LED Display Installation Manual

LH012IFJ*** (P1.2)
SBB-SNOWJ3U
## Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date (Y/M/D)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>2020/03/20</td>
<td>New Release</td>
</tr>
<tr>
<td>2.1</td>
<td>2020/08/07</td>
<td>Add Test Pattern function</td>
</tr>
</tbody>
</table>
When humidity gets into LED package because of high humidity, it is possible to cause ‘Line defect’ by electrical short in side of LED Package.

For keeping quality of products during installation, please refer below cautions.

- If one of below case meet before installation, MUST do dehumidification process.
  - Case when vacuum packaging is broken before unpacking.
  - Case when environment condition is exceed Samsung recommended operation condition. (Please refer Operation condition from User manual)
  - Case when period between unpacking and turning on the power of products is spent more than 7 days, even though it is under Samsung recommended storage condition.
  - Case when production date on the label is exceed more than 6 months, even though vacuum packaging is no problem.

- When Volatile chemicals such as oil paint, solvent are used or operation condition is exceed around of products installed place, MUST play video more than 2 hours everyday.

- If it is not meet with upper cases, it is helpful to play video more than 2 hours everyday for protection for humidity getting into LED Package.
Dehumidification guidance – during operation

- **Electrical short in package is possible to happen during products are working.**

- **For keeping quality of products during installation, please refer below cautions.**

  - If one of below case meet during operation, MUST do dehumidification process.
    - Case when environment condition is exceed operation condition.
    - Case when products are not working more than 1 month, even though environment condition is under operation condition.

  - When environment condition is exceed operation condition, products are out of warranty. Please check environment condition.

  - Even products are operating, if the installed place have extra construction such as interior modification, MUST do dehumidification following installation condition.

  - It is possible to happen dew condensation on surface of products, even though working on operating condition. When happening dew condensation, MUST operate after cleaning the dew condensation & dehumidification.
Dew condensation due to overcooling

- Even though meet with Samsung recommended operation condition, dew condensation is possible to happen when surface of products is colder than environment temperature or hot & humid air blow to cooled surface of products. (cf: Principle of happening dew on surface of glass which have ice)

- Case when dew condensation is happen on products, it is possible to be the root of defect. In this case, it is possible to be out of warranty.
Guidance of latest firmware

- **When install products, please update latest firmware on online**

  - You can download latest firmware from SLM site.
    
    - URL of SLM Page: https://www.secslm.com
    
    - After login → Help → Download Center에서 Download
    
    - Before you download firmware, you MUST check same firmware of model (marked red letter in below) & upper number of version (marked blue in below).

      Cabinet : Main - L-xxxMWWAC-nnnn.n → xxx = Pan name, nnnn.n = version
      FPGA - aabbb_ddddd → aa = pixel pitch, bbb = LED package type, dddd= version

      Example : IER P2.5 → Cabinet : L-IERMWWAC-1003.1, FPGA : 25252-31046

      S-box : TB-KTM2SBMDWWC_100x.x

  - You can update firmware through LSM.

    - Please refer ‘7-1 PC control program’ for the way to update firmware.
Check first before Installation (1/2)

- All Power cables and OCM cable must be connected firmly

- IFJ (LH012IFJT) Doesn’t Power On without Signal Inputs. Examination without S-Box connection, Please Plug in the Service key In Port DATA IN. (Do not Use Service Key for IFH, IFH-D Series models, After prechecking, remove key before installation)

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

- Do not mix cabinet which have different Project number, each cabinet have its own project number.
Check first before Installation (2/2)

- IFJ(LH012IFJTVS*) Does not Compatible with previous S-box (SNOW-1703U).
- IFJ(LH012IFJTVS*) Does not Compatible with previous Interface Gender.
- Install the device using SNOW-1703ULD and its supplied IG.

