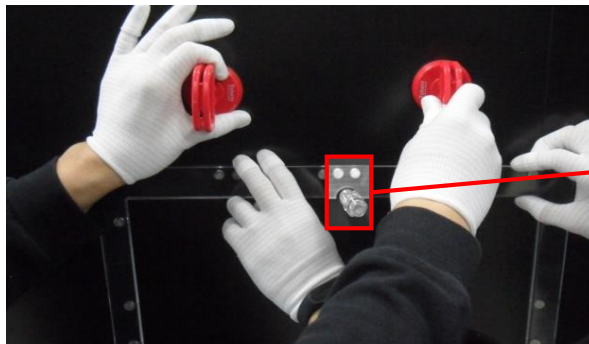
- ③ Insert GAP Tool at middle of Top/Bottom edge of half-cabinet to fix gap.



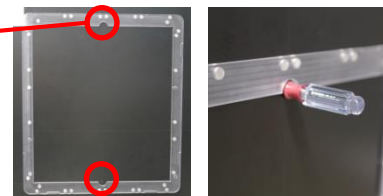
- ※ Insert horizontally, turn vertically and fix.
- ※ You have to lift repairing-half-cabinet to insert GAP Tool at bottom edge



- ※ Edge Protection : There is module protection blade on the edge. Attach it with blade inserted into the gap.



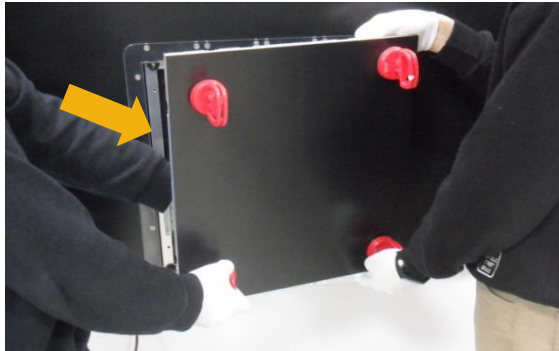
- ④ Attach edge protection to repairing half-cabinet and remove GAP Tool



- ※ Edge protection has room for GAP Tool.

# 7. Disassembly & Front Service

- Removing Cable and Disassemble Half-Cabinet



- ⑤ Identify location of cables need to be removed.
  - ※ Refer to the TCON board picture. (top : Master / bottom : Slave)
  - ※ Remove the cables close to each other.




**★Caution★ Do not apart Half-cabinet too far. Cable can be damaged. (recommending distance : 8cm)**



- ⑥ \*Remove 4 cables and disassemble Half-Cabinet.

- ※ For power cable, press side locking on both side of connector with **PLIER JIG**.
- ※ Leave edge protection attached for assembly of the new Half-Cabinet

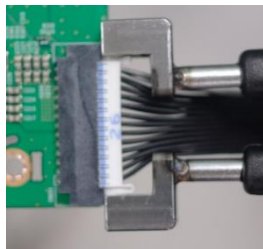
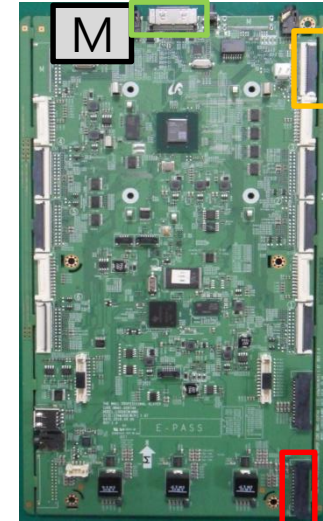
**\* Cables need to be removed (4 Kinds)**

-  Daisy Chain FFC Cable
-  SMPS Power Cable
-  OCM Cable

**\* Off-Board Power model does not contain Redundancy Cable.**

**★Caution★**

**Be careful not to damage connector pin when remove Cable.  
Be careful not to damage cabinet next to.**

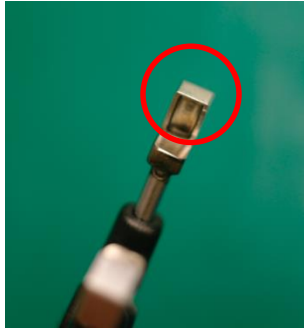


# 7. Disassembly & Front Service

- Removing cable and disassemble Half-Cabinet – Using PLIER JIG

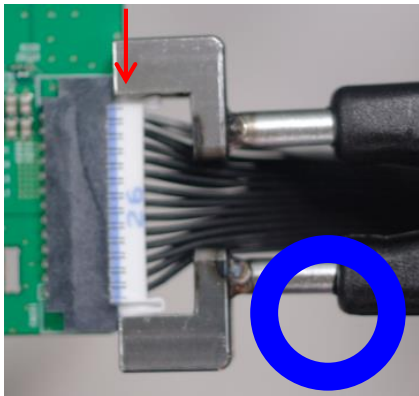


A/S-ASSY PLIER JIG

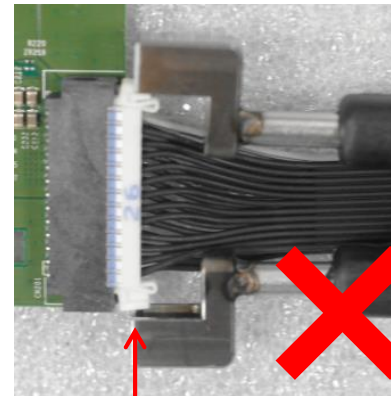
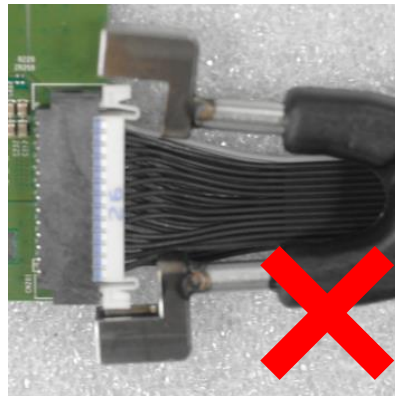


■ Using PLIER JIG, remove 26P Power Cable(SMPS, Redundancy)

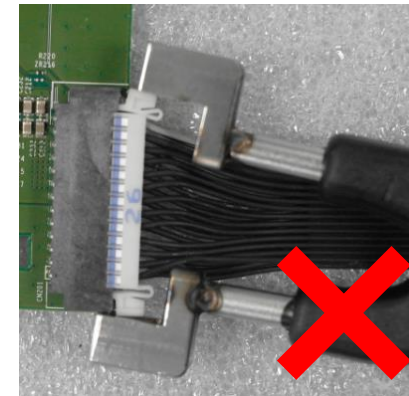
- ※ There is a groove that takes locking on the top head.
- ※ Locking can slip if it does not get to the groove correctly



※ Fix the JIG to take entire side-lock



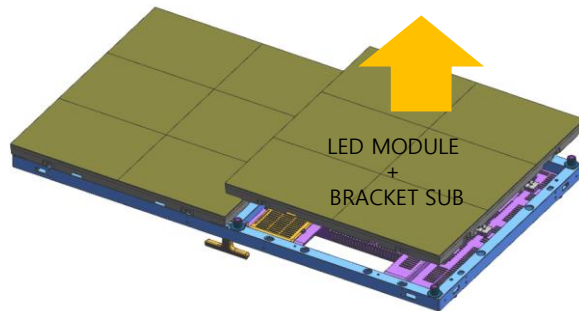
※ wrong case : only clipping end of side-lock



★**Caution**★ Be careful not to damage connector pin when remove Cable.  
Be careful not to damage cabinet next to.

# 7. Disassembly & Front Service

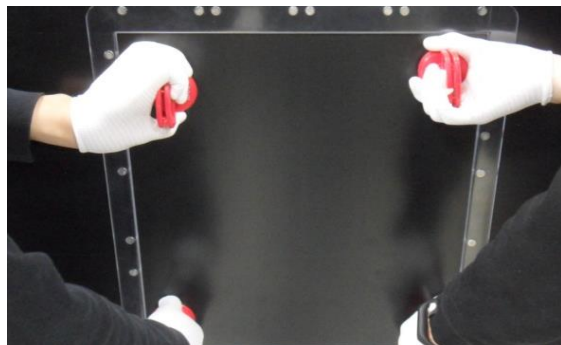
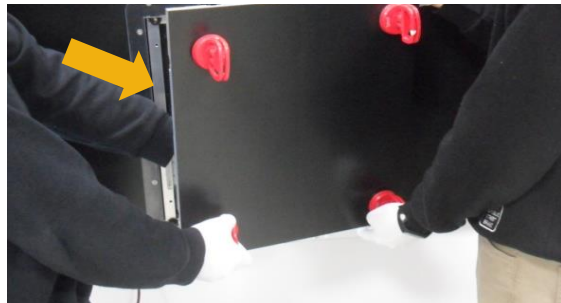
- Changing to new Half-Cabinet



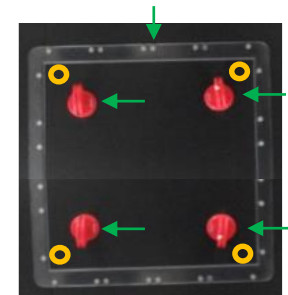
- ⑦ Remove Cover corner from Buffer Cabinet laid on the floor and lift up half-cabinet with absorber attached. Remove the Half-Cabinets and insert them between edge protection and connect cables of ⑦.

★**Caution**★ Be careful not to damage module

- ⑧ Put new half-cabinet with into the edge protection and lock with magnet jig. Pull out edge protection after locked



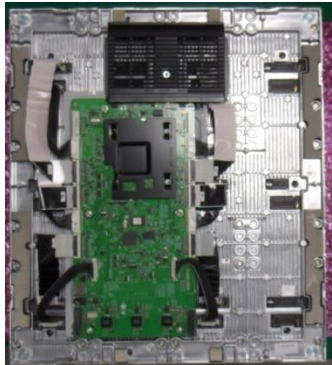
- Location of magnet locking
- Remove absorbers and edge protection



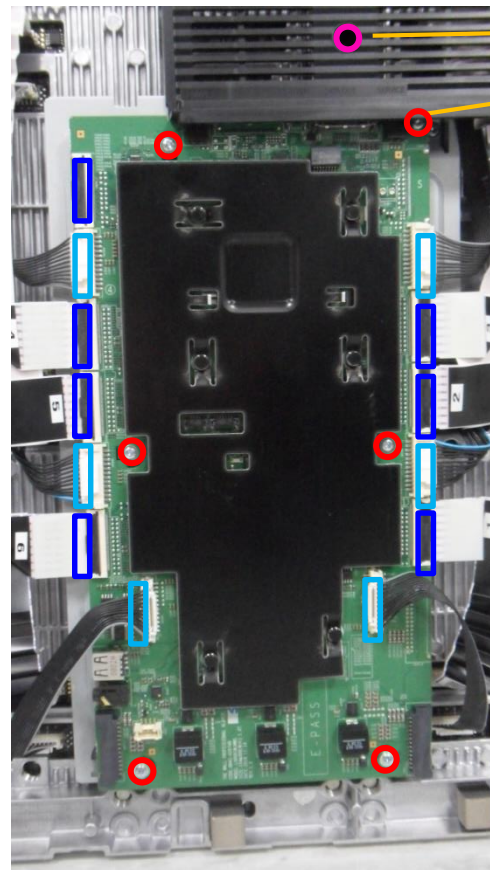
- ⑨ Push back moved Half-cabinets and assemble Cover PCB and bezel.

# 7. Disassembly & Front Service

- Remove Cables and T-CON Screw



※ Rear side of Disassembled Half-cabinet

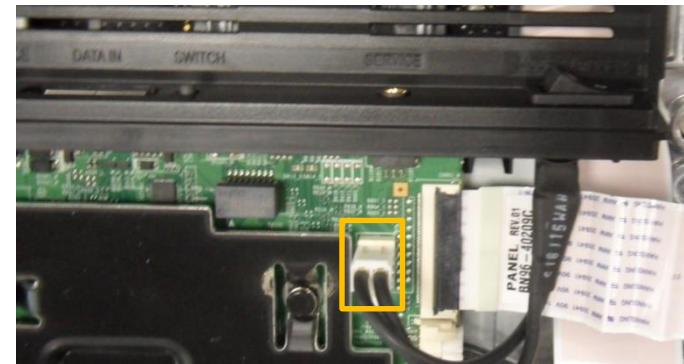


① Remove screw to disassemble cover terminal

Cover terminal Screw point

Remove Cover Terminal first to access to release at the top right screw point of T-con board

※ Disconnect the switch in case of master T-con Board.



x1

SCREW-MACHINE [6001-002755] (M3,L6)



x6

SCREW-MACHINE [6001-003016] (M3,L5)

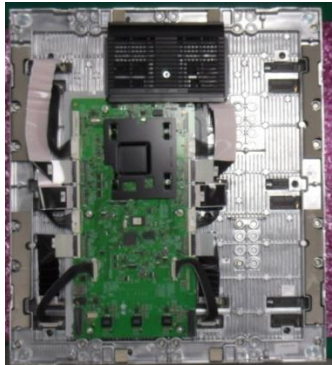
○ Screw point (6 + 1)

▬ FFC Cable (6 or 7)

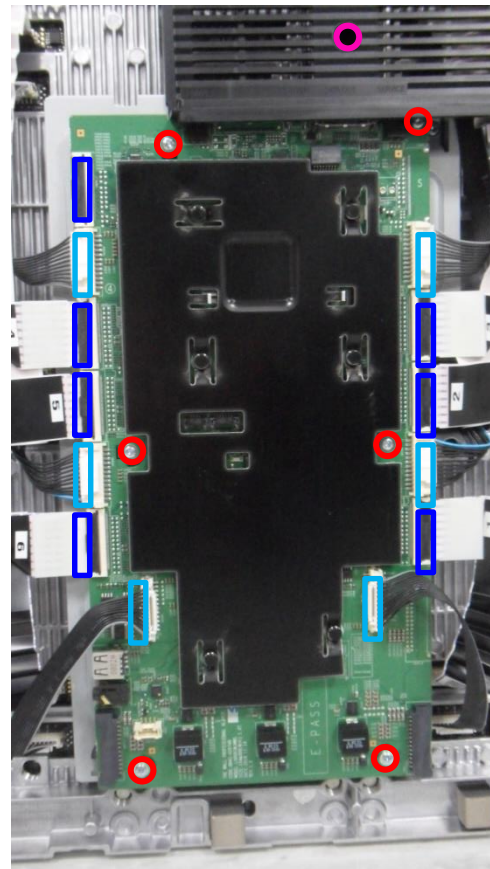
▬ Power Cable (6)


# 7. Disassembly & Front Service


- Remove Cables and T-CON Screw




※ Rear side of Disassembled Half-cabinet



 **x1** SCREW-MACHINE [6001-002755] (M3,L6)

 **x6** SCREW-MACHINE [6001-003016] (M3,L5)

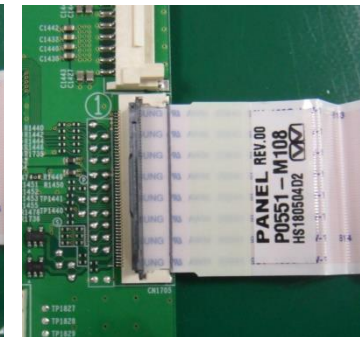
 Screw point (6 + 1)

 FFC Cable (6 or 7)

 Power Cable (6)

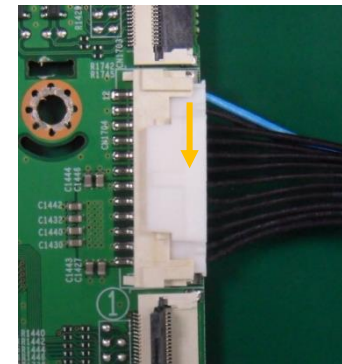
- Remove cables and screws of T-CON Board.

※ FFC Cable



Lift up the locking and pull out to remove cable.

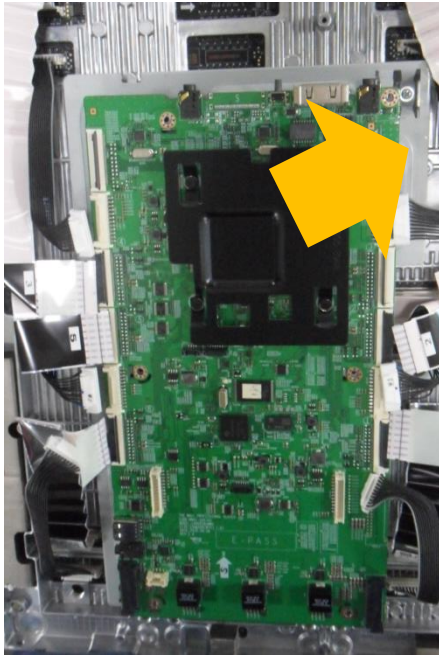
※ Power Cable



Pushing down the lock at the top, and pull out to remove cable.

# 7. Disassembly & Front Service

- Remove Cables and T-CON Screw



Bracket-PCB

- ③ Remove T-CON Board and replace it.
- ④ Assembly is reverse sequence of disassembly.

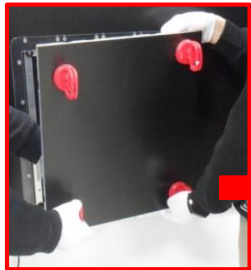


※ The Gap pad is attached to the TCON or Bracket-PCB, so don't skip when replacing new board.



# 7. Disassembly & Front Service

- **Module (Half-cabinet Module) Store & Packaging**



※ Repairing Half-Cabinet



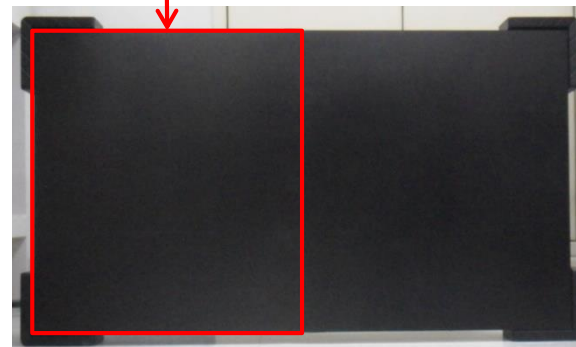
※ Buffer Cabinet



※ New Half-Cabinet → attach to Screen

- ① Repairing Half-cabinet should be stored with buffer cabinet.  
Dissemble Half-Cabinet from existing Buffer Cabinet  
Change it with Repairing Half-cabinet

※ Repairing Half-Cabinet

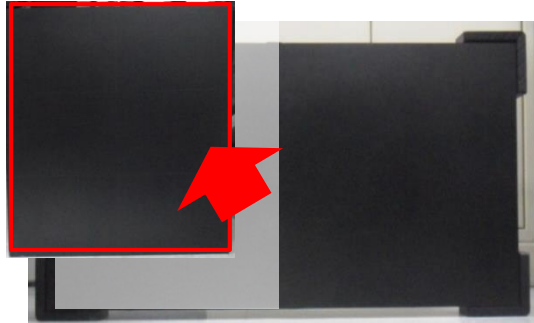


※ Buffer Cabinet changed half with repairing half-cabinet

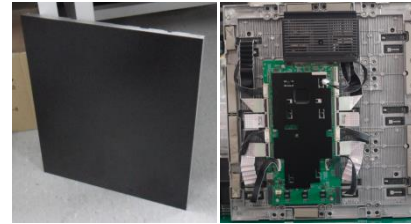
- ② Repairing Half - Cabinets will be packed and changed by a service engineer in charge.

# 7. Disassembly & Front Service

- Module (Half-cabinet Module) Store & Packaging



※ Remove repairing half-cabinet from buffer cabinet



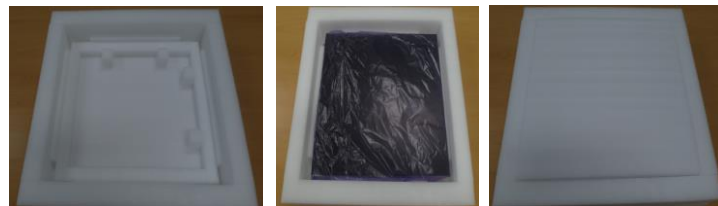
※ Module (Half-Cabinet module) (front/rear)

③ ※ Remove repairing half-cabinet from stored buffer cabinet.



※ The Wall LED Module BOX

④ Package Half-cabinet in The Wall LED Module BOX.



※ Package with EPE(protective material) in the box.

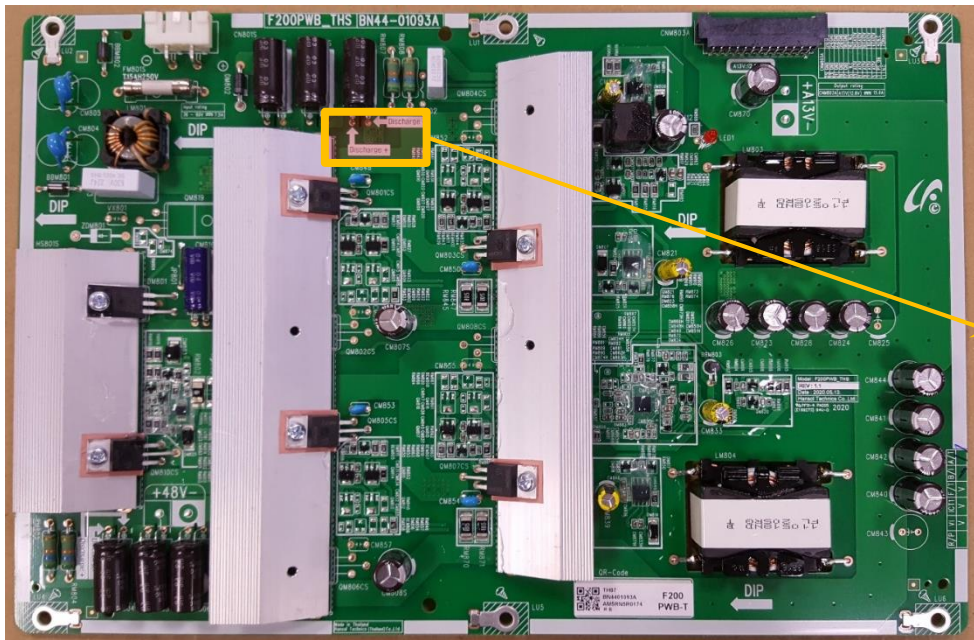


※ Pack in the box like the image.

# 7. Disassembly & Front Service

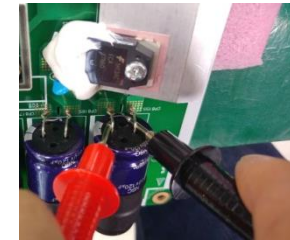
- **DC-DC Board Discharge**

- When touching or removing DC-DC Board, it is necessary of checking two points of discharging whether the board had done discharged using discharging Jig.



※ Before disassembling DC-DC Board, remaining current on the **DC-DC Board should be discharged**. If not having discharging Jig, use Digital-Multimeter to check the current remaining or give enough time to be discharged naturally.

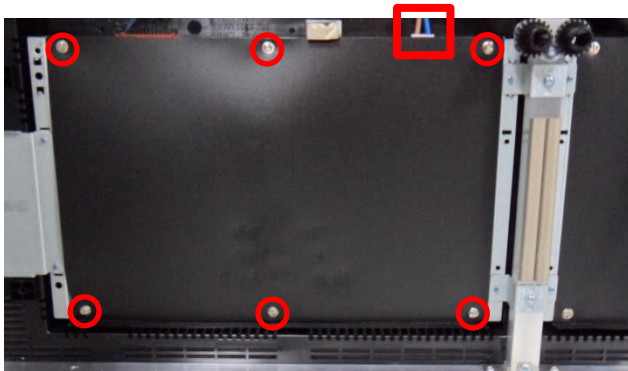
**Discharge point of Main Capacitor**



1. Set Multi-meter as a Test mode
2. Contact the probes on the discharge point.
3. No current flows if discharge had done.

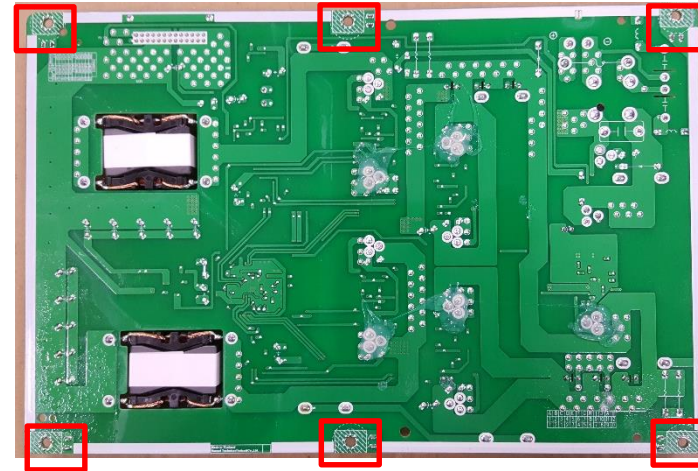
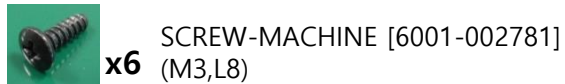
# 7. Disassembly & Front Service

- DC-DC Board disassembly



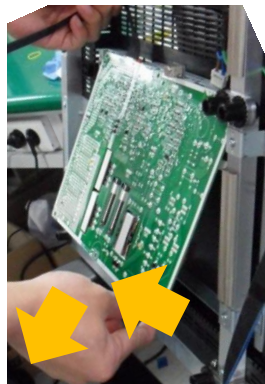
- ① Remove screws over the insulator on SMPS. (6EA)
- ② Remove AC INLET Cable connected to SMPS. (Do not remove 26pin Power Cable yet)

★ **Caution** ★ Do not touch except marked spot.



# 7. Disassembly & Front Service

- DC-DC Board disassembly



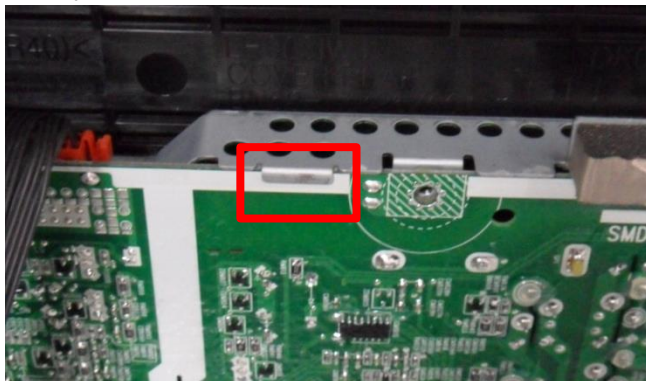
③ Hold 26pin Power Cable and bottom of SMPS.

④ Lift up the bottom part and pull down to separate. Be careful of protruding part at top of SMPS shield.

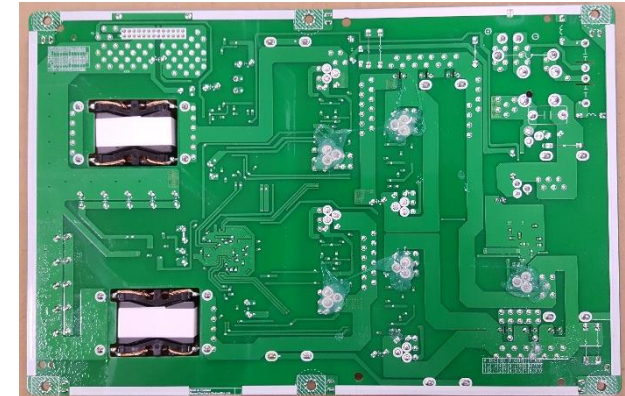
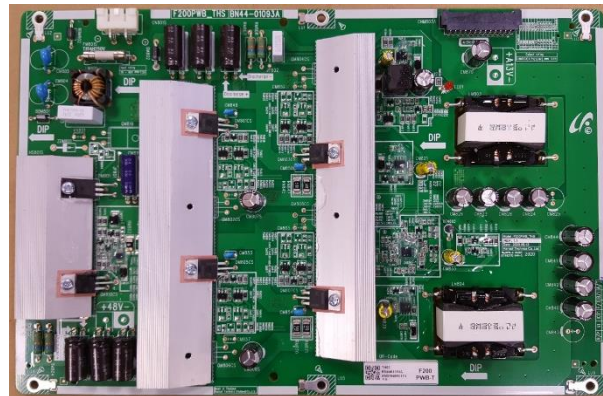
★ **Caution** ★ Be careful of falling DC-DC Board down when removing from SMPS shield

⑤ Assembly is done in reverse order.

※ Hold 26pin Power Cable and bottom of SMPS and lift bottom and pull down.

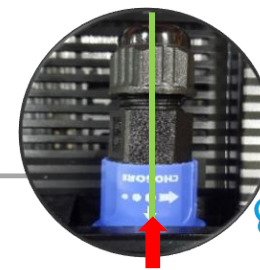
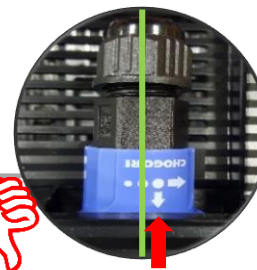


※ Protruding part at top of shield to fix SMPS



※ DC-DC Board Service Product Code: BN44-01093A (Same for Master / Slave side)

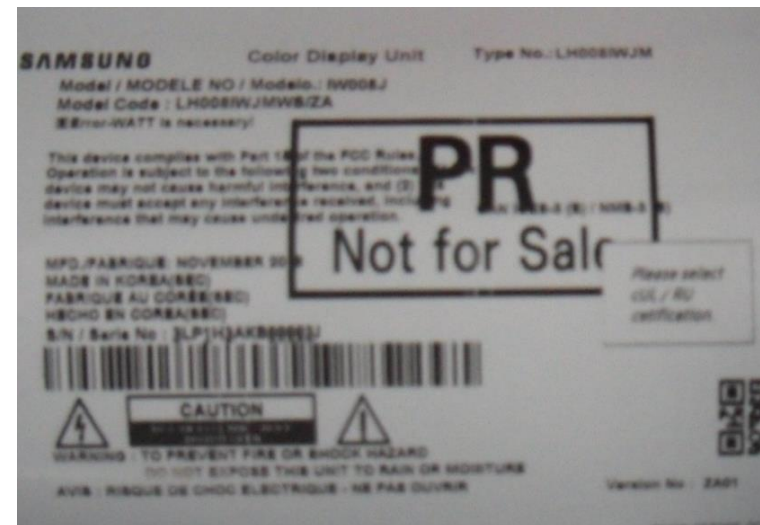
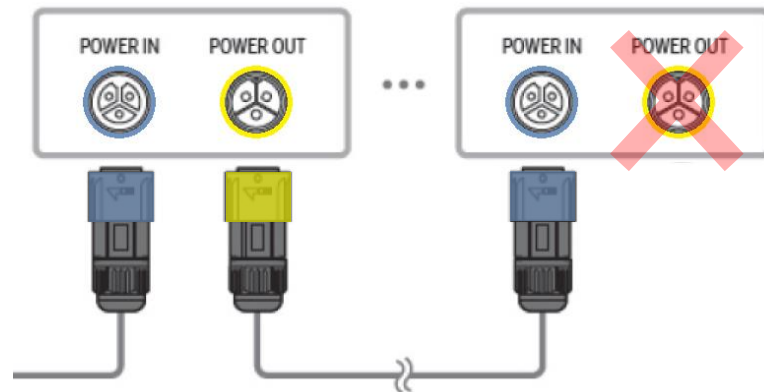
# 8. Cable Connection



Samsung Electronics

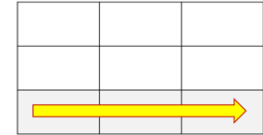
## 8-1 Cable Connection

- If using 35m DC Cable, at most 5 cabinets are allowed to be connected by power daisy chain.
- If using 65m DC Cable, at most 3 cabinets are allowed to be connected by power daisy chain.
- If using 100m DC Cable, at most 2 cabinets are allowed to be connected by power daisy chain.
- **Exceeding the recommended maximum number of devices can cause the circuit breaker of the product to trigger due to overload. must CONNECT the devices less than the recommended maximum number of devices. ※ Samsung Electronics is not responsible for AC power connecting exceed recommended maximum number of devices.**
- The label info which is attached behind product shows rated power of cabinet and rated current of outlet.



## 8-2 The Cautions for Cabinet installation and Cable Connection

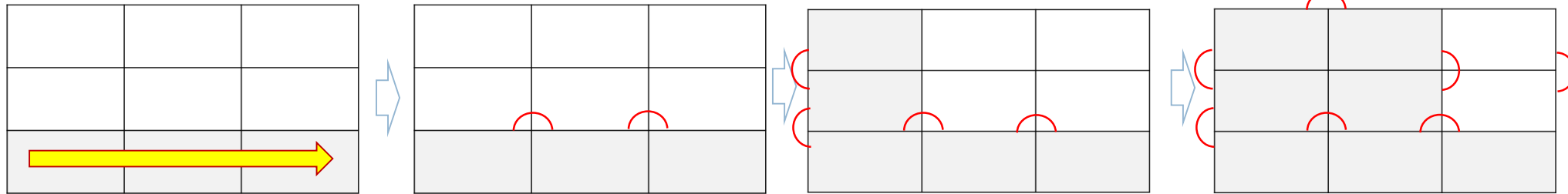
- 1) The set installation order Must be Center to Left/Right direction.  
→ The set installation order and The cable connection order are different.



- 2) After installing cabinets one line is complete, make sure the connection is OK by connecting OCM/Power cable. Then, Install next line.
- 3) In case of connecting OCM cable upward, Connect OCM cable to Lower set first.
- 4) The two output of Interface gender should be connected to First cabinet and Last cabinet each

## 8-3 The Direction for Cabinet Installation

- 1) Installation of First row cabinet starts at the bottom of Left-end.
- 2) After installing cabinets one line is complete, make sure the connection is OK by connecting OCM/Power cable. Then, Install next line.
- 3) From Second row, it starts from bottom to top.



1) 1<sup>st</sup> row :  
Install set form Left-end

Check Gap between module  
inside cabinet

2) Connect  
Power/Signal Cables

3) 2<sup>nd</sup> row :  
Bottom to top

Check Gap between cabinets and  
whether installed in a straight direction.

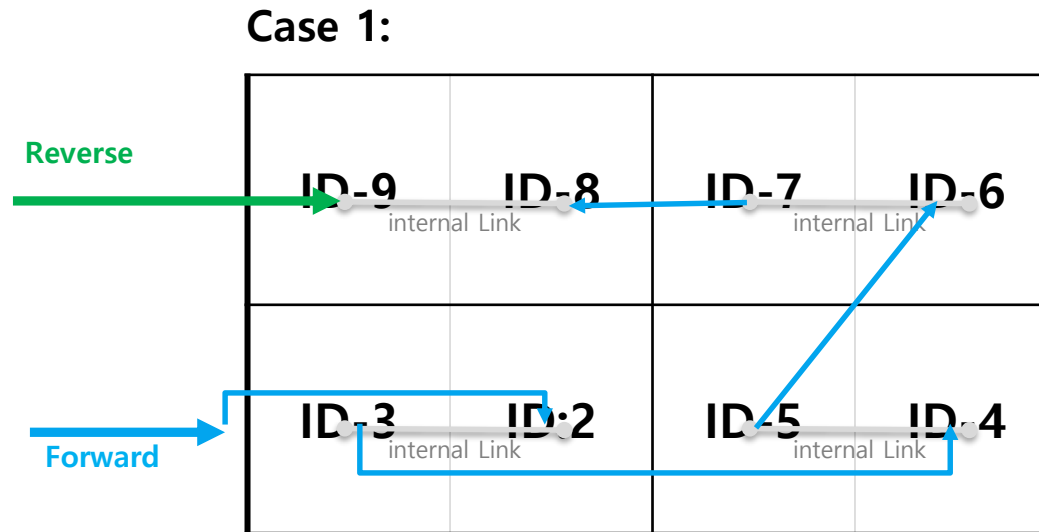
4) Same way



# 8. Cable Connection

## 8-4 Cable Connection : by Data Flow [FHD]

© IW008J : Connect OCM Cable forward direction

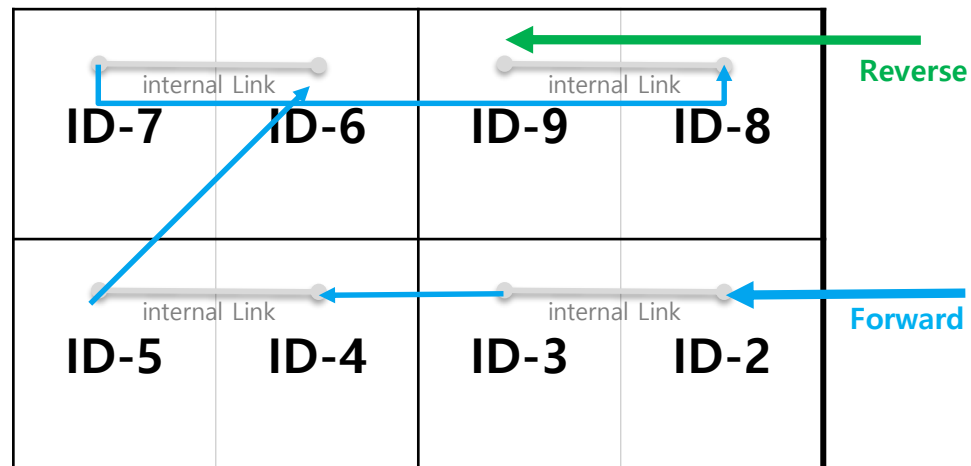


# 8. Cable Connection

## 8-4 Cable Connection : by Data Flow [FHD]

© IW008J : Connect OCM Cable forward direction

Case 2:

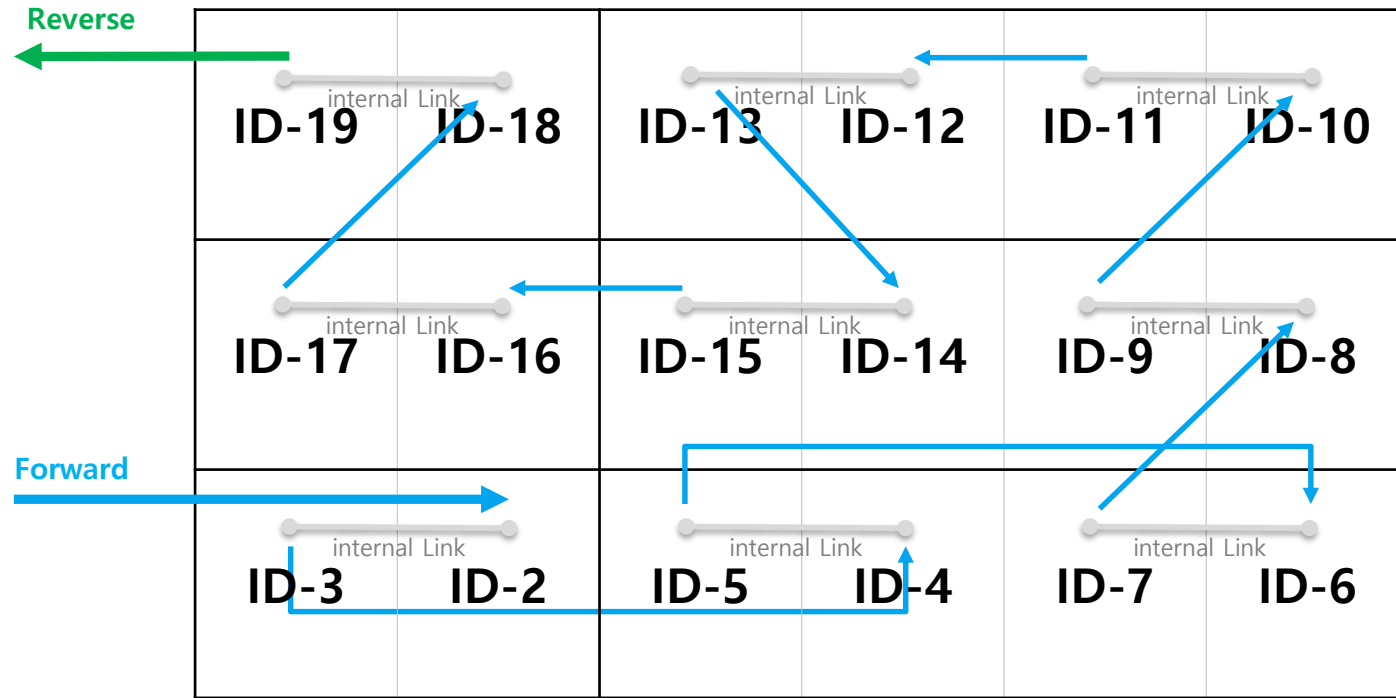


# 8. Cable Connection

## 8-4 Cable Connection : by Data Flow [FHD]

© IW012J : Connect OCM Cable forward direction

Case 1:

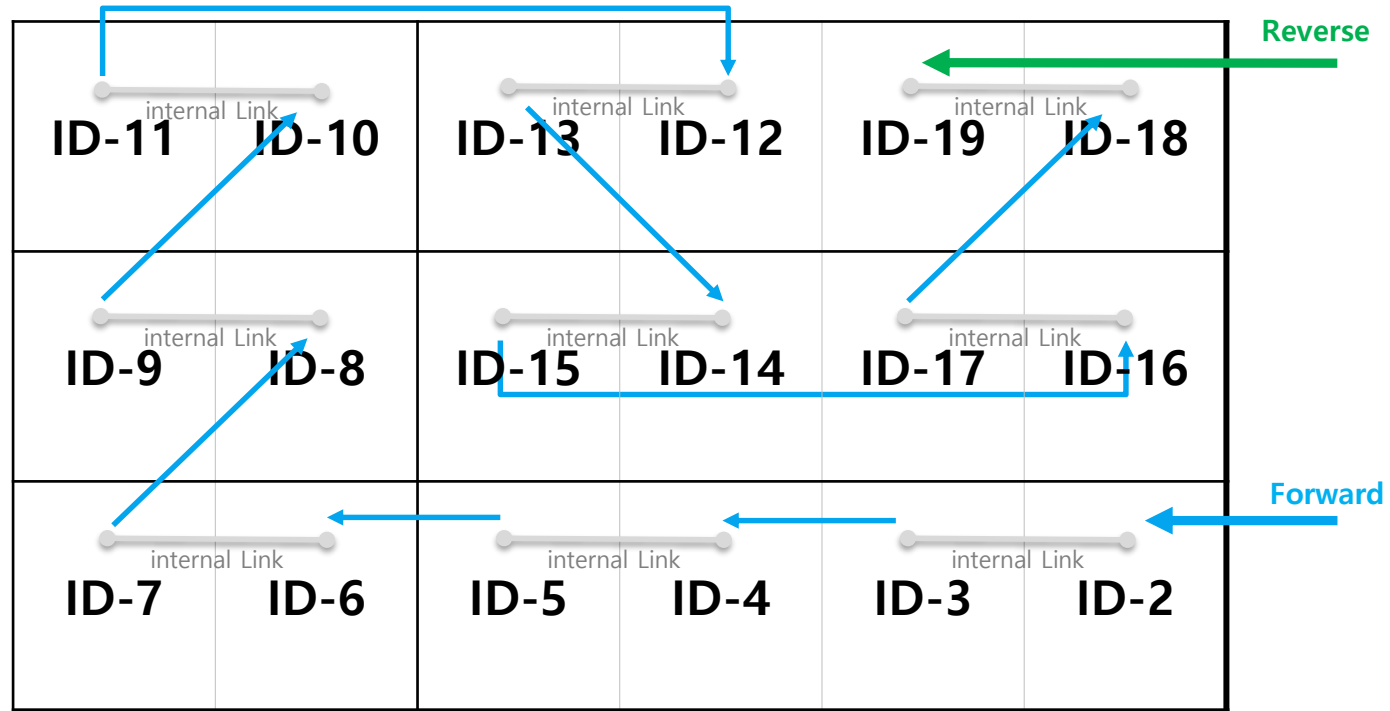


# 8. Cable Connection

## 8-4 Cable Connection : by Data Flow [FHD]

© IW012J : Connect OCM Cable forward direction

Case 2:

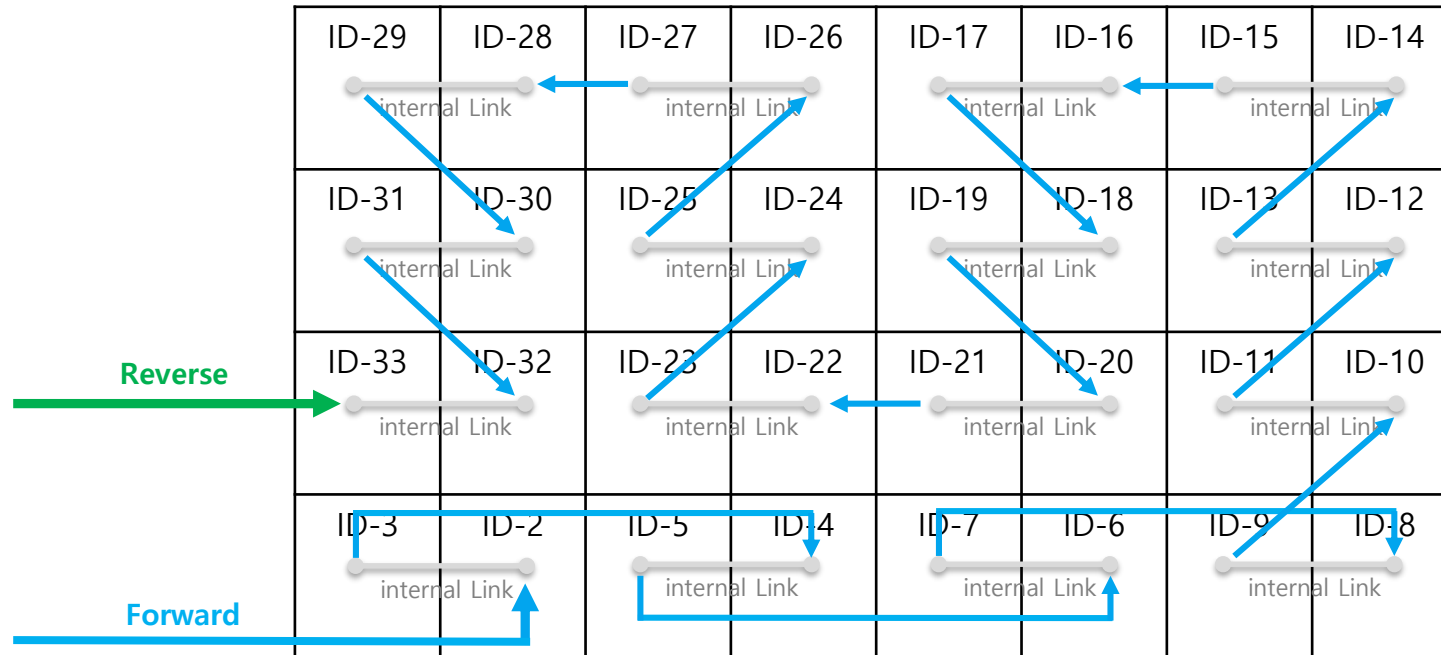


# 8. Cable Connection

## 8-4 Cable Connection : by Data Flow [FHD]

© IW016J : Connect OCM Cable forward direction

### Case 1:

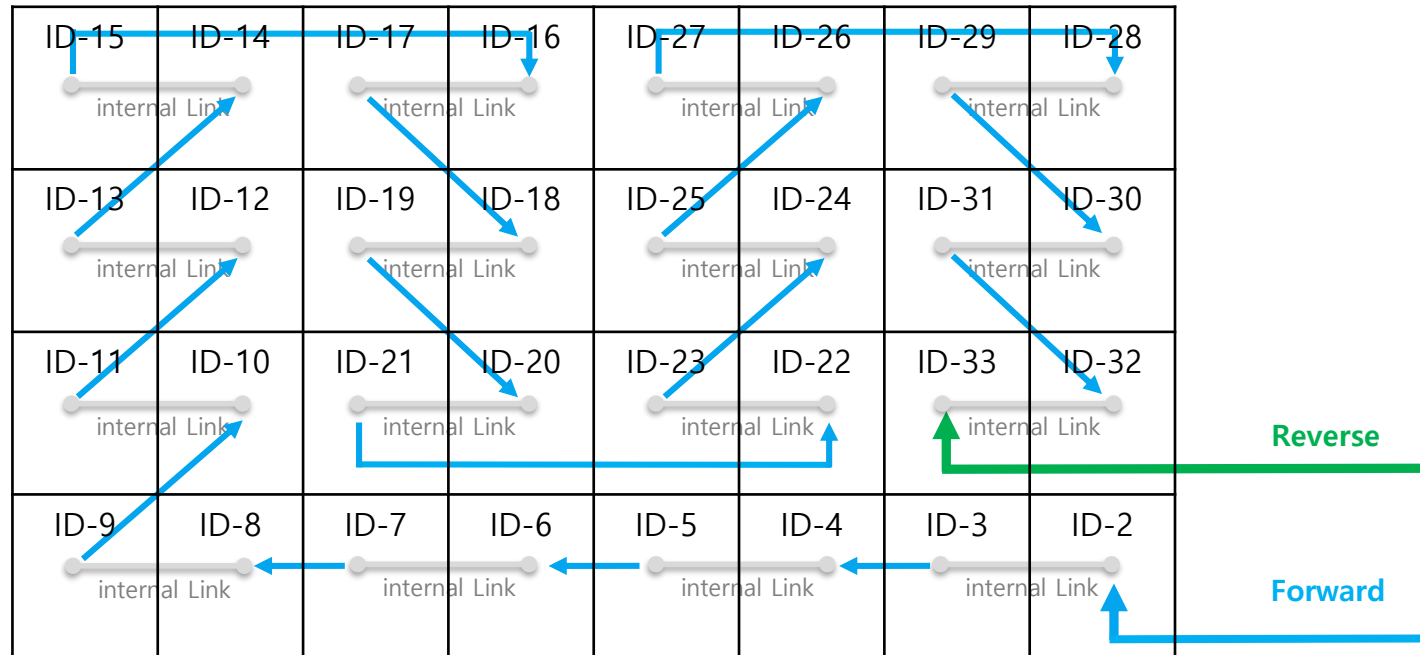


# 8. Cable Connection

## 8-4 Cable Connection : by Data Flow [FHD]

© IW016J : Connect OCM Cable forward direction

Case 2:

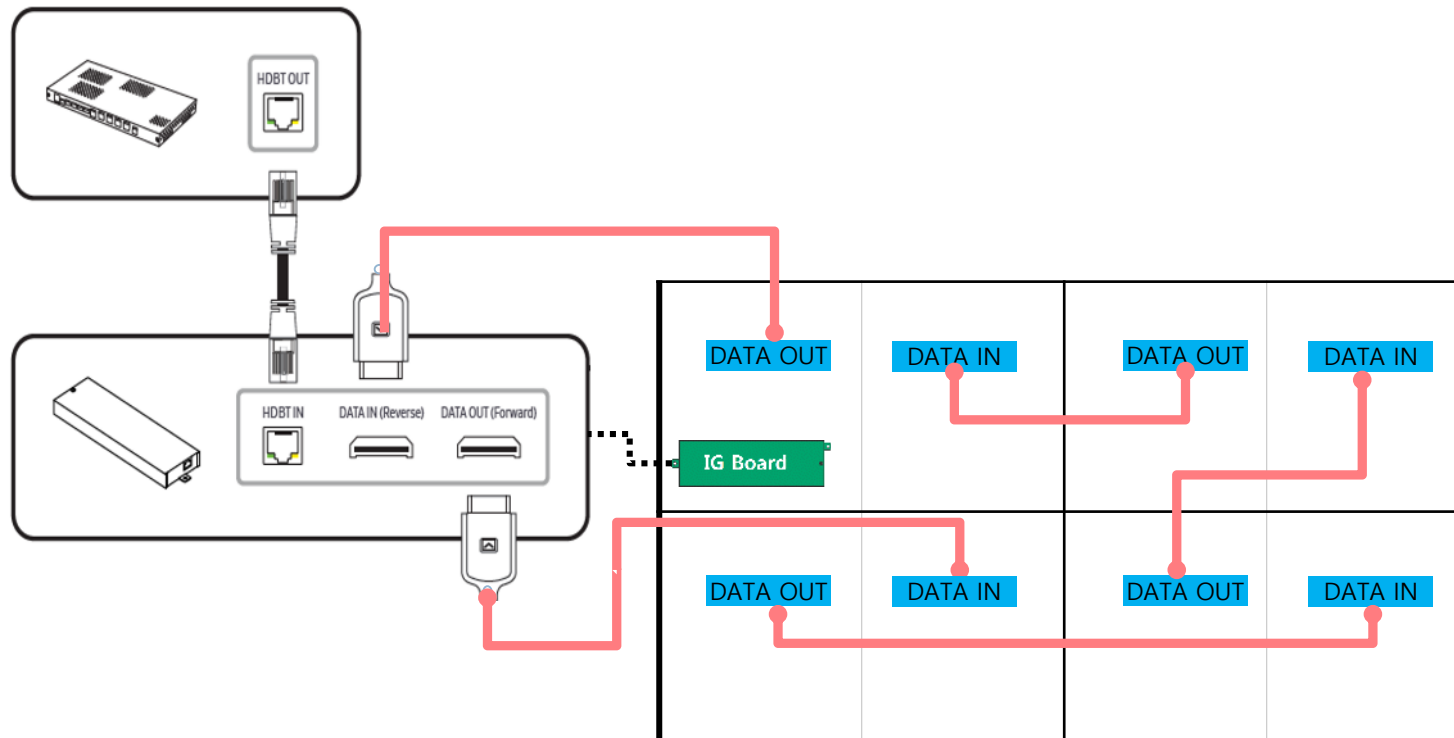


# 8. Cable Connection

## 8-5 Cable Connection : by OCM cable installation

© Whenever one number of cabinet gets installed, connect necessary cable for each.

2x2 Cabinet Installed (FHD IW008J)

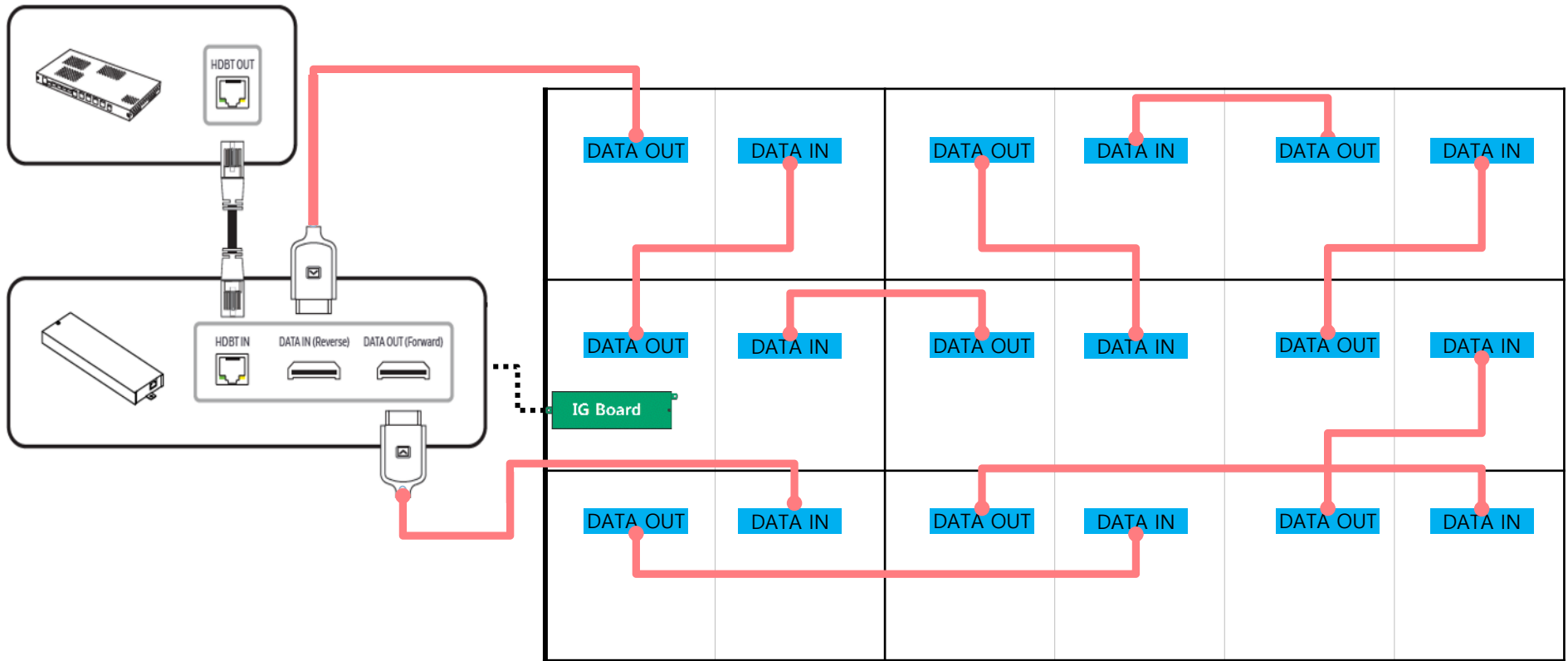


# 8. Cable Connection

## 8-5 Cable Connection : by OCM cable installation

◎ Whenever one number of cabinet gets installed, connect necessary cable for each.

3x3 Cabinet Installed (FHD IW012J)



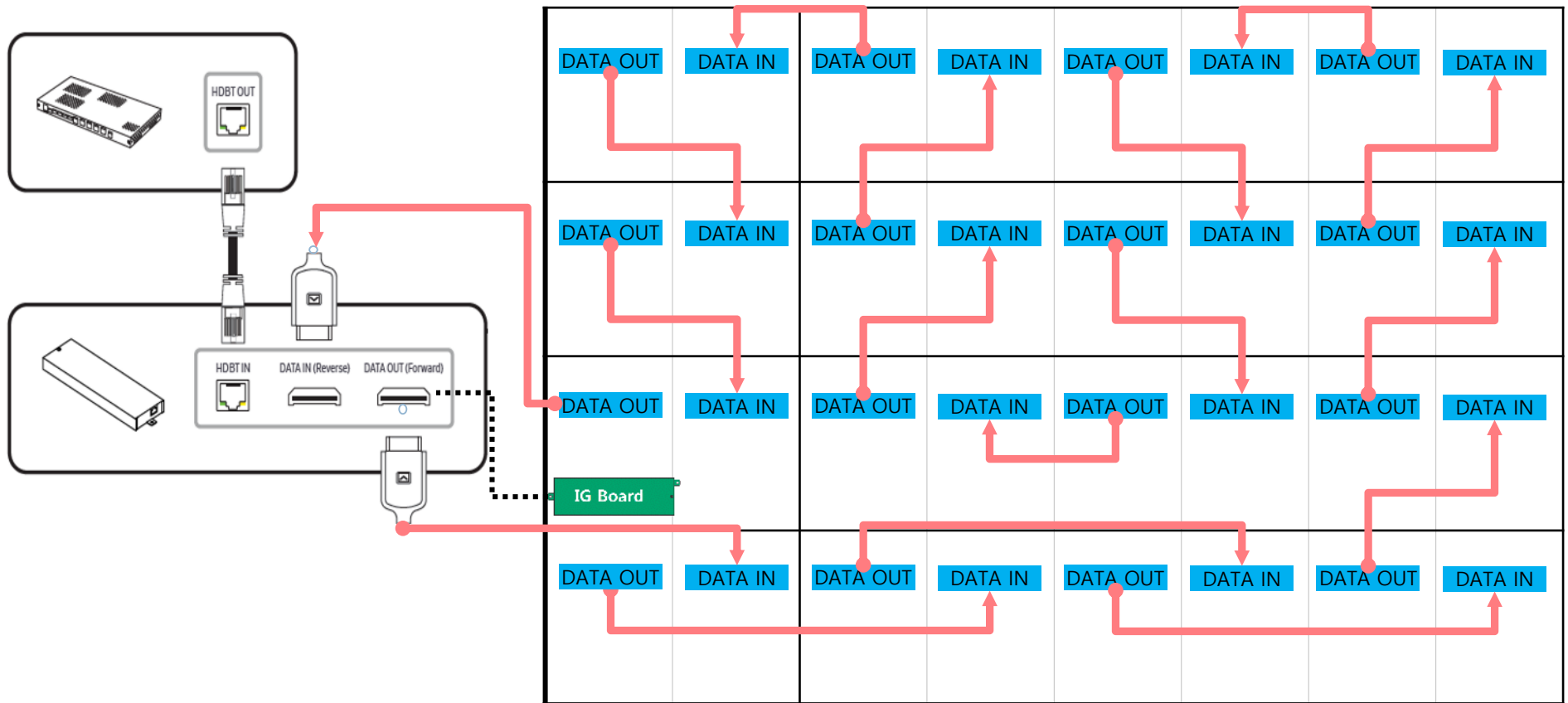


# 8. Cable Connection

## 8-5 Cable Connection : by OCM cable installation

© Whenever one number of cabinet gets installed, connect necessary cable for each.

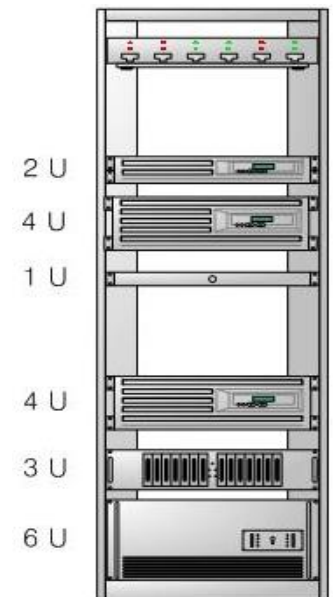
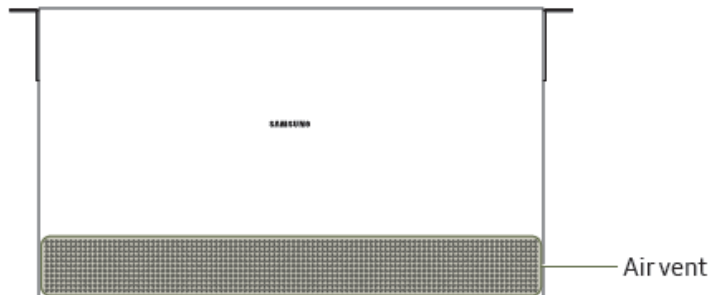
4x4 Cabinet Installed (FHD IW016J)



# 9. S-Box Installation and Connection

## • S-Box Installation Precautions

- ① The S-Box is recommended to be installed in a standard 19-inch server rack.  
※ When connecting two or more sets for Multi-link HDR, install them in the six-sided shield rack (Only SBB-SNOWJMU)
- ② Install the ventilation openings openable, not to be turning it sideways or upside down.
- ③ Keep ventilation openings opened not the product to be overheated.
- ④ When installing multiple S-Box, install at least 1U (44.45mm) or more apart from the ventilation openings on the top of the product.
- ⑤ When installing on the wall, keep all the distances between the wall and the top, bottom, left and right sides of the product at least 10mm, and also keep the distance between the wall and the ports on the back of the product at least 50mm for cable connections.
- ⑥ Make sure that the ambient temperature inside the rack mount does not exceed 35°C.
- ⑦ Take care not to allow liquid or foreign objects to enter the ventilation openings on the top of the product.