<table>
<thead>
<tr>
<th>Sbox</th>
<th>SNOW-1703U</th>
<th>SNOW-1703ULD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(SBB-SNOWH3U)</td>
<td>(SBB-SNOWJ3U)</td>
</tr>
<tr>
<td>IG</td>
<td>BN91-19100A</td>
<td>BN91-19993A</td>
</tr>
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8. Issue and Solution
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10. Seam Adjustment
1. Product Information and Precautions for Installation

◇ Frame Kit Composition (Refer to Page 14)

<table>
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<tr>
<th>Frame Kit</th>
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<tr>
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<td>3*2 (6 Set)</td>
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<td>3*3 (9 Set)</td>
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</tr>
</tbody>
</table>

◇ Cabinet Product Information

◇ SBB-SNOWJ3U (S-Box, I/G)

※ Power system should be designed according to Screen composition. 1 FHD Screen should be in same power system. (Refer to page 63)
1. Product Information and Precautions for Installation

### Precautions for Installation (LED Physical damage)

<table>
<thead>
<tr>
<th>Precautions</th>
<th>Images</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[Beware of Outside Impact, Fall]</strong></td>
<td><img src="#" alt="Module" /> <img src="#" alt="Front" /></td>
</tr>
<tr>
<td>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.</td>
<td><img src="#" alt="Module" /> <img src="#" alt="Front" /></td>
</tr>
<tr>
<td>2. Beware not to put the LED side headed downwards to the floor after the protection gets taken off for installation.</td>
<td><img src="#" alt="Module" /> <img src="#" alt="Front" /></td>
</tr>
<tr>
<td>3. Beware not to have the corner area of LED module be damaged due to the contact with the outside.</td>
<td><img src="#" alt="Module" /> <img src="#" alt="Front" /></td>
</tr>
<tr>
<td>4. Beware not to put more than 12 layers.</td>
<td><img src="#" alt="Module" /> <img src="#" alt="Front" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>[Beware of LED Damage due to Static Electricity]</strong></th>
<th><img src="#" alt="Hand" /> <img src="#" alt="Gloves" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>▶ Beware not to touch LED screen with bare hands without putting gloves on.</td>
<td><img src="#" alt="Hand" /> <img src="#" alt="Gloves" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>[Beware of LED Damage due to Metallic Substances]</strong></th>
<th><img src="#" alt="Metallic Substance" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>▶ Beware not to have metallic substances pulled in to the surface due to the magnetic force on the front side of the LED.</td>
<td><img src="#" alt="Metallic Substance" /></td>
</tr>
<tr>
<td>▶ If any metallic substances get drawn in on the surface, please disassemble the module and then remove the pollutants by using a magnet.</td>
<td><img src="#" alt="Metallic Substance" /></td>
</tr>
</tbody>
</table>
1. Product Information and Precautions for Installation

<table>
<thead>
<tr>
<th>Precautions</th>
<th>Images</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[Beware of LED Damage due to chemicals]</strong></td>
<td><img src="https://example.com" alt="Images" /></td>
</tr>
</tbody>
</table>
| ► Beware not to contact the following materials with the product, and minimize exposure of the product to their vapor  
  - Water (including sweat and saliva)  
  - Detergents (e.g. detergents for carpet cleaning)  
  - Paint, glass cleaner, mosquito repellent, fragrance  
  - Substances containing benzene, toluene, xylene, solvent, surfactant, thinner, chlorine, etc.  
| ![Images](https://example.com) |
| ► When the product is installed, the air conditioner should be operated enough to minimize sweat flow, and avoid sweating the product.  
| ![Images](https://example.com) |
| ► Minimize saliva by wearing a mask |
| **[Precautions for construction and cleaning]** | ![Images](https://example.com) |
| ► When installing on the construction site, it should be installed after construction and cleaning.  
| ![Images](https://example.com) |
| ► If there is construction inevitably in the space where the product is installed, take the following measures.  
  - To minimize the exposure of the product to dust and solvent vapors, the whole product is covered with a vinyl shield, and tape is used to attach the end of the vinyl shield to the wall.  
  - Operate video or 100 gray scale white for more than 2 hours every day.  
  - After the construction is finished, remove the vinyl shield after the dust and solvent vapor have been sufficiently removed.  
| ![Images](https://example.com) |
| ► When cleaning the floor with detergent or water, install a shield when there is a possibility of reaching the product. | ![Images](https://example.com) |
1. Product Information and Precautions for Installation

• Preparations for Installation

- 10.0mm Wrench
- Electric Driver
- (-) (+) Driver
- LED MODULE JIG (model name: VG-LJJNAWS)
- Service JIG (BH81-00001A)
- Holder Magnet Tool
- Plier
- Antistatic Glove
2. Check Point about the Radiant Heat

◇ Ventilation Guide

- Standard and condition for indoor installation
  - Standard for using ‘SAMSUNG WALL MOUNT’ (Fulfill ADA)
    - The gap between the front of a product and a wall: 99.4mm
    - The gap between the back of a product and a wall: 22.7mm
  - When sunlight enters
    - If a sunlight enters through a window or outside walls of a building, an additional inquiry is needed.
  - The effect of warm/cold air from a duct system
    - Make sure the warm/cold breeze (especially warm air) from a duct system not to affect a product.
  - The measuring location for ambient temperature
    - Either right in the center of a product or Air inlet part
2. Check Point about the Radiant Heat

- **Minimum spacing for landfill installation** (No Fan, Using SAMSUNG WALL MOUNT / DECO FRAME)

  - Min 60mm (floor)
  - Min 300mm (floor)
  - Min 500mm (ceiling)
  - Air vent area
  
  - Min 60mm (No Fan, Using SAMSUNG WALL MOUNT / DECO FRAME)
2. Check Point about the Radiant Heat

- **Minimum spacing for wall mounting** (No Fan, Using SAMSUNG WALL MOUNT / DECO FRAME)

  - Min 300mm (floor)
  - Min 500mm (ceiling)
2. Check Point about the Radiant Heat

◇ Axial FAN (selection example)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
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<th>11</th>
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<tr>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>95 CFM</td>
<td>80 CFM</td>
<td>65 CFM</td>
<td>No need for FAN</td>
<td>No need for FAN</td>
<td></td>
</tr>
</tbody>
</table>

※ Example) Total CFM? (Outdoor temperature 30℃, Cabinet (5x5) on condition.)

→ 80CFM x 5 = 400CFM

※ FAN flow rate is not a MAX, but a real flow rate.

- Ebm papst: [http://www.ebmpapst.com](http://www.ebmpapst.com)
  - Model name: 614 J/2 HHP Size: 60*60*32
  - Flow rate: MAX 48.3 CFM FAN: 3ea per column
- delta-fan: [http://www.delta-fan.com](http://www.delta-fan.com)
  - Model Name: AFB0612HHE Size: 60*60*38
  - Flow rate: MAX 54.5 CFM FAN: 3ea per column

※ Fan Margin for the pressure drop / flow reduction
2. Check Point about the Radiant Heat

◇ FAN Using condition
- Air Vent: install at bottom
- Top: Seal except fan hole

◇ Vent specification
- Using over 60% open ratio vent
  - Open ratio (%) = \( \frac{c \times d \times \text{No. of vent hole}}{A \times B} \)
### 2. Check Point about the Radiant Heat

- **IFJ P1.2 (under 25°C) Guidance**

  ※ SAMSUNG WALL MOUNT, Full white, back light 7, VENT 60%

<table>
<thead>
<tr>
<th>Rows</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FAN unnecessary</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>FHD</td>
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<tr>
<td>4</td>
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<td>UHD</td>
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<td></td>
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<td></td>
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</tbody>
</table>

- **Columns**

105 CFM
2. Check Point about the Radiant Heat

- IFJ P1.2 (25~30°C)

※ SAMSUNG WALL MOUNT, Full white, back light 7, VENT 60%
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 hold the handle inside PE-Bag and pull out the set then remove PE bag. (Fig.2)

③ Assemble four(4) Sliding Screw for installation at the hole located at the outermost part of the Corner. (Fig.3)
3. Preparation for Cabinet Installation

④ Connect the power supply and check the screen for any abnormality.
※ How to check whether there is a screen error (Page.17)

⑤ Place the cabinet on the CUSHION-TOP with the LED side facing up and use the magnet jig to check if the module is locked. (Fig.4)

⑥ Unscrew COVER-CORNER Screw (total 4EA). (Fig.5)

⑥ Remove the protective sheet in order. (Side -> Vertical -> Horizontal) (Fig.6)
3. Preparation for Cabinet Installation

Reference: Process of Screen check

After turning on power, while showing ‘NO VIDEO’, push ‘Switch Button’ and hold it for more than three seconds.

While ‘Dehumidifying’ shows off, if pushing ‘Switch Button’, OSD is shown.

Then, OSD, gray, dark red, dark green and dark blue are shown sequentially, whenever ‘Switch Button’ is pushed.

In order to go to ‘NO VIDEO’, while OSD is showing, push ‘Switch Button’ and hold it for more than three seconds.