# 9. S-Box Installation and Connection

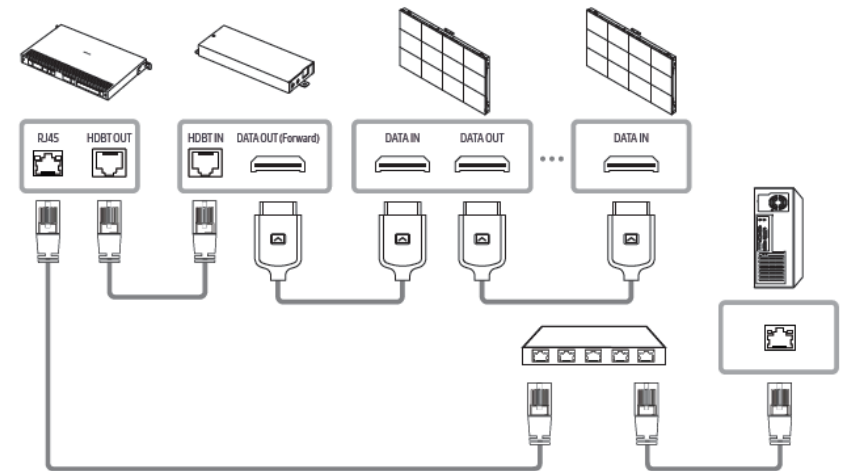
## • S-Box Connection

- ① Input the video signal to the S-BOX. (Input terminal : HDMI, DP)
- ② Check the signal input from SOURCE STATUS.(RED : HDMI1 , GREEN : HDMI2, Blue : DISPLAY PORT)
- ③ Connect from the HDBT OUT port of S-BOX to HDBT IN port of Interface Gender using LAN cable.
- ④ Connect from DATA OUT port of Interface Gender to DATA IN port of the first cabinet using OCM Cable.
- ⑤ Please add input signal with “Input signal Plus” menu for UHD resolution

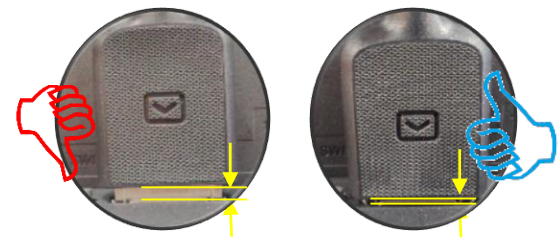
※ Menu – Picture – Advanced Settings – Input signal plus : add input signal

(Default: OFF, S-BOX will be reboot when it is changed.)

- ⑥ One SNOW-1810U supports only one type of LED pitch cabinets. Do not connect different types of LED pitch cabinets.
- ⑦ SNOW-1810U displays the screen starting from the upper left cabinet. To view the screen, connect the HDBT cable to the HDBT OUT 1 port on S-BOX.



- For HDBT signal stability, use the cable above CAT6 \*STP, \*FTP level. ( Length 15m~100m )
- Do not use “comb” or “pinstripe” cable.



# 9. S-Box Installation and Connection

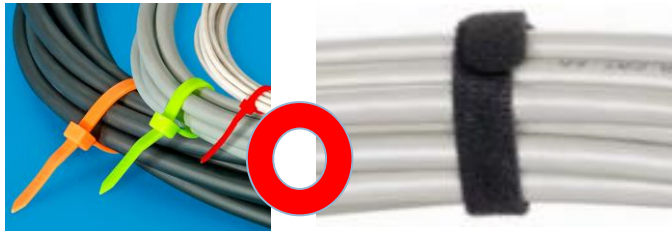
## ⑧ Instruction for handling HDBase-T cable

- Do not use "comb" or "pinstripe" cable.
- Use HDBase-T cables with **15 meter long at minimum and 100 meter long at maximum.**
- **Use only HDBase-T Alliance recommended Cables** as described below.  
HDBase-T Alliance Site : <https://hdbaset.org/hdbaset-recommended-cables/>
- Do not over bend HDBase-T cables for cable integrity.
- Do not tie HDBase-T cables tightly in bundling.

★ Orderly Rolled (Recommend)



★ Random Rolled (Not Recommend)



- Do not bundle HDBase-T cables with any AC power cable.

# 9. S-Box Installation and Connection

## ⑧ Instruction for handling HDBase-T cable

- EMI sources: Keep the cable away from electromagnetic interference environments such as high-voltage electrical cables, electric motors (such as elevators or refrigerators), fluorescent, light-fixtures and so on
- Minimum distance between HDBase-T and AC power cables  
: Keep the cable at a distance of at least **12" (=30.48cm)** from AC power cables
- HDBase-T cables can be bundled with up to **4 cables from single S-BOX.**
- Do not use RJ45 coupler.



RJ45 coupler

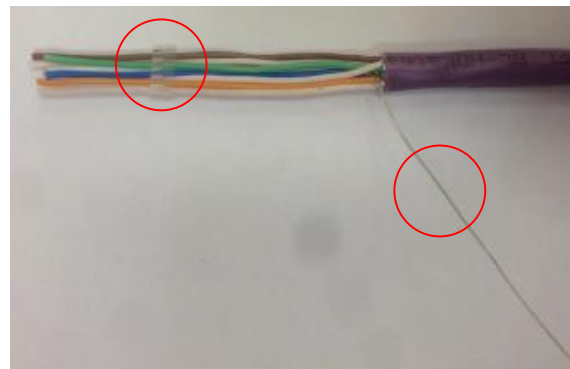
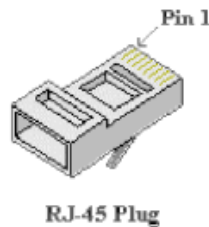
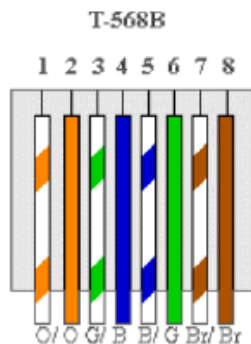
# 9. S-Box Installation and Connection

⑨ Instruction for trimming HDBase-T cable on site

- **STP RJ45 shielded Plug.** RJ45 Connector should be CAT6 or CAT7 shielded RJ45 and load bar.



- **Insert conductors into the plastic loader :** Using the standard wiring scheme shown here (T-568B), insert the conductors into the plastic loader piece of the R-J45 connector. The plastic loader is necessary because the thickness of CAT 6 cable does not allow it to sit flat in an RJ-45 connector like in normal CAT 5.



Load bar and Drain wire



Wires aligned with Load bar

# 9. S-Box Installation and Connection

⑨ Instruction for trimming HDBase-T cable on site

- **Slide the plastic loader down the cable** : Slide the plastic loader down the cable as close to the base as possible.



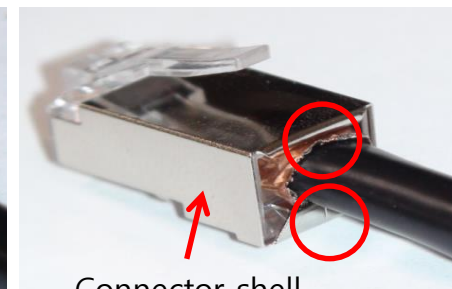
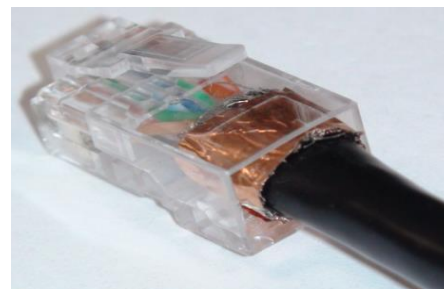
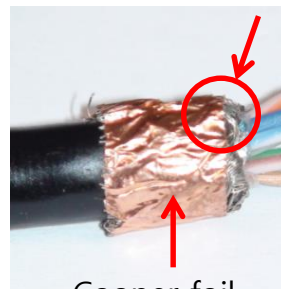
- **Cut all conductors** using the wire cutters, cut all conductors leaving approximately 0.5" remaining.

Case 1) Cable containing drain wire  
→ Refer to next page



Case 2) Cable not containing drain wire

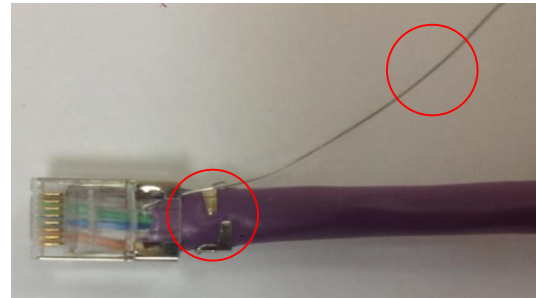
→ Fold back Aluminum foil or Braid and cover with Cooper foil



# 9. S-Box Installation and Connection

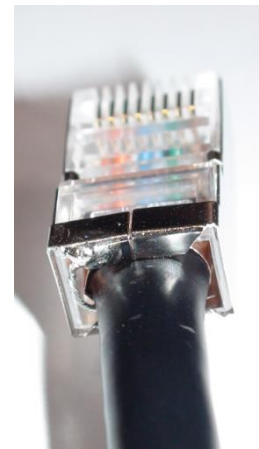
⑨ Instruction for trimming HDBase-T cable on site

- **Flip the drain wire up onto the RJ-45 connector** Flip the drain wire up onto the RJ-45 connector. Clamp the strain relief down on the purple jacket of the BC-HDKat6a cable using the pair of pliers.



- **Solder the drain wire to the metal casing of the RJ-45 connector** : Solder the drain wire to the metal casing of the RJ-45 connector and cut off the excess using the wire cutters. Verify the continuity of the conductors and the shield using a cable tester.

Recommended) Soldered Drain wire + Copper foil

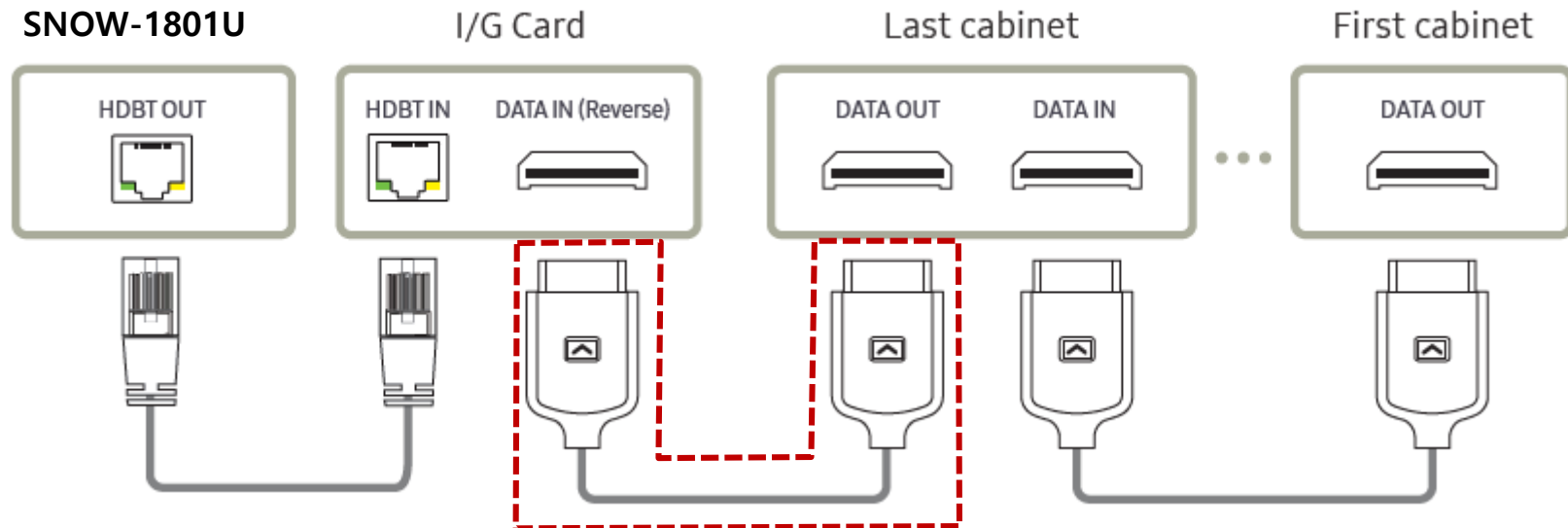




# 9. S-Box Installation and Connection

## • S-BOX Connection (Redundancy)

- ① If redundancy connections required, connect from DATA IN port of I/G to DATA OUT port of the last cabinet by OCM Cable.



- For HDBT signal stability, use the cable above CAT6  
\*STP, \*FTP level. ( Length 15m~100m )  
- Do not use "comb" or "pinstripe" cable.



# 9. S-Box Installation and Connection

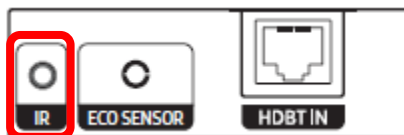
## • S-BOX Connection (External IR Receiver)

※ Only one external IR receiver is provided for a set.

- External IR receiver can be connected to S-Box body or I/G.



OR



※ If the external IR receiver is connected to I/G, 'Network Standby – On' should be preset from the S-Box menu.

- Route : System → Power Control → Network Standby → On

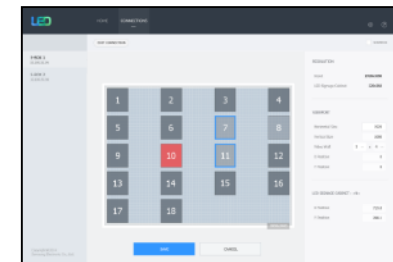
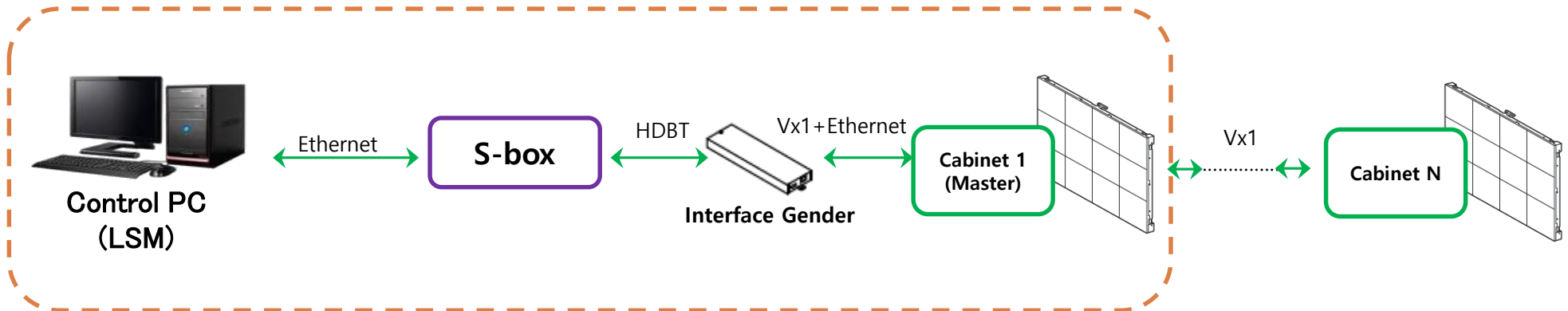
# 9. S-Box Installation and Connection

## • S-BOX Connection (Panel Configuration)

### ② S-Box Picture Setting according to model

- The default picture configurations are optimized for LH0151FH in Samsung factory.
- The picture configurations will be configured automatically when you finish the installation.
- For the best picture quality, Please connect S-Box and LED displays via LSM software properly.
- The 1<sup>st</sup> LED Display(I/G) must be connected to HDBT port #1 in S-Box
- The Picture configuration will be set base on the model of the 1<sup>st</sup> Master LED display which is connected to HDBT port #1 in S-Box.

\* If the S-Box and LED Displays are not connected properly by LSM, the picture quality might not be correct.

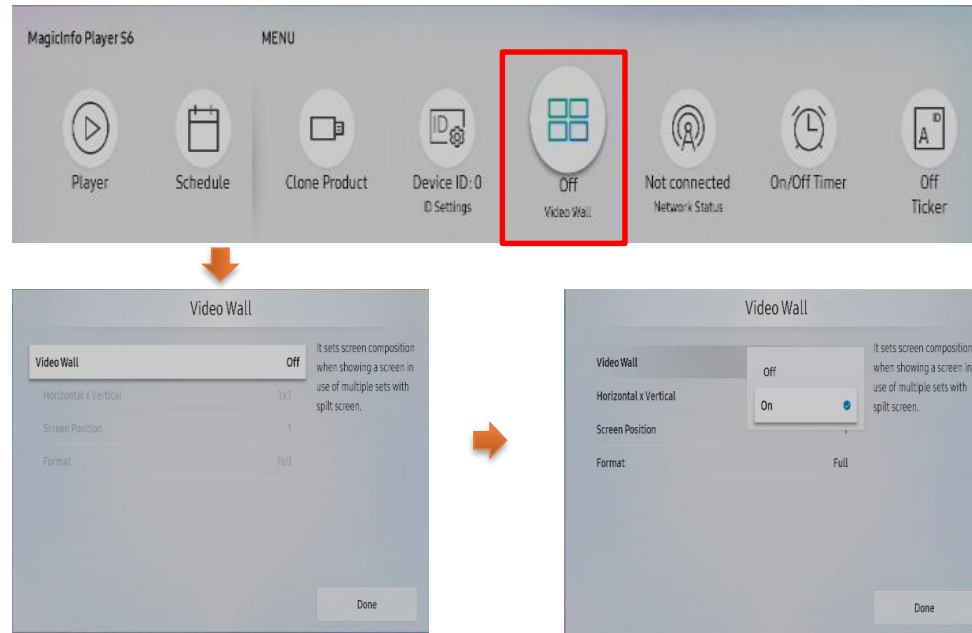


<Connected condition in LSM>

# 9. S-Box Installation and Connection

## • S-BOX Connection (Grouping)

- Home → Video Wall : OFF → ON



### [Cautions!!]

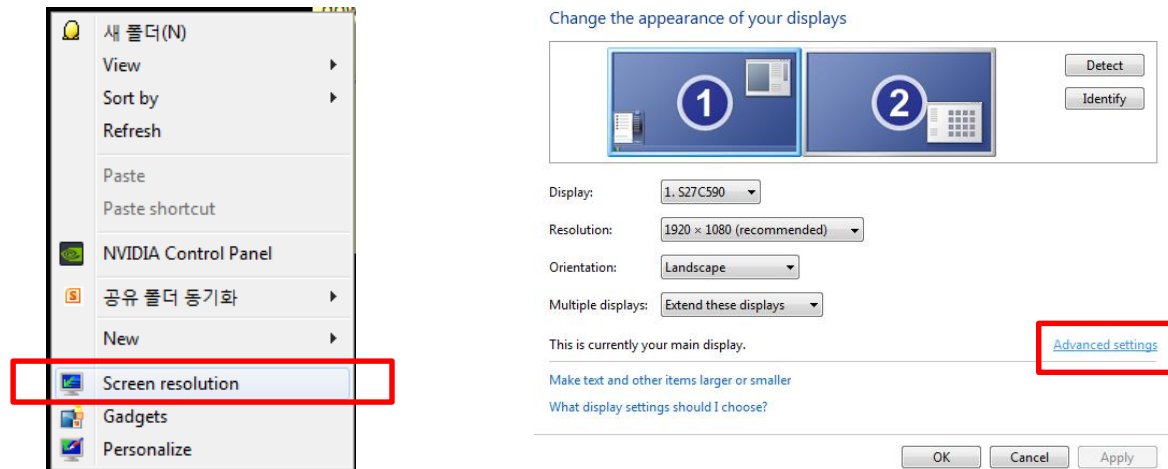
- 1) Setup supported resolution for grouping before the grouping function of multi s-box is run by LSM.
- 2) It can cause the noise of picture or blackout, if resolution is not supported.  
Please change the Video Wall is to OFF, and setup the resolution to supported timing.  
Refer to the next page for supported resolution.

※ From '17.06, LSM support S-Box Grouping. Check the latest LSM version.