If brighter patterns are needed, hold ‘Switch Button’ for more than three seconds from gray, dark red dark green or dark blue patterns.

Then, full white, full red, full green and full blue are shown sequentially, whenever ‘Switch Button’ is pushed.

Pushing ‘Switch Button’ and holding it for more than three seconds makes it go to ‘NO VIDEO’.

※ Caution: IFJ (LH012IFJTVP Doesn’t Power On without Signal Inputs.
In order to test a cabinet without S-Box connection, plug Service Key into In Port (DATA IN).
(Never use Service Key for IFH, IFH-D Series models.)

POWER INLET

POWER OUTLET

SWITCH

[Diagram showing steps 1 to 7]

※ Caution: IFJ (LH012IFJTVP Doesn’t Power On without Signal Inputs.
In order to test a cabinet without S-Box connection, plug Service Key into In Port (DATA IN).
(Never use Service Key for IFH, IFH-D Series models.)

Connect Power Cable to SET.
Use internal pattern to check dead pixel or any damage with screen.

1. After turning on power, while showing ‘NO VIDEO’, push ‘Switch Button’ and hold it for more than three seconds.
2. While ‘Dehumidifying’ shows off, if pushing ‘Switch Button’, OSD is shown.
3. Then, OSD, gray, dark red, dark green and dark blue are shown sequentially, whenever ‘Switch Button’ is pushed.
4. In order to go to ‘NO VIDEO’, while OSD is showing, push ‘Switch Button’ and hold it for more than three seconds.
5. If brighter patterns are needed, hold ‘Switch Button’ for more than three seconds from gray, dark red dark green or dark blue patterns.
6. Then, full white, full red, full green and full blue are shown sequentially, whenever ‘Switch Button’ is pushed.
7. Pushing ‘Switch Button’ and holding it for more than three seconds makes it go to ‘NO VIDEO’.
### 4. Frame Installation

#### ① Check Frame Kit Composition.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>VG-LFJ32SWW</th>
<th>VG-LFJ33SWW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Units</td>
<td>Units</td>
</tr>
<tr>
<td>☑</td>
<td>ASSY BRACKET SIDE</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>☑</td>
<td>ASSY BRACKET MIDDLE</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>☑</td>
<td>ASSY BRACKET CENTER</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>☑</td>
<td>ASSY BRACKET JIG</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>☑</td>
<td>Anchor</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>☑</td>
<td>SCREW (M5,L65)</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>☑</td>
<td>SVC-JIG</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>☑</td>
<td>HEX-WRENCH</td>
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<td>1</td>
</tr>
<tr>
<td>☑</td>
<td>MANUAL-INSTALL</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>☑</td>
<td>COVER-CAP</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Size of the Installation Screen(mm):**
- VG-LFJ32SWW: 2419.2*907.2
- VG-LFJ33SWW: 2419.2*1360.8

※ © Use ASSY BRACKET CENTER when screen is extended to more than 2 set of FRAME KITS
4. Frame Installation

② Put the a Bracket Side the end of the left side and then fasten the screws to install. (Fig.3)

※ After fastening one(1) screw, use the device for vertical positioning to set up straight vertical alignment.

Then fasten up the remaining holes. (Refer to Page 18 for the Precautions for fixing the Screws)

Order of Fastening the Screws (No. 1 → No. 2 → No. 3). (Fig.1)

③ Bracket Side is located at 7mm of the end line of the screen. (Fig.4)
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.

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

  If the wall surface is not completely flat, gaps may form after installation.

- Note
  MDF = Medium Density Fiberboard
  PW = Plywood

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

3. Install ⑥ ASSY BRACKET MIDDLE.
   ※ First, check the Hole to fix the ② JIG. [Fig.1]
   ※ Second, Mount the ② JIG inside the Bracket Hole and fasten up four(4) Screws [Fig.2]
   ※ Third, fasten the ⑥ ASSY BRACKET MIDDLE using Screws. [Fig.3]
   ※ Warning. ⓐ,ⓑ and ⓓ sides should be attached,
     and the three(3) sides of Wall/ ⓐ,ⓑ side/ ⓓ side should be parallel.[Fig.4]

4. Install ⑥ Bracket Middle in the same way (from left to right)
   ※ Install Bracket Center at the center of Frame KIT.
4. Frame Installation

※ When installing three or more ASSY BRACKETs, adjust their levels because they may be distorted by walls or structures.

– After installing three or more ASSY BRACKETs, place another ASSY BRACKET horizontally on them and measure if there is a height difference among them. If a height difference is found, adjust the Z-Bolt heights of ASSY BRACKETs to make them level with each other.

– Adjusting the heights

1. To adjust the Z-Bolt height of the frame, first remove the washer.
2. After removing the washer, use a wrench (28 mm) to adjust the Z-Bolt height.
4. Frame Installation

In case of installation of connecting two or more FRAME KITS using ASSY BRACKET CENTER.

⑤ Install the ③ ASSY BRACKET CENTER instead of the ① ASSY BRACKET SIDE on the right side.

⑥ Install cabinet from the bottom row. [Fig.5]

⑦ After completed installation of cabinet, Check the flushes between LED Module and both end cabinet by pushing the LED Modules towards the center.

⑧ Make the left and right flushes equal, and then adjust the flushes according to the following criteria. [Fig.7]
   - If the flush is more than 0.5 mm, move the Frame outward.
   - If the flush is less than 0.0 mm, move the Frame inward.
   - Adjust the flush each time you install a cabinet additionally. If the flush is 0.0 to 0.5 mm, you don’t need to adjust.

⑨ Finally, Install ① ASSY BRACKET SIDE and ⑤ ASSY BRACKET MIDDLE. [Fig.8]
4. Frame Installation

* In case extension is required in the longitudinal direction
  - Using with ASSY BRACKET JIG, it can be installed in vertical direction.
5. Cabinet + Frame Installation

• Fix I/G Location

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

※ Location to Install: Locate the I/G at the point 35~40mm below, which is the standard for carving at the right side of the frame, and then fasten the screws. (Fig.2)

![Fig1. Location to Fix the I/G and Order of Installing the Cabinet](image1)

![Fig2. Location to Fix I/G](image2)
5. Cabinet + Frame Installation

② Adjust the Corners of the Cabinet to each of the cravings to be closer to the Frame.
※ Order of Cabinet Installation (66 Page)
※ Check whether all the four(4) bolts are put into the frame. (Fig.1)

③ Assemble to slide below diagonal line by pressing the upper side of the Frame. (Fig.2)

④ From the layers above the second floor, insert the Service Jig between each Cabinet, remove the Service Jig, slowly lower the Cabinet. (Fig.3)
※ Beware not to have the Service Jig touch the LED Module.
※ Check whether the gap between each module widens, whether the size of the pitch differs every time of installation.
5. Cabinet + Frame Installation

※ If the modules are too tight, it may be difficult to detach the module. Therefore, install some modules by sampling some modules during the installation process. (Fig.1)
※ When not using the ASSY BRACKET CENTER If the space between the cabinets is wide open after installation, push or pull the cabinet according to the center cabinet to clear the gap and continue installation. (Fig.2)
※ If there is a gap between the cabinets after moving the module and moving the cabinet, loosen the screws slightly on the wall of the installation frame and move the frame to the left and right to remove the gap. (Fig.3) Moves the entire frame by the same distance when moving the frame, and confirms whether it has been tilted using leveler after the movement. (Fig.4)
5. Cabinet + Frame Installation

⑥ Insert the BRACKET-ALIGN which connects Cabinet between the Cabinets

- Put it in the middle 2 points in the horizontal direction of the surface where Cabinet meets each other, and 1 point in the vertical direction.
- 3*3 FHD standard used 18pcs

※ BRACKET-ALIGN coupling method
1) Separate the BRACKET-SUB+LED MODULEs from the parts requiring the BRACKET-ALIGN. (Fig.1)
   * Detaching the UNLOCK part of the magnet jig by showing.
2) Place the BRACKET-ALIGN such that the flat portion is downward and the height stepped portion is upward.(Fig.2)
3) Fix the BRACKET-ALIGN with a screw. (Fig.3)
   * If the height difference of the frame occurs more than 0.5mm even after the screw is fixed
     : Turn over the BRACKET-ALIGN so that the thick side contacts the high side and the screw is fastened. And then Check the steps again. (Fig.5)
4) Assembly the module to its place. (Fig.4)
   * Fixed the LOCK part of the magnet jig by showing.
5. Cabinet + Frame Installation

⑦ Attach the PET Sheet and assemble Cover PCB for the Cabinet that is located at the exterior.