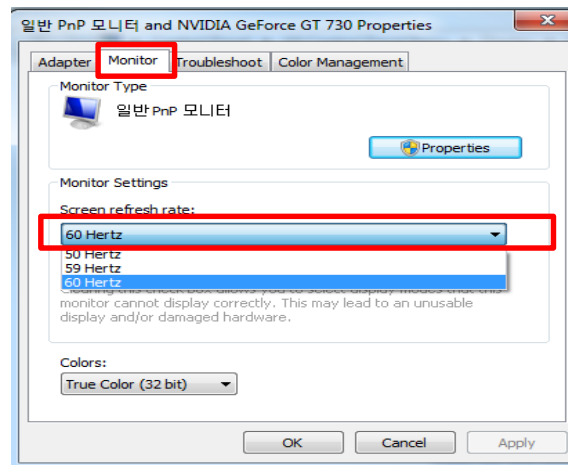
# 9. S-Box Installation and Connection

③ Setup the resolution of input PC

- PC : Click the right button of mouse → Click Screen resolution → Click Advanced settings



- Click "Monitor" tap → Monitor Settings → Setup "Screen refresh rate" to 60Hz



# 9. S-Box Installation and Connection

## ④ Supported resolutions for S-box Grouping (1/2)

| Resolution          | Horizontal Frequency (kHz) | Vertical Frequency (Hz) | Pixel Clock (MHz) | Sync Polarity (H/V) | S-Box Grouping Supported |
|---------------------|----------------------------|-------------------------|-------------------|---------------------|--------------------------|
| IBM/VESA, 640 x 480 | 31.469                     | 59.940                  | 25.175            | N / N               | -                        |
| Mac, 640 x 480      | 35.000                     | 66.667                  | 30.240            | N / N               | -                        |
| VESA, 640 x 480     | 37.861                     | 72.809                  | 31.500            | N / N               | -                        |
| VESA, 640 x 480     | 37.500                     | 75.000                  | 31.500            | N / N               | -                        |
| IBM, 720 x 400      | 31.469                     | 70.087                  | 28.322            | N / P               | -                        |
| VESA, 800 x 600     | 35.156                     | 56.250                  | 36.000            | P / P               | -                        |
| VESA, 800 x 600     | 37.879                     | 60.317                  | 40.000            | P / P               | -                        |
| VESA, 800 x 600     | 48.077                     | 72.188                  | 50.000            | P / P               | -                        |
| VESA, 800 x 600     | 46.875                     | 75.000                  | 49.500            | P / P               | -                        |
| Mac, 832 x 624      | 49.726                     | 74.551                  | 57.284            | N / N               | -                        |
| VESA, 1024 x 768    | 48.363                     | 60.004                  | 65.000            | N / N               | 0                        |
| VESA, 1024 x 768    | 56.476                     | 70.069                  | 75.000            | N / N               | -                        |
| VESA, 1024 x 768    | 60.023                     | 75.029                  | 78.750            | P / P               | -                        |
| VESA, 1152 x 864    | 67.500                     | 75.000                  | 108.000           | P / P               | -                        |
| Mac, 1152 x 870     | 68.681                     | 75.062                  | 100.000           | N / N               | -                        |
| VESA, 1280 x 720    | 45.000                     | 60.000                  | 74.250            | P / P               | 0                        |
| VESA, 1280 x 800    | 49.702                     | 59.810                  | 83.500            | N / P               | -                        |
| VESA, 1280 x 1024   | 63.981                     | 60.020                  | 108.000           | P / P               | 0                        |
| VESA, 1280 x 1024   | 79.976                     | 75.025                  | 135.000           | P / P               | -                        |
| VESA, 1366 x 768    | 47.712                     | 59.790                  | 85.500            | P / P               | -                        |
| VESA, 1440 x 900    | 55.935                     | 59.887                  | 106.500           | N / P               | -                        |

# 9. S-Box Installation and Connection

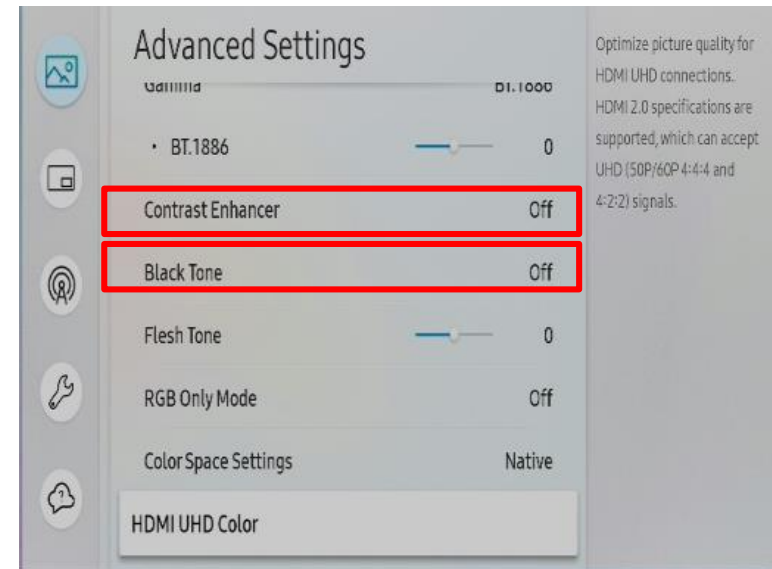
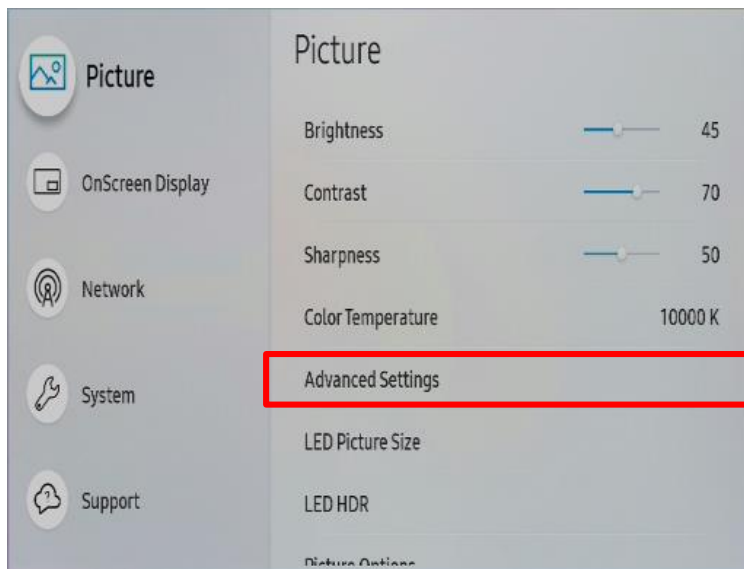
## ④ Supported resolutions for S-box Grouping (2/2)

|                              |         |        |         |       |   |
|------------------------------|---------|--------|---------|-------|---|
| VESA, 1600 x 900             | 60.000  | 60.000 | 108.000 | P / P | 0 |
| VESA, 1680 x 1050            | 65.290  | 59.954 | 146.250 | N / P | - |
| VESA, 1920 x 1080            | 67.500  | 60.000 | 148.500 | P / P | 0 |
| VESA CVT, 1920 x 1080        | 66.587  | 59.934 | 138.500 | P / N | - |
| VESA CVT, 2560 x 1440        | 88.787  | 59.951 | 241.500 | P / N | - |
| VESA CVT, 3840 x 2160        | 133.313 | 59.997 | 533.250 | P / N | - |
| CTA-861 VIC 3, 720 x 480     | 31.469  | 59.940 | 27.000  | N / N | - |
| CTA-861 VIC 4, 1280 x 720    | 45.000  | 60.000 | 74.250  | P / P | 0 |
| CTA-861 VIC 5, 1920 x 1080i  | 33.750  | 60.000 | 74.250  | P / P | - |
| CTA-861 VIC 16, 1920 x 1080  | 67.500  | 60.000 | 148.500 | P / P | 0 |
| CTA-861 VIC 18, 720 x 576    | 31.250  | 50.000 | 27.000  | N / N | 0 |
| CTA-861 VIC 19, 1280 x 720   | 37.500  | 50.000 | 74.250  | P / P | 0 |
| CTA-861 VIC 20, 1920 x 1080i | 28.125  | 50.000 | 74.250  | P / P | - |
| CTA-861 VIC 31, 1920 x 1080  | 56.250  | 50.000 | 148.500 | P / P | 0 |
| CTA-861 VIC 32, 1920 x 1080  | 27.000  | 24.000 | 74.250  | P / P | - |
| CTA-861 VIC 33, 1920 x 1080  | 28.125  | 25.000 | 74.250  | P / P | - |
| CTA-861 VIC 34, 1920 x 1080  | 33.750  | 30.000 | 74.250  | P / P | - |
| CTA-861 VIC 93, 3840 x 2160  | 54.000  | 24.000 | 297.000 | P / P | - |
| CTA-861 VIC 94, 3840 x 2160  | 56.250  | 25.000 | 297.000 | P / P | - |
| CTA-861 VIC 95, 3840 x 2160  | 67.500  | 30.000 | 297.000 | P / P | - |
| CTA-861 VIC 96, 3840 x 2160  | 112.500 | 50.000 | 594.000 | P / P | 0 |
| CTA-861 VIC 97, 3840 x 2160  | 135.000 | 60.000 | 594.000 | P / P | 0 |

# 9. S-Box Installation and Connection

## ⑤ Picture Menu Settings

- Such as "Dynamic Contrast", "Black Tone" and "Auto Motion plus" should be off when using S-Box Grouping, since it may causes a color difference between S-Box.
- Menu→ Picture → Advanced Settings,
  - Dynamic Contrast : default "Medium" → Off
  - Black Tone : default "Darker" → Off



- Menu→ Picture → Picture Options, Auto Motion plus : Off
- When using the Multi-link HDR function, settings below should be made.
  - Menu→ Picture → Picture Mode : Calibration
  - Menu→ Picture → LED HDR, Echo Image Enhancer : Off

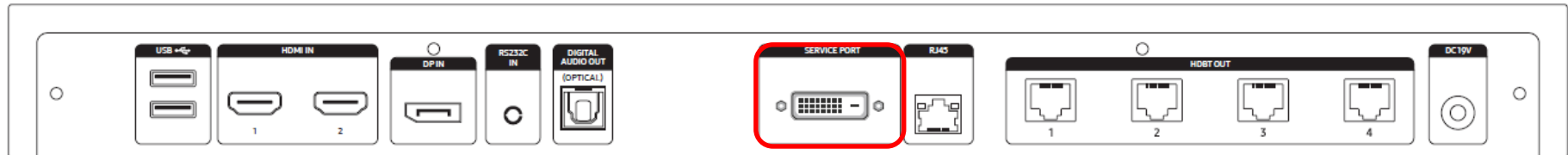


# 9. S-Box Installation and Connection

## • S-BOX Connection (Service port)

- ① The service port is dedicated port for monitoring to check the usage of OSD and the source being played at the initial installation of the S-BOX.
- ② Service port has FHD (1920\*1080 @60Hz) resolution.
- ③ When inputting UHD resolution source to S-BOX, screen flickering and break may occur, but the corresponding port output is due to 2:1 down scaling without specific scaling algorithm and is independent of actual LED cabinet screen output.

**[주의!]** This port is for servicing only and has no user function.  
Do not connect a cable to this port.



# 9. S-Box Installation and Connection

## • Turn on Simple wall mode

- Simple wall mode is a wall paper function for end customer who don't want to leave the Wall is black screen while in off status.
- If the Wall screen resolution is covered in a S-box, turn on Simple wall mode in Factory mode.

① Get into factory mode by below instruction.

- Connect IR receiver to S-box.

- Power off by remote controller → Wait for 10 seconds → Press Mute - 1 - 8 - 2 → Power on

② Move to Option → MRT option → SIMPLE WALL MODE SUPPORT → ON



MAIN Option MODE HDMI RES: 2160P

| Home            | Updates    | Exit                      |             |                          |     |
|-----------------|------------|---------------------------|-------------|--------------------------|-----|
| Front Color     | U-T-CL-MMB | BT Support                | OFF         | SPDIF Support            | ON  |
| Lvds Format     | JEIDA      | BT ADDRESS                | Not Support | HDR PLUS Support         | OFF |
| Language Set    | US         | HP LINE                   | LineOut     | OPTION_NUM               |     |
| Region          | USA        | Resolution                | UHD         | IPv6 Support             | ON  |
| PHP Language    | ENG_US     | Local Dimming             | 0           | TV Plus Support          | OFF |
| WIFI REGION     | S          | Wifi Vendor               | MT7603U     | Net5am Support           | OFF |
| OTM Support     | OFF        | Voice Recognition         | OFF         | EWBS Support             | OFF |
| OTA Support     | OFF        | MBR Support               | OFF         | 360 Audio Support        | OFF |
| Teletext (TTX)  | OFF        | Samsung Smart Control     | OFF         | Decor Mode Support       | OFF |
| BD Wise Plus    | OFF        | Simple IR Remote Control  | OFF         | Bendable Panel           | OFF |
| Extended PVR    | OFF        | Instant On                | OFF         | 802.1x Support           | OFF |
| HV Flip         | OFF        | Always Instant On Support | OFF         | Ambient Screen Support   | OFF |
| Light Effect    | OFF        | Motion plus               | DN          | Game Mode                | 0   |
| Network Support | Cable      | Sound Mirroring           | OFF         | MRT SYSTEM INFO          |     |
| Eco Sensor      | ON         | IOT Hub Support           | OFF         | SIMPLE WALL MODE SUPPORT | OFF |

**[Cautions!] Do not turn on Simple wall mode if the Wall screen is configured with multiple S-boxes. In multiple S-boxes usage, wall paper cannot be worked simultaneously.**

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

- **LSM Download Path**
  - **Samsung Display Solutions** (<https://displaysolutions.samsung.com>) # Download Permission Needed #  
[Samsung Display Solutions](#) > [SOLUTIONS](#) > [SOFTWARE SOLUTIONS](#) > [LED Signage Solution](#) > [LED Signage Manager](#)
  - **SLM** (<https://www.seclsm.com>) # Download Permission Needed #  
[SLM](#) > [Help](#) > [Download Center](#) > ["LED Signage Manager" or "LSM"](#)

#### CHOOSE CATEGORY

All (2)

Firmware

Software (1)

Manual (1)

Drawing

QSG

DATE

- All Dates
- Within Last Day
- Within Last Week
- Within Last Month
- Within Last Year



#### More resources available for partners!

Please register as a DS partner to receive a broader range of product resources such as software, installation guide, etc.

[REGISTER NOW >](#)

#### Results (2)

NEWEST ▾

| Name  | Category | File Size | Updated    | Downloads                      |
|---|----------|-----------|------------|--------------------------------|
| Samsung LED Signage Manager Installation Software | Software | 22.3MB    | 2020.01.07 | 501 <a href="#">DOWNLOAD</a>   |
| Samsung LED Signage Manager User Manual           | Manual   | 2.9MB     | 2019.06.04 | 1,836 <a href="#">DOWNLOAD</a> |

# 10. LSM Settings and How to Use

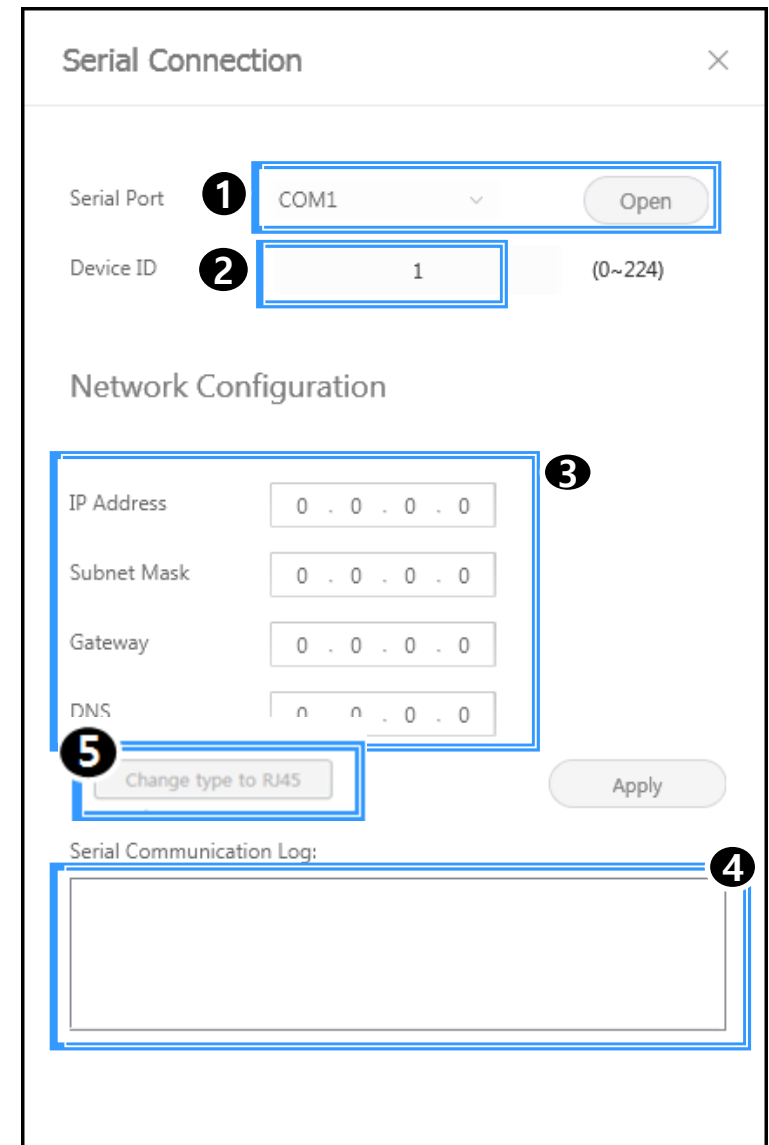
## 10-1. Control Program for PCs

### Network IP Setting Tool

Execute : [Start] – Program – Samsung – LED Signage Manager – Network Configuration

1. Connect PC and Sbox with RS232C Cable, select connected SerialPort(COM\*). And click "open" button.
2. Default ID of SBox is 1.
3. Enter IP, SubnetMask, Gateway, DNS of S-box, and click "Apply" button.
4. Check the result of connection and status of MDC Protocol.
5. When IP address is normally setup, "Change Type to RJ45" button is appear. If LSM and SBox is connected successfully, click "Change Type to RJ45". Then, PC connection with s-box is changed to RJ45 from RS232.

**[★ Cautions!] Recommend to use static IP address for the S-Box. If DHCP is used, IP address is changed automatically and LSM can be disconnected. The 192.168.10.x band is used for internal communication of the LED Cabinet. Please use IP another IP band (except 192.168.10.x band) Do not assign the temporary IP, assign the S-Box IP (1 EA) through IT manager.**



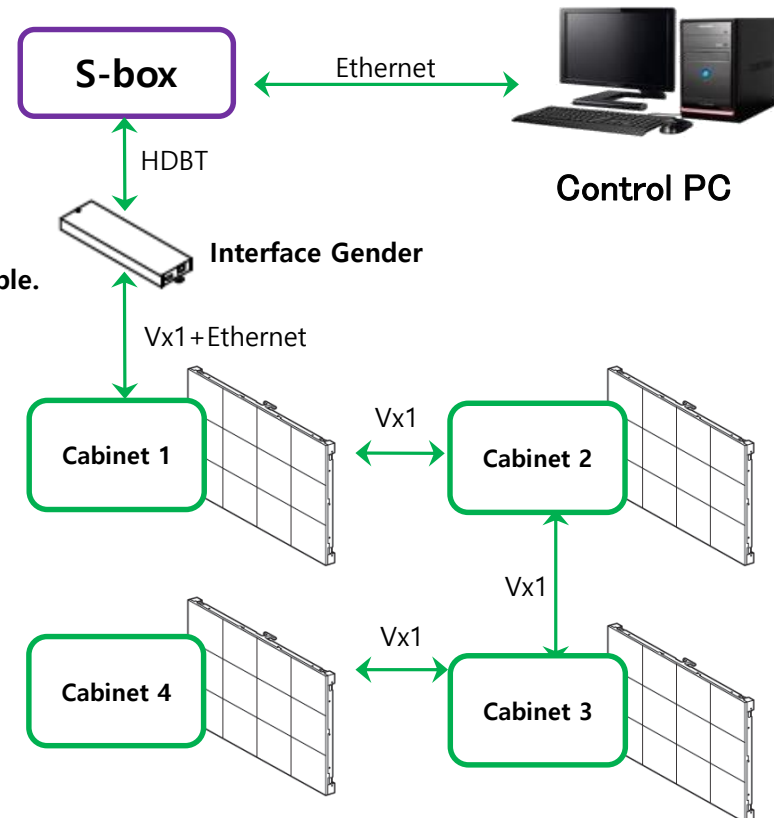
# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

- Software that adjusts the LED Cabinet Layout in Remote

1. PC and S-box should be connected through Ethernet connection.
2. S-box is connected to Interface Gender using HDB-T Lan Cable
3. Interface Gender is connected to the first LED Cabinet using OCM cable.
4. LED cabinets are connected in daisy chain method using OCM cable.

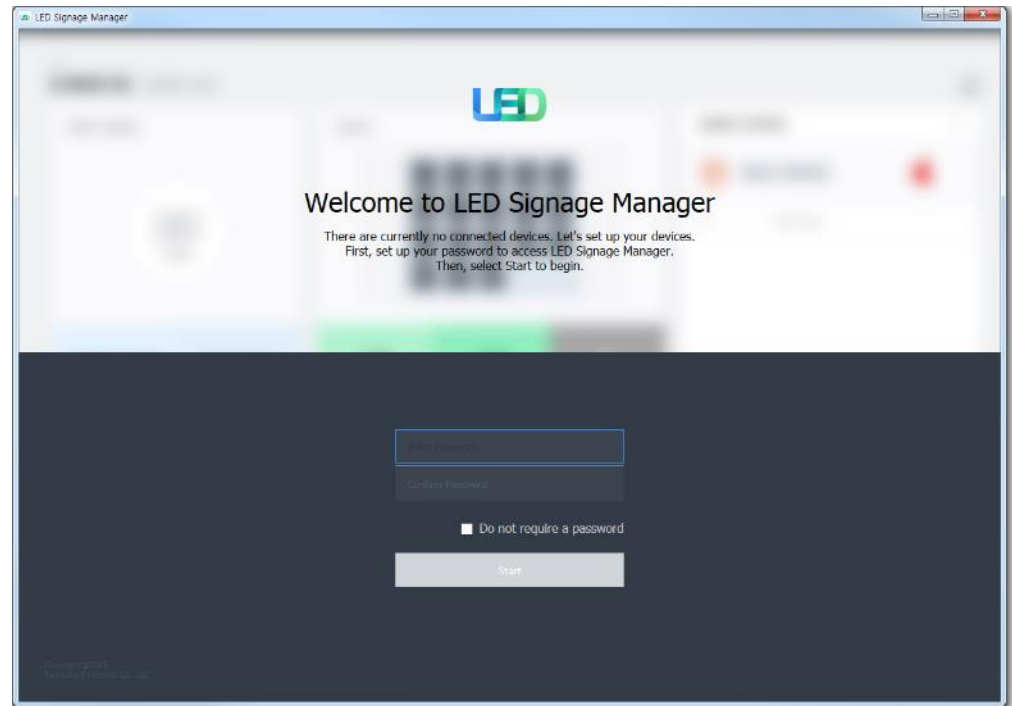


## 10-1. Control Program for PCs

### LED Signage Manager

#### Start– Login Page

1. If the LSM gets operated for the first time, the page to set the password will appear.
2. To set the password, users have to input the same password two times and then click the “Start” button.
3. If the user does not want to use a password, then please select “Don’t use password” option. Then, password input would no longer be required whenever the LSM gets operated.

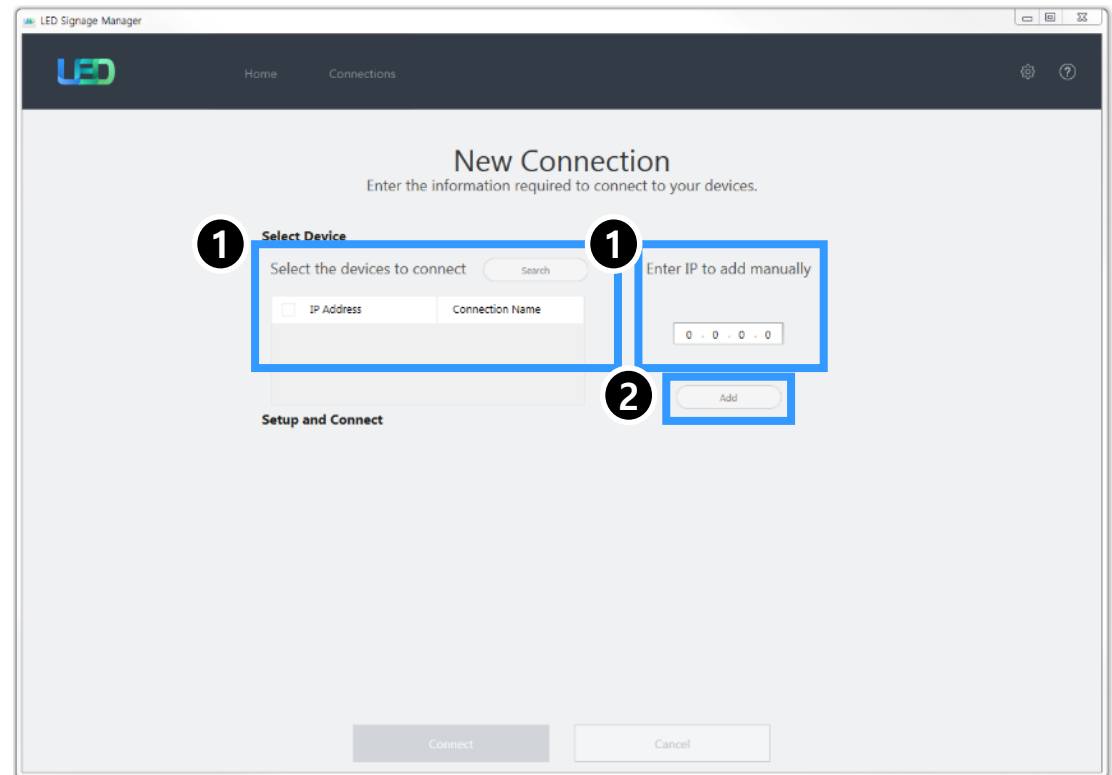


## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

#### • New Connection

1. To add connection information, you can either use Search function or input the IP address by yourself. If you click on the Search button, the IP addresses available on S-BOX in the same network will appear. If you know the IP address of the S-BOX, then you can input the address by yourself.
2. If you click Add button, the relevant connection information will be added on Setup and Connect.
3. Users can select the Model Type of S-Box. There are three(3) Model Types.  
(Without Cabinet IP / With Cabinet IP(FHD) / With Cabinet IP(UHD))



# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

#### New Connection-Connect

1. When you are using the previous version of S-BOX, select "Without Cabinet IP" option.
2. If you are using UHD S-BOX, select "With Cabinet IP (UHD)" option. You should designate the IP Address of the LED Cabinet by each port. Set the number of units connected, and then click "Connect".
3. If you are using FHD S-BOX, select "With Cabinet IP (FHD)". Set the IP Address and the number of units connected in LED Cabinet, and then click "Connect".

※ If you have already set the IP on the Cabinet, check "Connect with existing settings" option.

※ For the case of UHD, if you are going to use only some of the four(4) ports, input the IP Address only for that particular Group relevant with your use.

[★ Cautions!] Recommend to use static IP address for the LED devices. If DHCP is used, IP address is changed automatically and LSM can be disconnected. The 192.168.10.x band is used for internal communication of the LED Cabinet. Please use IP another IP band (except 192.168.10.x band) Do not assign the temporary IPs, assign the LED IPs (4 EA) through IT manager.

The screenshot shows the 'Setup and Connect' window with the following settings: S-Box: 192.168.1.1; Model Type: Without Cabinet IP; Cabinets: 1. There are two checked options: 'Connect with existing settings' and 'Assign IDs and Positions Automatically'.

The screenshot shows the 'Setup and Connect' window for 'With Cabinet IP (UHD)'. It features a warning icon and the text 'IMPORTANT ※ S-box와 다르게/각 그룹은 다르게 세팅'. Below this, there are four groups (Group 1 to Group 4), each with an IP Address field (all set to 0.0.0.0) and a Cabinets field (all set to 1). The 'Connect with existing settings' option is checked.

The screenshot shows the 'Setup and Connect' window for 'With Cabinet IP (FHD)'. It has S-Box: 192.168.1.1; Model Type: With Cabinet IP (FHD); and Group 1 with IP Address: 0.0.0.0 and Cabinets: 1. The 'Connect with existing settings' option is checked.



# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

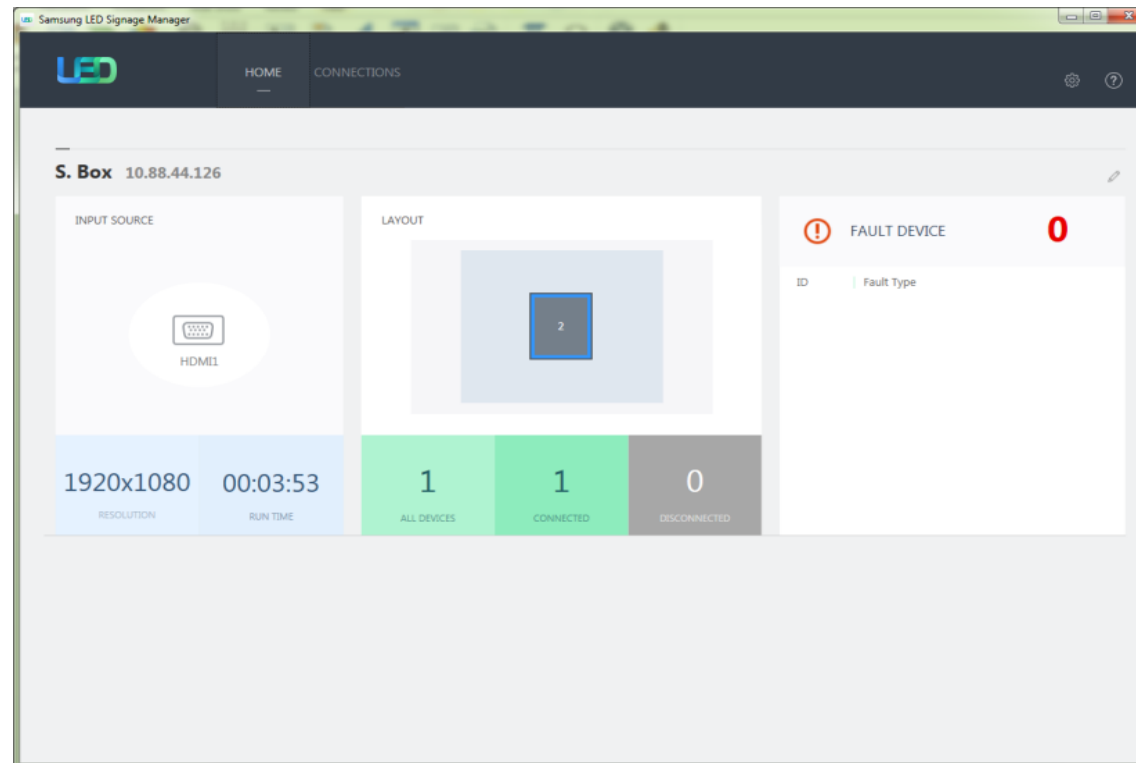
**[★ Cautions!]**

The network port 1515 and 48485 are used for internal communication between S-BOX and LED Cabinet.

It should be include the firewall or network exception if customer used secured network.

- **Main Window-Home Window**

1. Home Screen : Information of the connected device, input source, cabinet composition, and error device are shown.

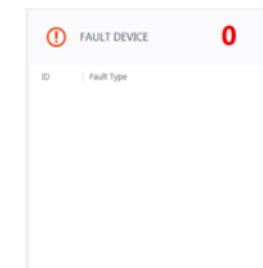
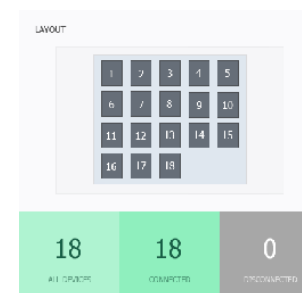
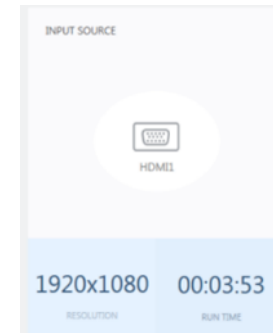


## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

- **Main Window-Home Window**

1. **Input source:** Input source, resolution, connection time of S-BOX are shown.
2. **Cabinet Layout :** Layout, number of units, number of connections and number of disconnections in all LED cabinets are shown.
3. **Faulty device:** ID of the LED cabinet in error status and the content of the error are shown.

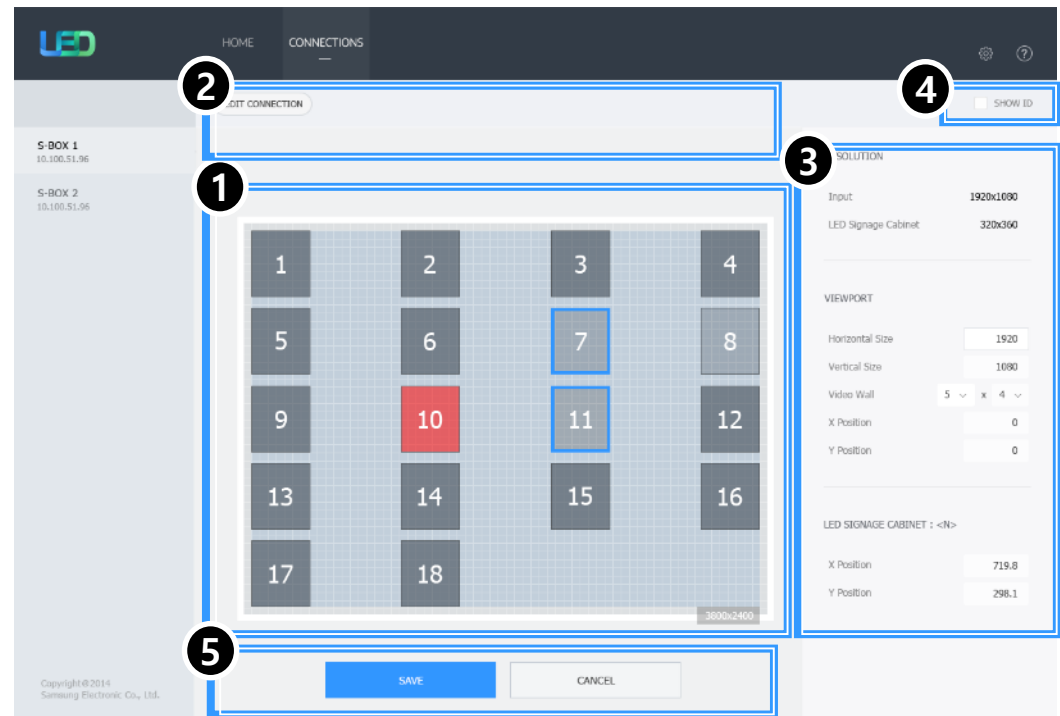


## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

#### Main Window-Edit Connection Layout Window

1. **Connection layout:** The location and the layout of each LED cabinet are adjusted in the output source area of the S-BOX.
2. **Feature View:** Edit button to modify the connection information and LED cabinet automatic alignment function, etc. are provided.
3. **Device Information/Setting View:** The LED cabinet information is shown for in three different categories below:
  - (i) **Resolution:** Resolution information of the input source
  - (ii) **View Port:** Width/Length size, Video wall matrix, x/y coordinate settings
  - (iii) **LED Signage Cabinet:** x, y location of LED cabinet
4. **Show ID:** IDs of each will be shown in all connected LED cabinets when this option is selected.
5. **Save/Apply and Cancel**



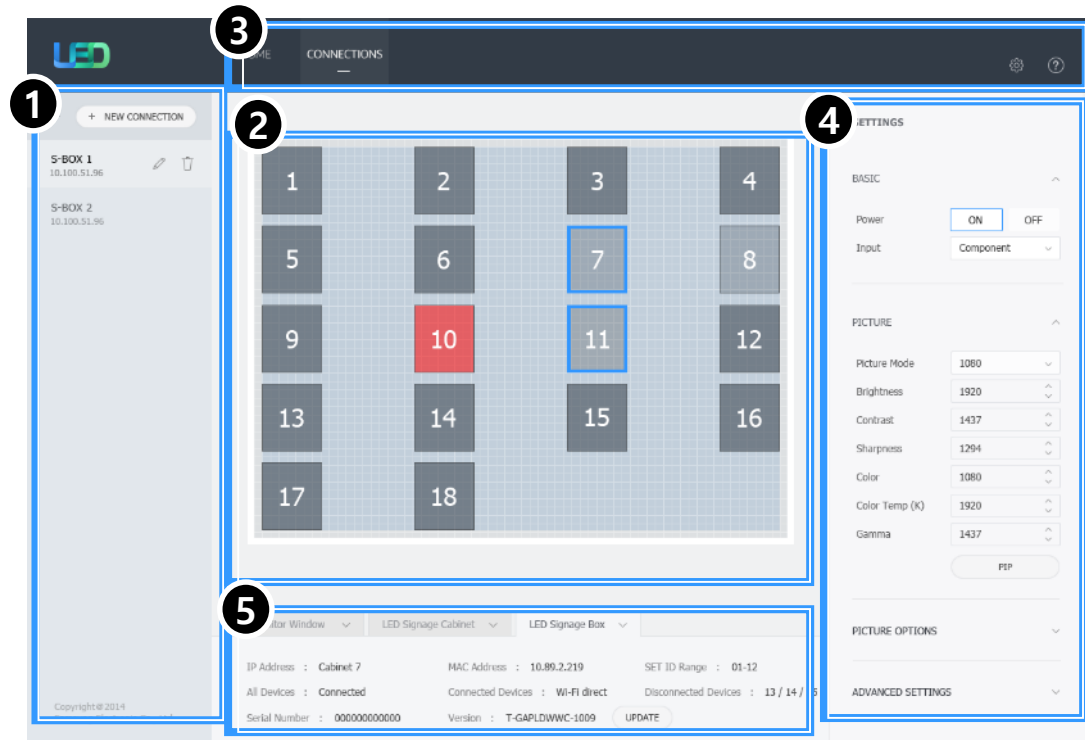
# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

#### Main Window-Connection Window

1. Device connection list view:  
Check S-BOX composition, modify and delete S-BOX connection, show by each LED Cabinet Group
2. Connection layout (View Port):  
Check the location and layout of each LED cabinet
3. Category View:  
Home / Connections tab and settings
4. Device Information/Setting View:  
Change S-BOX settings (screen settings, etc.)
5. Sub Information View: Displays:  
Monitoring log, S-BOX and LED cabinet information



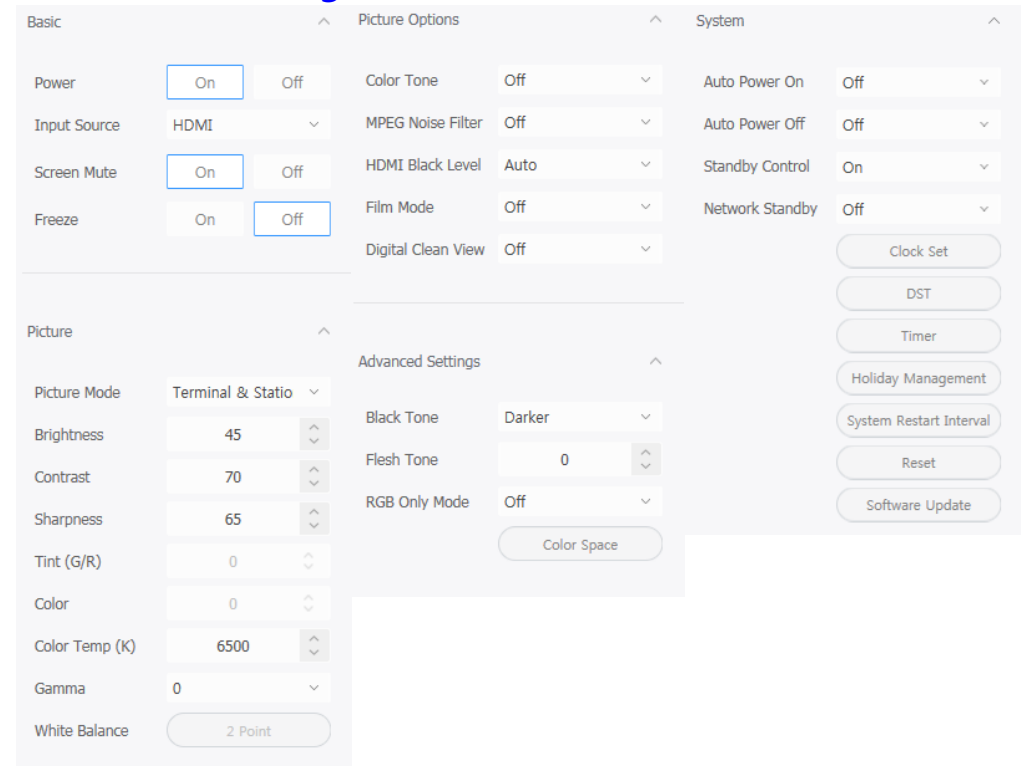
# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

#### Main Window-Connection Window - Device Information/Setting View

- 1. Basic :**
  - . Power On/Off, Change input source, Screen Mute / Freeze, Menu Size
- 2. Picture**
  - . Change Picture Mode, Brightness / Contrast / Sharpness, Color, Tint(G/R), Color Temp(K), Gamma, White Balance adjustment
- 3. Picture Options**
  - . Color Tone, HDMI Black Level, Film Mode, etc.
- 4. Advanced Settings**
  - . Adjust Black Tone, Flesh Tone, Color Space, etc.
- 5. System**
  - . Auto Power On/Off, Standby Control  
Clock, Timer, System Restart Interval  
Software Update function



# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

- **Main Window – Connections Window – Device Information / Settings View**

### 3. LED Cabinet Calibration

#### . Cabinet Calibration

##### └ Cabinet RGB CC

: Control RGB CC Matrix by Cabinet unit.

##### └ Module RGB CC

: Control RGB CC Matrix by Module unit.

##### └ Edge Correction

: Control the contrast of each edge by Module unit.

##### └ Multiple Selection

: Control all the Cabinet edge connected with same channel at once.  
The contrast of selected edge can be controlled as offset input value.

##### └ Block RGB CC (High / Low)

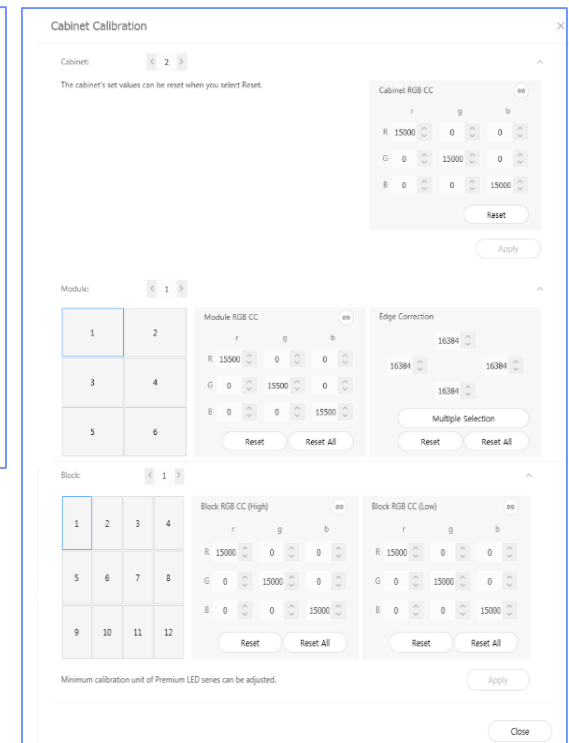
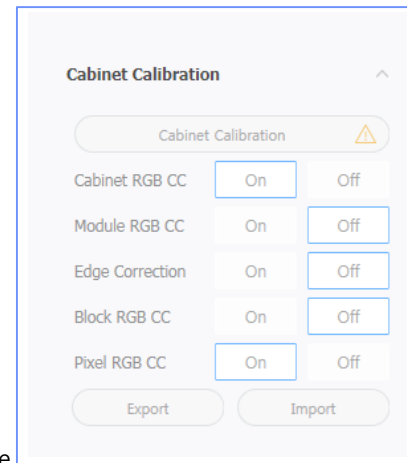
: Control RGB CC Matrix by Block unit. (High / Low each)

#### . On / Off Function (Cabinet RGB, Module RGB, Edge, Block RGB, Pixel RGB)

: Each correction value can be turned on / off by this toggle.

#### . Export / Import

: All the values of Cabinet Calibration can be extracted as a file or imported to the cabinet for the selected cabinets.  
This function can be used for CC data Back-up or importing a number of Cabinets at once.



# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

- Main Window – Connections Window – Sub Information View

1. Monitor Window:  
Checking MDC communication log and connected device information available, able to be extracted via file
2. LED Signage Cabinet:  
IC information and Power information of LED cabinet
3. LED Media Box:  
IP address, MAC address, ID range of LED cabinet, number of LED cabinet (all/connected/not connected), serial number, version information

The screenshot displays the LSM software interface with three main sections:

- Monitor Window:** Shows a log of communications. The 'Communications' checkbox is checked. The log contains several entries with timestamps, IP addresses, and status reports for various components like FPGA, PW Detector, and Temperature.
- LED Signage Cabinet:** Displays physical and environmental details:
  - ID : 2
  - Resolution : 480x540
  - Phy Size : 403x453 mm
  - Aspect Ratio : 8:9
  - Modules : 4x3
  - Pitch : 0.84
  - Temperature : 30
- LED Media Box:** Shows IC and Power status:
  - IC: FPGA : Available, Power Detect IC : Available
  - Power: 4.2V : Available, 5V : Available, 3.3V : Available
  - LED Open Detection: M1 : 0, M2 : 0, M3 : 0, M4 : 0, M5 : 0, M6 : 0

At the bottom, the 'Monitor Window' section shows system information:

- IP Address : 192.168.176.2
- MAC Address : 24:F5:AA:E7:76:3D
- All Devices : 128
- Connected Devices : 128
- Version : TB-KTM2SBMDWWC-0619.20
- Valens : <br>TB-VSTXSHWWS1-06.06.06<br>TB-VSTXSHWWS2-06.06.06<br>
- Model Name : SBB-SNOWJ3U

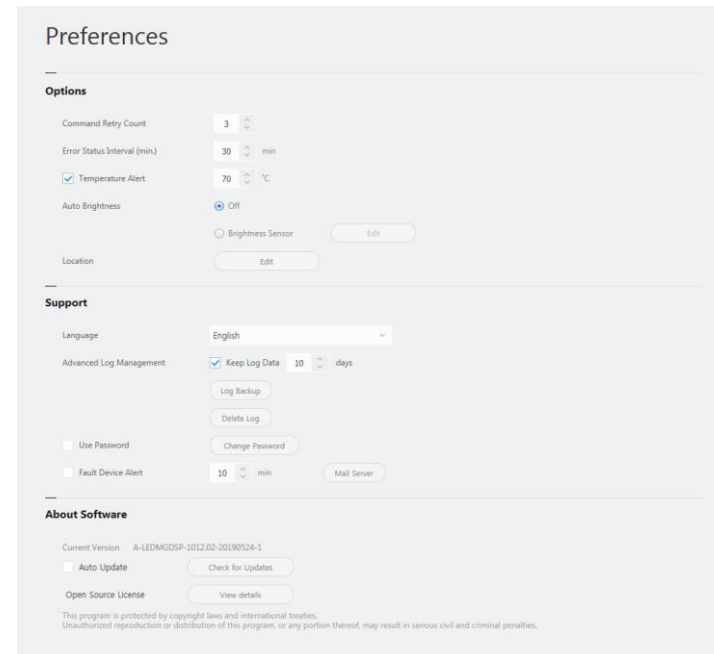
# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

- **Main Window - Preferences**

1. **Options**
  - number of times the command retried
  - interval of checking error status
  - alarm temperature warnings
2. **Support**
  - program language
  - Log data management
  - notify device error through Mail
  - Password settings option
3. **About Software**
  - the current version of LSM and update function





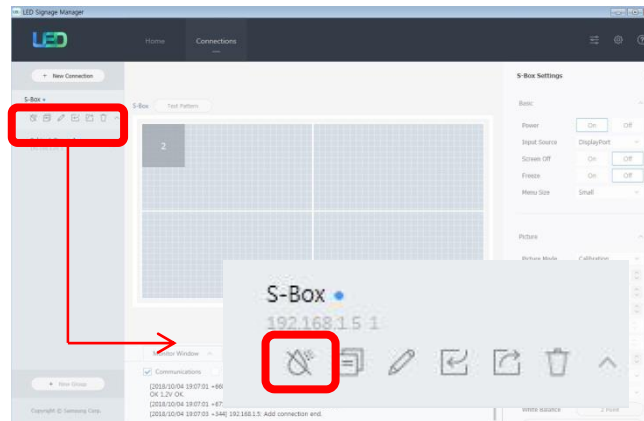
# 10. LSM Settings and How to Use

## 10-1. Control Program for PCs

### LSM(LED Signage Manager)

#### Dehumidification mode using LSM

1. Dehumidification button is located in S-Box menu.
2. When you click the button, dehumidification starts.
3. You can see how long it takes.
4. Press 'stop' button if you want stop.

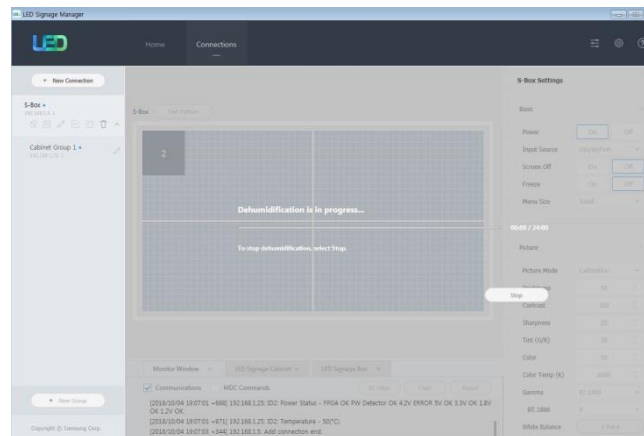


#### Notice

Are you sure you want to stop dehumidification? If LED displays are not dehumidified and remain unused for a long time, this may have a critical impact on the displays.

Yes

No



#### Notice

Are you sure you want to stop dehumidification? If LED displays are not dehumidified and remain unused for a long time, this may have a critical impact on the displays.

Yes

No

## ■ S-Box Network Connection via LSM

### ① When LSM cannot find S-Box or shows disconnected message

- Check Ethernet Cable Connection.
- Check IP settings of S-Box.
- Check the target IP of S-Box in LSM.
- Check PC communication type in S-Box as "RJ45"
  - ★ HOME -> Device ID -> PC Communication -> "RJ45" using Remote controller
- Check the connection with network test program like Ping test.
  - ★ CMD -> ping xxx.xxx.xxx.xxx (S-Box IP address) at PC
- Restart LSM.

### ② When LSM cannot find cabinet connected to S-Box

- Check OCM cable connection between cabinet and IG and reconnect the cable
- Check IP address of cabinet in LSM
  - (Do not use band of 192.168.10.xxx, because the band is used for internal communication of cabinets)
- Check the connection with network test program like Ping test
- Reset the Cabinet.
- Restart LSM.

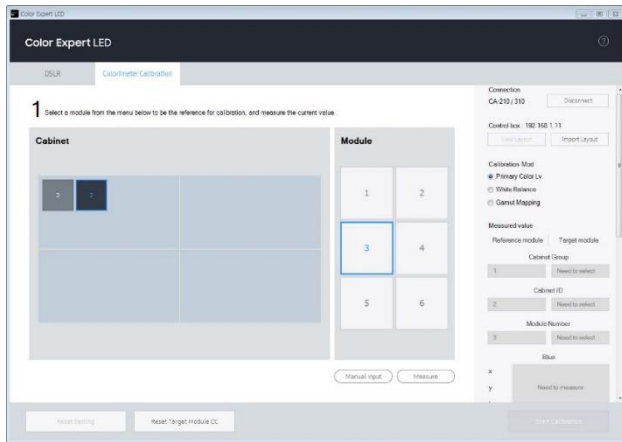
## ■ On-Site Calibration

- Calibration function provided via measurement device (Colorimeter) and mobile devices.
- Module calibrations can be automated by S/W.
- Module / Half Cabinet / Cabinet / Screen Calibration function provided.
- Can be used as Install / Maintenance purpose  
: Calibration available for Spare / Service Module

|                  | Measurement Device (Colorimeter)       |        |        | Mobile                        |
|------------------|--|--------|--------|-------------------------------|
| Model            | CA-210                                 | CA-310 | CA-410 | Galaxy Note 8 and later model |
| Vendor           | Minolta                                |        |        | Samsung                       |
| Type             | Contact Type                           |        |        | Untact Type                   |
| Calibration Type | RGB Lv / White Balance / Gamut Mapping |        |        | White Balance                 |

## ■ On-site calibration using measurement device (Colorimeter)

- Install calibration S/W(Color Expert LED for PC) on PC and connect measurement device, then you can choose Reference / Target Module to calibrate.
- . Download path for Color Expert LED to PC
  - Samsung Display Solution ([displaysolutions.samsung.com](http://displaysolutions.samsung.com)) # Download Permission Needed #  
Samsung Display Solutions > SOLUTIONS > SOFTWARE SOLUTIONS > LED Signage Solution > Color Expert LED
- Measured Value or User input can be used as a reference value.



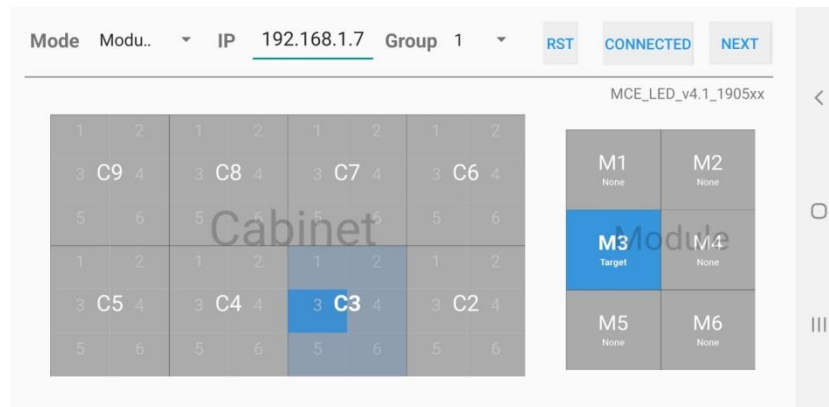
- PC Colorimeter Calibration Manual



Calibration\_Coloi  
meter

## ■ On-site calibration using mobile device

- Install and launch Calibration S/W(Color Expert LED for Mobile) app on the mobile device, and connect the network.
  - . Download Path for Color Expert LED to PC  
Samsung Display Solution ([displaysolutions.samsung.com](http://displaysolutions.samsung.com)) # Download Permission Needed #  
[Samsung Display Solutions](#) > [SOLUTIONS](#) > [SOFTWARE SOLUTIONS](#) > [LED Signage Solution](#) > [Color Expert LED](#)
- Choose calibration unit. (Module or Cabinet)
- Specify Reference and Target.
- Set viewing location using red guidelines and launch White Balance Correction.



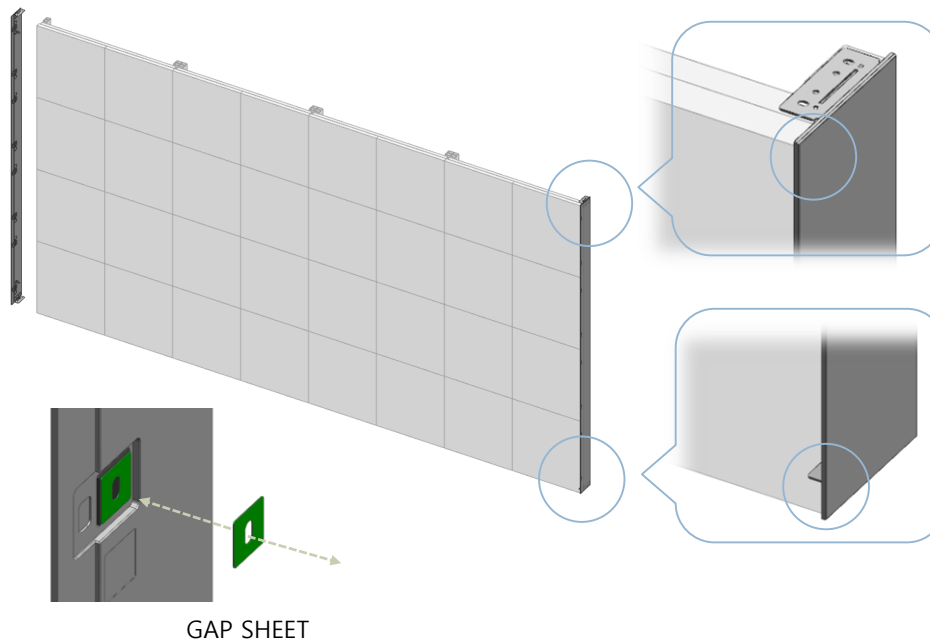
- Mobile Calibration Manual



# 13. Bezel Installation

## ◇ Bezel Installation

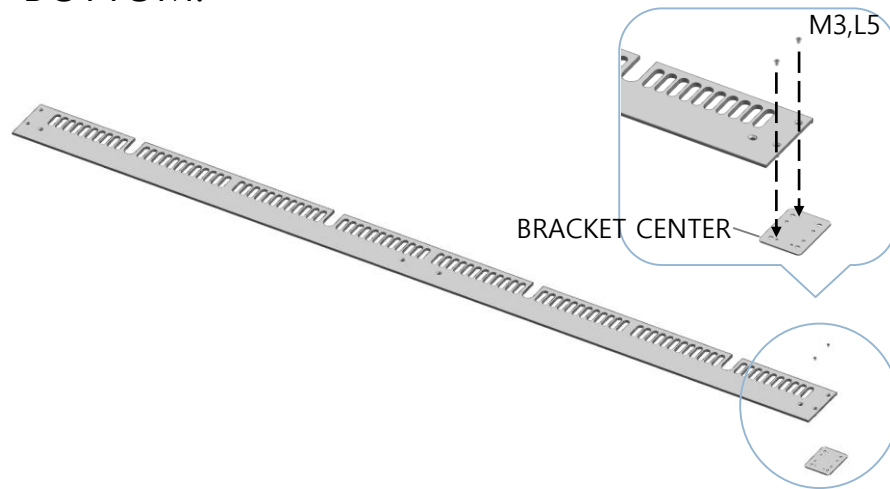
1. Attach ASSY FRAME-BEZEL SIDE to the cabinets.
  - Check the allowable gaps for each FRAME-BEZEL SIDE.
  - If the gaps need to be adjusted, put the Gap sheet on the magnet side.
  - Check the angle of the BRACKET CORNER unit, which should be at 90° before and after installing the FRAME-BEZEL SIDE.



# 13. Bezel Installation

## ◇ Bezel Installation

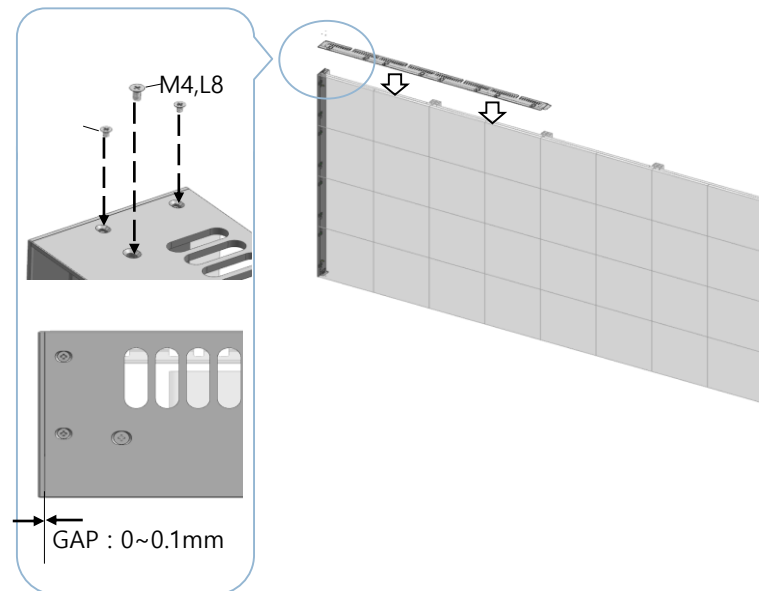
2. Use M3L5 screw to mount the BRACKET LINK to the right side of the FRAME BEZEL TOP BOTTOM.



# 13. Bezel Installation

## ◇ Bezel Installation

3. Place the ASSY FRAME-BEZEL TOP BOTTOM to the top left of the cabinet.
  - Align the FRAME-BEZEL SIDE and FRAME-BEZEL TOP BOTTOM to ensure there is no gap between them.
  - Use 2 M3L5 screws to mount the left side of the FRAME BEZEL TOP BOTTOM to the FRAME BEZEL SIDE.
  - Use 1 M4L8 screw to mount the left side of the FRAME BEZEL TOP BOTTOM to the screw hole on the cabinet.

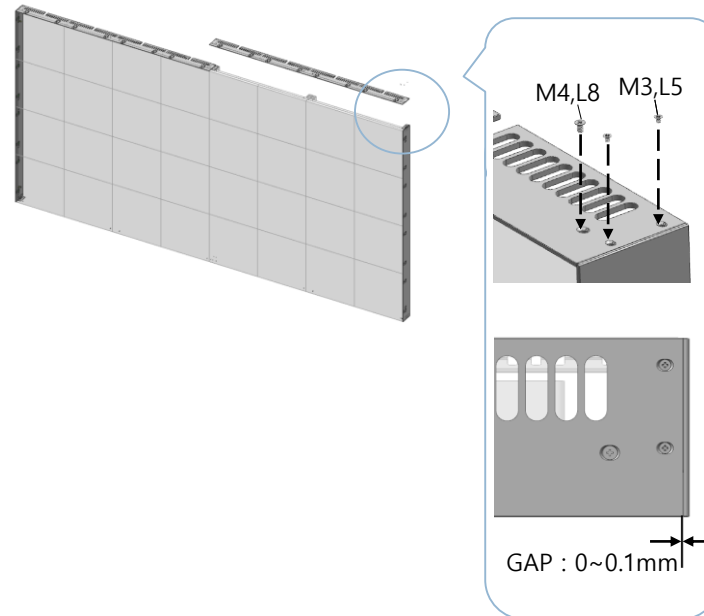




# 13. Bezel Installation

## ◇ Bezel Installation

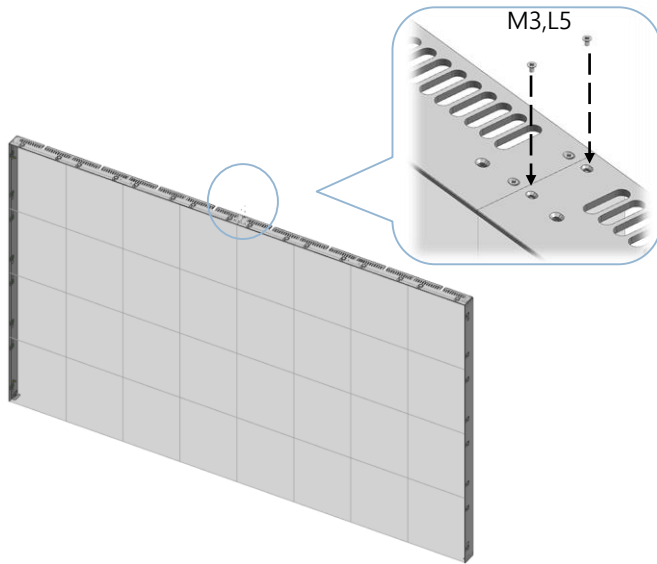
4. Place the FRAME-BEZEL TOP BOTTOM to the top right of the cabinet.
  - Align the FRAME-BEZEL SIDE and FRAME-BEZEL TOP BOTTOM to ensure there is no gap between them.
  - Use 2 M3L5 screws to mount the right side of the FRAME BEZEL TOP BOTTOM to the FRAME BEZEL SIDE.
  - Use 1 M4L8 screw to mount the right side of the FRAME BEZEL TOP BOTTOM to the screw hole on the cabinet.