※ PET Sheet & Cover PCB should be at the boundary of whole screen. (Blue area at the exterior of Fig.1)
※ Attach PET Sheet as shown below.(Fig.2), The areas where there is no tape should guide the LED module.
※ Assemble the Cover PCB as shown below.(Fig.3)

<table>
<thead>
<tr>
<th>3X3</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>7</td>
</tr>
</tbody>
</table>

Fig.1 Attach point of Sheet PET and Cover PCB
* Number : assembly quantity of Cover PCB

Fig.2

Fig.3

0~0.5mm

SHEET-PET (attach double-sided tape for the bottom 10mm section)
5. Cabinet + Frame Installation

◇ Protection of I/G

- To prevent unexpected removing IG box, the Protection Bracket should be attached on left / right side of the display (Fig.1)
  - In case of pocket installation, do not need to attach the protection.
  - Keep free space on Top and Bottom for ventilation

**Recommended specification for Protection Bracket:**

① Material: Aluminum plate or iron plate with thickness of 1.0mm ~ 2.0mm coated with black
② Dimension: Width 50mm, Length 906.2mm (3*2), 1359.8 (3*3) (same with Frame, Fig.2)
③ Screw hole position: 235mm from top screw first. The upper first screw is positioned 90.5mm from the upper end. (Fig.3)
④ Screw: M4*0.7mm, length 6mm.
6. S-BOX Installation and Connection

• S-BOX Installation Precautions

① Product recommend installing this product in a standard 19-inch server rack.

※ When connecting two or more times for the purpose of using multi-link HDR, install it on the ground shielded rack and use it. (SBB-SNOWJMU model)

② Install ventilation opening, do not install the vent by turning it sideways or upside down

③ When installing the product, do not block the air vent on the top to prevent the product from overheating

④ When installing multiple Sbox, Install at least 1U (44.45mm) or more apart from the ventilation openings on the top of the product

⑤ When installing on a wall, keep all distances between the wall and the top, bottom, left, right sides of the product at least 10 mm, and also keep the distance between the wall and the ports on the back of the product at least 50 mm for cable connection.

⑥ Make sure that the ambient temperature inside the rack mount does not exceed 35°C.

⑦ Take care not to allow liquid foreign objects to enter the ventilation openings on the top of the product
6. S-BOX Installation and Connection (Only SBB-SNOWJMU model)

**How to install when use Multi Link HDR function**

- Product recommend installing this product in a standard 19-inch server rack, please refer 36 page about basic installation guide.

1. Please open rubber plug of Multi Link HDR port.

2. Connect the connector of the cable of Multi Link HDR to the Multi Link HDR port of each S-BOX.  
   (※ Note: Connect the connector’s structure to face up)

3. Menu – Picture – LED HDR – Multi Link HDR Settings – ON

4. Set the quantity of S-BOX connected each other. (2/3/4)

5. Set S-BOX ID  
   (※ Note: It is necessary to set the ID not to overlap between connected S-BOX)
6. S-BOX Installation and Connection (Only SBB-SNOWJMU model)

- Multi Link HDR Cable
  - Use the appropriate cable according to the quantity of S-BOX connected.
6. S-BOX Installation and Connection (Only SBB-SNOWJMU model) Samsung Electronics

- FPGA Update Guide when using Multi Link HDR Cable

※ Note : Before update, disconnect the Multi Link HDR Cable from S-BOX.

- Factory update method

① Save a SW program called ‘TB-XCKUSBMWWS.bin’ in USB root.

② Connect the USB to S-BOX.

③ Enter Factory mode.
   (Remote control ‘mute +1+8+2+Power ON’ in power off state)

④ Select “SVC → UPGRADE” menu.

⑤ Move the cursor to “FPGA UPGRADE” menu.

⑥ Press ‘Enter’ in the remote control.

⑦ Press ‘▶’ button in remote control to start the upgrade.

- LSM update method

① Select ‘S-BOX Settings – Software Update’ in LSM menu.

② Select ‘BROWSER’ and move to the folder with the FPGA update file (TB-XCKUSBMWWF.bin + Info.txt)
   ※ Version in ‘Info.txt’ file should be higher than currently installed version

③ Select ‘TB-XCKUSBMWWF.bin’ file.