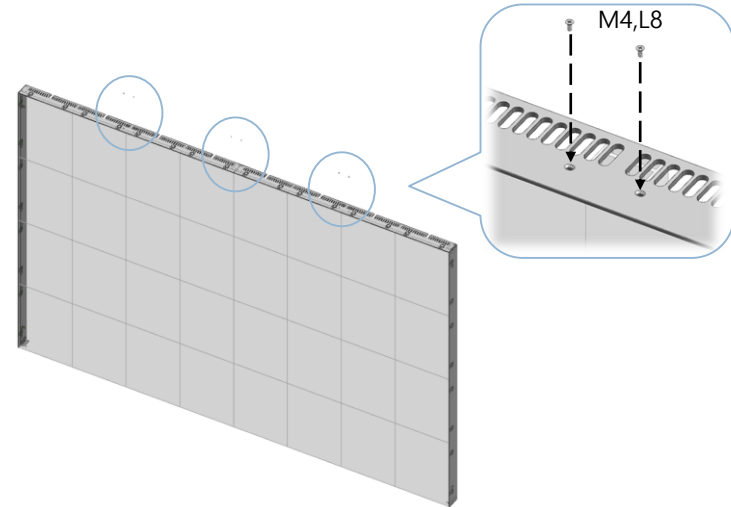
# 13. Bezel Installation

## ◇ Bezel Installation

5. Use 2 M3L5 screws to mount the left side of the FRAME-BEZEL TOP BOTTOM. [Fig.1]
6. Use 6 M4L8 screws to mount the FRAME BEZEL TOP BOTTOM to the screw holes on the cabinet. [Fig.2]



[Fig.1]



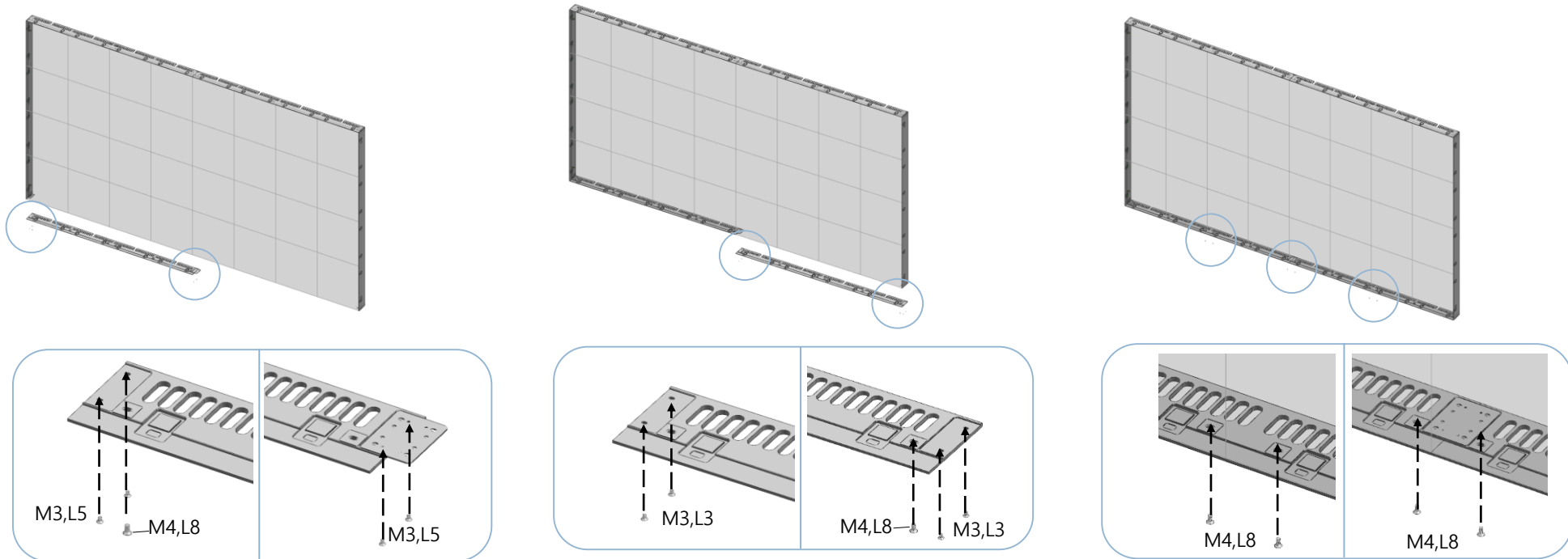
[Fig.2]

# 13. Bezel Installation

## ◇ Bezel Installation

7. Install the bezel on the lower side of cabinet following former 2<sup>nd</sup>~6<sup>th</sup> process.

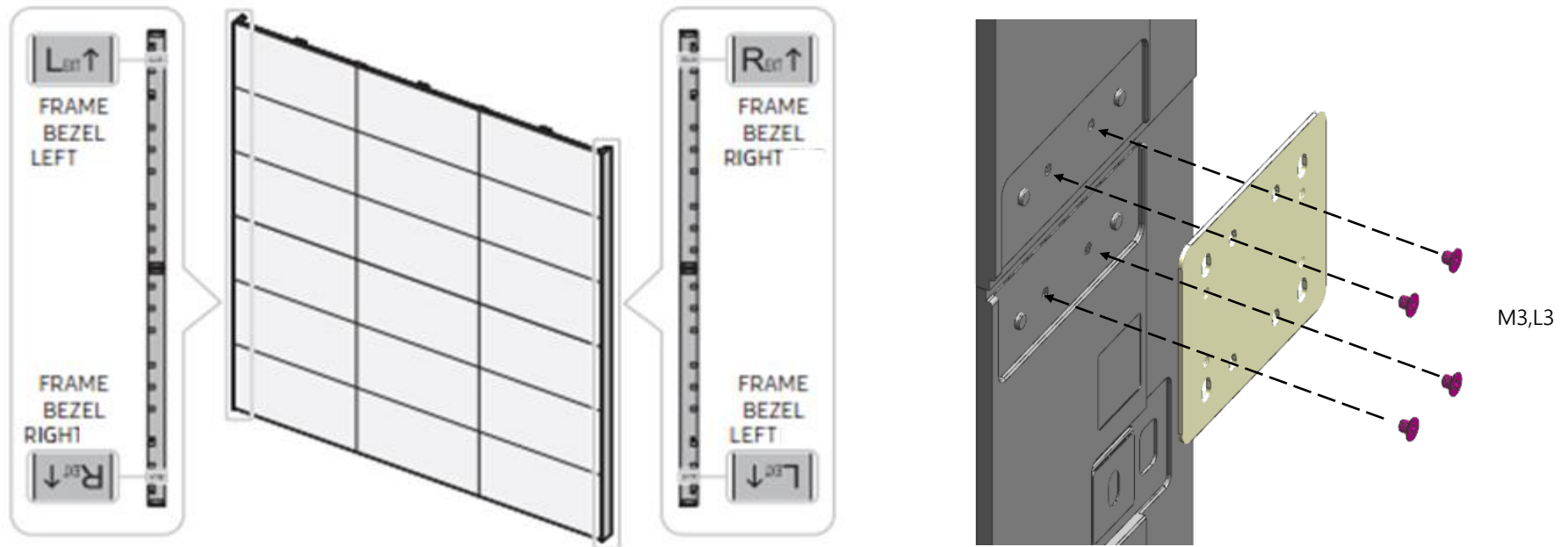
\* Be cautious of gaps not to be made at the point between FRAME BEZEL SIDE and FRAME BEZEL TOP BOTTOM.



# 13. Bezel Installation

## ◇ Bezel Extension

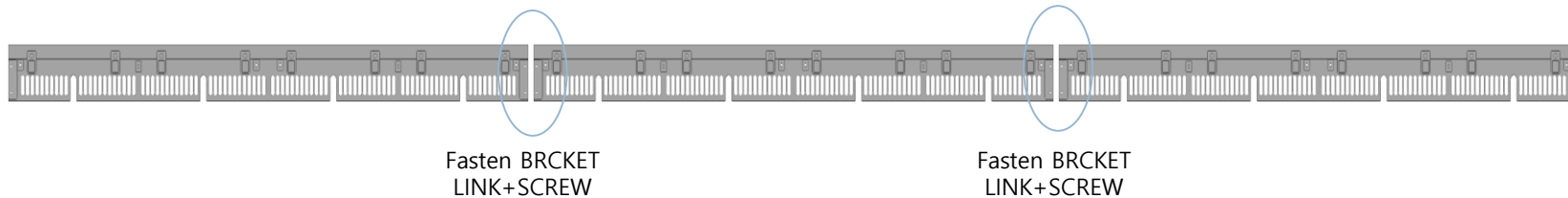
- Vertical Extension
  - Connect FRAME-BEZEL LEFT & RIGHT for over 5~8 Cabinets using M3L3 screws.



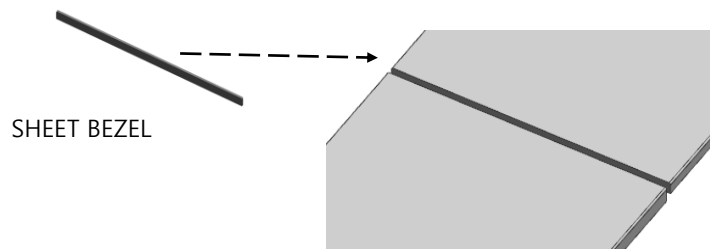
# 13. Bezel Installation

## ◇ Bezel Extension

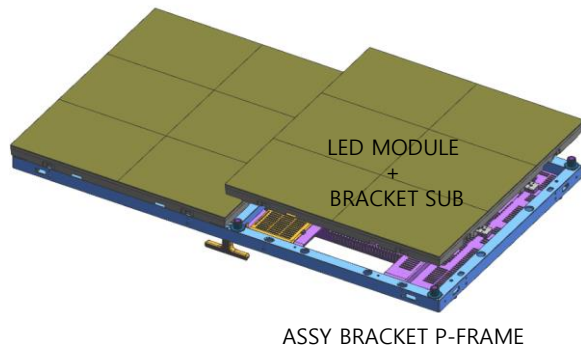
- Horizontal Extension
  - Follow the basic installation steps of bezel installation in case of horizontal extension.
  - If you had installed 6 Cabinets horizontally, you need 3 Frame Bezel Top & Bottom.



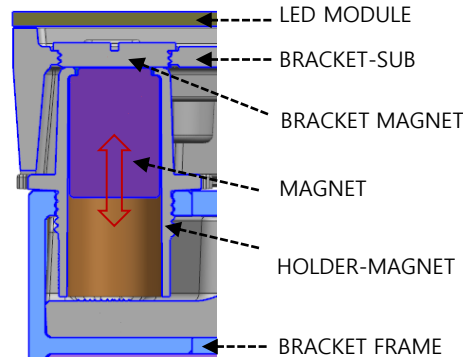
- Using SHEET BEZEL
  - If there is a gap between bezels, attach Sheet Bezel between bezels.



# 14. Reference – Module Attachment Principle

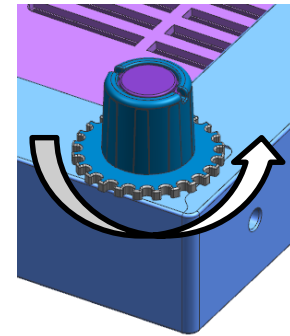


## Section view

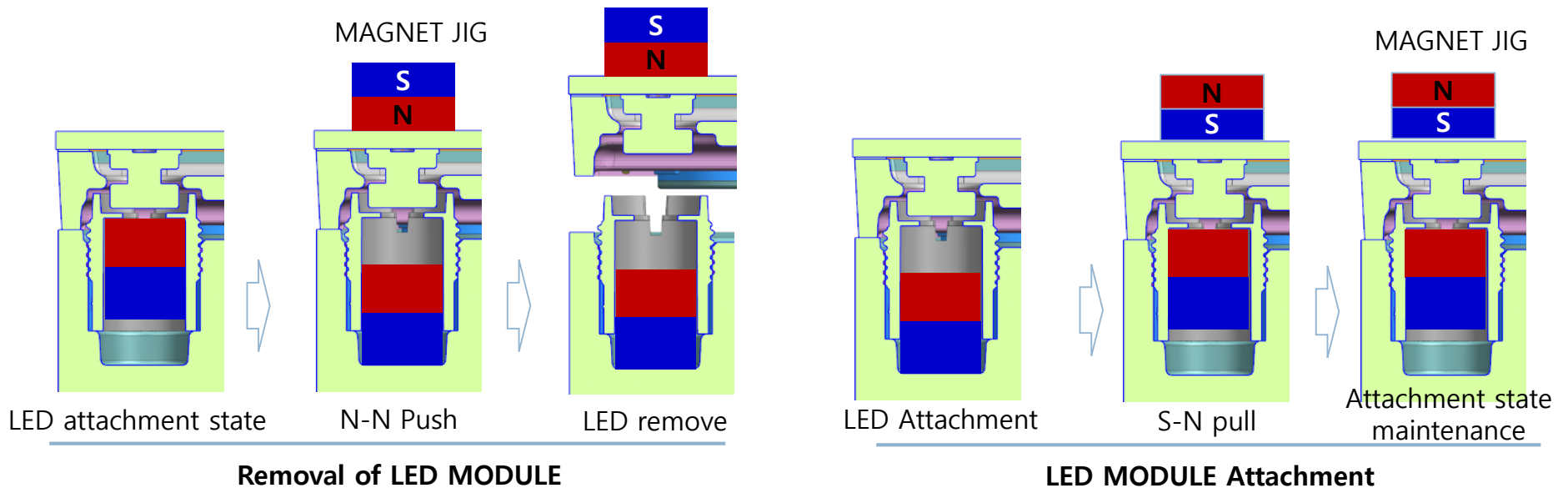


## HOLDER-MAGNET

It is possible to adjust height by driver. (4 points per module)  
=> Return in a CCW direction (1mm per 1 rotation)

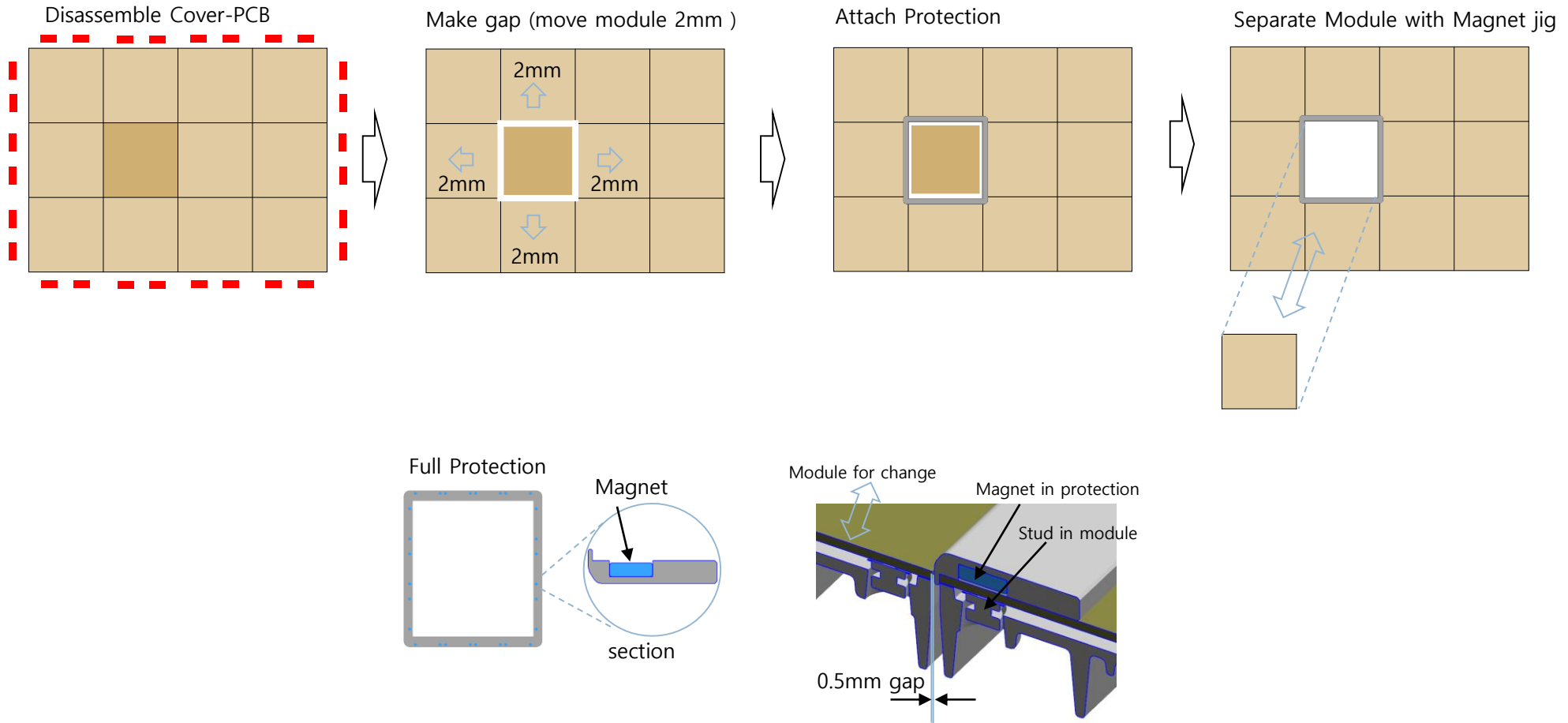


## < Operating Principle >
















# 14. Appendix - How to separate Module

## < Edge protection >



# 14. Appendix ※ HDBaseT Certified Cables Samsung Electronics


















★ For HDBT signal stability, do not use CAT5E cables even though the cables are included in the following list

| Vendor  | Model Name  | Vendor   | Model Name   |
|---|---|--|--|
| SCP                  | HNCPRO(TM) HOME NETWORK CABLE PROFESSIONAL<br>HNCPRO(TM) HOME NETWORK CABLE PROFESSIONAL PLUS   | Trends Electronics  | Cat 5E/SHLD-BLU<br>Cat 5e/350 Mhz<br>Cat 6 STP<br>Cat 6/550mhz   |
| Be;dem               | West Penn Wire 4246F<br>West Penn Wire 4246AF<br>West Penn Wire 254246F<br>West Penn Wire 254246AF<br>AV6SHP<br>AV6SHR<br>2183R- F/UTP 2183P- F/UTP   | Vertical Cable      | 350-CAT5E<br>550-CAT6  |
| Extron Electronics   | XTP-DTP-24  | Metz Connect GmbH   | Cat.7A AWG 22 S/FTP  |
| C2G                  | 23AWGX4P  | Bluestream   | CAT6HDBT   |
| Crestron             | DM-CBL-8G-NP<br>DM-CBL-8G-P<br>DM-CBL-ULTRA-P   | Leviton             | Leviton Extreme 6A UTP<br>Leviton CAT6A F/UTP  |
| FS Cables            | TruHD Cat 5E UTP 350MHz PVC<br>TruHD Cat 5E UTP 350MHz LSZH<br>TruHD Cat 6 UTP 500MHz PVC<br>TruHD Cat 6 UTP 500MHz LSZH<br>TruHD Cat 6 F/UTP 500MHz LSZH<br>TruHD Cat 6A F/UTP 650MHz LSZH   | Huaxun              | CAT6 AWG23 U/UTP<br>CAT7A AWG22 S/FTP (CMR)<br>CAT6A AWG23 F/UTP (CM)<br>CAT6A AWG23 F/UTP (CMR)<br>HT-A0423AF6A-<br>PMS-001 Cat6A<br>F/UTP  |
| ICE Cable Systems  | ICE Cat 5e 350mhz<br>ICE Cat 6 550mhz<br>ICE Cat 5e Plenum<br>ICE Cat 5e Direct Burial<br>ICE Cat 5e Shielded<br>ICE Cat 5e LSZH<br>ICE Cat 6 Plenum<br>ICE Cat 6 Direct Burial<br>ICE Cat 6 Shielded<br>ICE Cat 6 LSZH<br>ICE Cat 6 Shielded LSZH<br>ICE Cat 5e Siamese<br>ICE Cat 6A<br>ICE Cat 6 Outdoor<br>ICE Cat 5e Outdoor | Black Box          | GigaTrue® 650 Cat 6A, 650-MHz UTP Plenum<br>GigaTrue® 650 Cat 6A, 650-MHz UTP PVC<br>GigaBase® 350 Cat 5e, 350-MHz UTP Plenum<br>GigaBase® 350 Cat 5e, 350-MHz UTP LSZH<br>GigaTrue® 550 Cat 6, 550-MHz UTP PVC<br>GigaTrue® 550 Cat 6, 550-MHz UTP Plenum<br>GigaTrue® 550 Cat 6, 550-MHz UTP LSZH<br>Black Box Cat 5e, Shielded F/UTP PVC<br>Black Box Cat 5e, Shielded F/UTP Plenum<br>Black Box Cat 5e, Shielded F/UTP LSZH<br>Black Box Cat 6, Shielded F/UTP PVC<br>Black Box Cat 6, Shielded F/UTP Plenum<br>Black Box Cat 6, Shielded F/UTP LSZH<br>GigaTrue® 650 Cat 6A, 650-MHz UTP LSZH<br>Black Box Cat 6A, Shielded F/UTP PVC<br>Black Box Cat 6A, Shielded F/UTP Plenum<br>Black Box Cat 6A, Shielded F/UTP LSZH |



# 14. Appendix ※ HDBaseT Certified Cables Samsung Electronics

★ For HDBT signal stability, do not use CAT5E cables even though the cables are included in the following list

| Vendor  | Model Name  | Vendor   | Model Name   |
|---|---|--|--|
| Kramer Electronics     | BC-HDKat6a<br>BC-UNIKat   | Snap AV                   | SP-CAT6A-1000-BLU  |
| IDK                    | CAT. 5E HDC-CABLE (SF/UTP)  | Nien-Yi Industrial Corp.  | NY-CAT.5E-UTP<br>NY-CAT.6-UTP  |
| Hitachi Cable America  | Category 7 HDBaseT  | Panduit                   | PUP6AM04 – Cat. 6A, Advanced MaTriX, U/UTP cable, Plenum (CMP) Rated<br>PFP6X04 – Cat. 6A, F/UTP cable, Plenum (CMP) Rated |
| Superior Essex         | 10Gain XP CAT 6A<br>PowerWise CAT 5e+<br>CAT 6+ F/UTP   | Webro Limited             | Cat5e U/UTP<br>Cat6 U/UTP  |
| Wonderful Hi-Tech      | WONDERFUL CAT.6 LAN CABLE<br>WONDERFUL CAT.6A LAN CABLE<br>WONDERFUL CAT.7A LAN CABLE<br>TSP2304SXX Cat6A FTP | Aten Internation Inc.     | 2L-2910  |
| connectorCo            | VELOCITY PREMIUM CAT6 UUTP<br>VELOCITY PREMIUM C5E UUTP<br>Maxxam_Cat6A UFTP                                  | Absolute Acoustics        | Videonet 650 – Storm<br>Videonet 750 – Thunder   |
| Purelink              | CAT6A U/FTP   | General Cable Corp       | Genn Speed GS- 10 MTP<br>CMP Cat6A F/UTP   |
| CommScope Inc.       | 1291B<br>1091B<br>2091B<br>3091B<br>2291B<br>3291B<br>10GS4<br>10G4<br>10GNS4ZH-i<br>10GNS4<br>10GN4          | Haiyan                  | CAT5E<br>CAT6<br>CAT6A   |
|   |   | Samson                  | CAT5E<br>CAT6<br>CAT6A   |