④ Select ‘Update’ button to start the upgrade.

※ Note : In case of the sites that are difficult to remove the Multi Link HDR cable, all connected S-BOX should be AC power off/on after LSM update done. (Must turn off AC power after the update of all S-BOX are completed)
   Check the version of FPGA after update.
6. 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 When HDMI UHD Color is set to On, up to the 3840 x 2160 @ 60 Hz resolution is supported by S-BOX. When HDMI UHD Color is set to Off, up to 1920 x 1080 @ 60 Hz resolution is supported.
※ Menu – Picture – Advanced Settings – HDMI UHD Color : ON
(Default: OFF, S-BOX will be reboot when it is changed.)
⑥ One SNOW-1703U supports only one type of LED pitch cabinets. Do not connect different types of LED pitch cabinets.
⑦ SNOW-1703U 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.
6. 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

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

★ Orderly Rolled (Recommend)  ★ Random Rolled (Not Recommend)
6. 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.
6. S-BOX Installation and Connection

-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.

-STP RJ45 shielded Plug. RJ45 Connector should be CAT6 or CAT7 shielded RJ45 and load bar.
6. S-BOX Installation and Connection

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 with drain wire: See next page

  Case 2) Cable without drain wire: Use copper foil to touch on the connector shell as below

  - Touch on the Al foil or Braid
  - Copper foil
  - Connector shell
6. S-BOX Installation and Connection

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.

Recommendation) Drain wire soldering + Copper foil
6. S-BOX Connection (Redundancy)

① If Redundant Spec should be used,

Connect from DATA IN port of Interface Gender to DATA OUT port of the last cabinet by using OCM Cable.

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

- After installation, LED defects are prevented by dehumidification
- After connecting the S-BOX, the LED display is slowly operated for 24 hours to remove humid from the LED.

1. Begin dehumidification after cabinets installation and S-BOX connection.
2. Download archived file. (Refer the below ‘How to download execution file’.)
3. After extracting the file to USB, plug USB in S-Box.
4. It begins automatically, pattern is changed to the brighter one every two hour.
   (After setting current time, brightness of each pattern is shown in the right table.)
5. After 24 hours, Dehumidification process completed then, remove USB

※ How to download execution file
   a. Move to https://displaysolutions.samsung.com/
   b. Select SUPPORT → RESOURCES → Product Support
   c. SMART LED Signage → Indoor → Model → FIND
   d. Select ‘LED Signage Installation Manual (De-humidification execution)’ file and download it.
6. S-BOX Connection (Panel Configuration)

① S-Box Picture Setting according to model

- The default picture configurations are optimized for LH015IFH 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 1st LED display (I/G) must be connected to HDBT port #1 in S-Box.
- The picture configuration will be set based on the model of the 1st 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.
6. S-BOX Connection (Grouping)

- S-Box Grouping is a function used to configure a single screen using multi S-Box.
  If you configure one screen with a single S-Box, do not use this function !!
When S-Box Grouping is set up, the quality improvement function(LED HDR) does not work.
6. S-BOX Connection (Grouping)

② Enable S-Box 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.
6. S-BOX Connection (Grouping)

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
6. S-BOX Connection (Grouping)

④ Supported resolution for S-box grouping

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Horizontal Frequency (kHz)</th>
<th>Vertical Frequency (Hz)</th>
<th>Pixel Clock (MHz)</th>
<th>Sync Polarity (H/V)</th>
<th>S-Box Grouping Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>VESA, 640 x 480</td>
<td>37.861</td>
<td>72.809</td>
<td>31.500</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 640 x 480</td>
<td>37.500</td>
<td>75.000</td>
<td>31.500</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 800 x 600</td>
<td>35.156</td>
<td>56.250</td>
<td>36.000</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 800 x 600</td>
<td>37.879</td>
<td>60.317</td>
<td>40.000</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 800 x 600</td>
<td>48.077</td>
<td>72.188</td>
<td>50.000</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 800 x 600</td>
<td>46.875</td>
<td>75.000</td>
<td>49.500</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1024 x 768</td>
<td>48.363</td>
<td>60.004</td>
<td>65.000</td>
<td>+/-</td>
<td>-</td>
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<tr>
<td>VESA, 1024 x 768</td>
<td>56.476</td>
<td>70.069</td>
<td>75.000</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1024 x 768</td>
<td>60.023</td>
<td>75.029</td>
<td>78.750</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1152 x 864</td>
<td>67.500</td>
<td>75.000</td>
<td>108.000</td>
<td>+/-</td>
<td>0</td>
</tr>
<tr>
<td>VESA, 1280 x 720</td>
<td>45.000</td>
<td>60.000</td>
<td>74.250</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1280 x 800</td>
<td>49.702</td>
<td>59.810</td>
<td>83.500</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1280 x 1024</td>
<td>65.981</td>
<td>60.020</td>
<td>108.000</td>
<td>+/-</td>
<td>0</td>
</tr>
<tr>
<td>VESA, 1280 x 1024</td>
<td>79.976</td>
<td>75.025</td>
<td>135.000</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1366 x 768</td>
<td>477.12</td>
<td>59.790</td>
<td>85.500</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1440 x 900</td>
<td>59.955</td>
<td>59.887</td>
<td>106.500</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1600 x 900</td>
<td>60.000</td>
<td>60.000</td>
<td>108.000</td>
<td>+/-</td>
<td>0</td>
</tr>
<tr>
<td>VESA, 1680 x 1050</td>
<td>65.290</td>
<td>59.954</td>
<td>146.250</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 1920 x 1080</td>
<td>67.500</td>
<td>60.000</td>
<td>148.500</td>
<td>+/-</td>
<td>0</td>
</tr>
<tr>
<td>VESA, 3840 x 2160</td>
<td>67.500</td>
<td>30.000</td>
<td>297.000</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>VESA, 3840 x 2160</td>
<td>135.000</td>
<td>60.000</td>
<td>594.000</td>
<td>+/-</td>
<td>0</td>
</tr>
</tbody>
</table>
6. S-BOX Connection (Grouping)

5 Picture menu setting

- Both “Dynamic Contrast” and “Black Tone” should be off when using S-Box Grouping, since it may cause a color difference between S-Box.
- Menu → Picture → Advanced Settings,
  - Dynamic Contrast: default “Medium” → Off
  - Black Tone: default “Darker” → Off
6. S-BOX Connection (Grouping)

5 Picture menu setting

- When using S-Box grouping, you must set Picture mode to Calibration. Calibration mode deactivates Contrast Enhancer, Black Tone, Auto Motion plus function so that there is no screen difference between S-Box.

- In addition, in other picture modes, screen disruption due to image quality processing may occur, and in unavoidable cases, Contrast Enhancer and Black Tone function and Auto Motion plus should be turned off to minimize it.

- Menu→ Picture → Advanced Settings,
  - Contrast Enhancer : Off
  - Black Tone : Off

- Menu→ Picture → Picture Options,
  - Auto Motion plus : Off

- If Multi link HDR is used, the picture mode must be set as shown below. (SBB-SNOWJMU)
  - Menu→ Picture → Picture Mode : Calibration
  - Menu→ Picture → LED HDR, Echo Image Enhancer : Off
6. S-BOX Connection (Using Service Port)

- Service Port is used to check full screen, when working of S-box is not abnormal.

Refer to the available monitors as below,

- Available monitors for service port: LH**PMF, LH**PHF, LU28E590DS, LU24E590DS

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

※ LH**PMF, LH**PHF: Change the “HDMI UHD Color” to “On” on OSD.
7. Settings and How to Use

7-1 Control Program for PCs

**LSM(LED Signage Manager)**

- LSM Download Path: GSBN - SLM - Display solution download -> "LED SIGNAGE MANAGER" or "LSM"
- GSBN: http://v3.samsunggsbn.com/ep
7. Settings and How to Use

7-1 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.
7. Settings and How to Use

7-1 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.
7. Settings and How to Use

7-1 Control Program for PCs

LSM(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.
7. Settings and How to Use

7-1 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)).
7. Settings and How to Use

7-1 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.
7. Settings and How to Use

7-1 Control Program for PCs

LSM(LED Signage Manager)

- Main Window-Home Window

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

[★ 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.
7. Settings and How to Use

7-1 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.
7. Settings and How to Use

7-1 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
7. Settings and How to Use

7-1 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
7. Settings and How to Use

7-1 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
  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
7. Settings and How to Use

7-1 Control Program for PCs

LSM(LED Signage Manager)

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

6. Cabinet Settings
   - ABL, Gamut, Backlight
   - Software Update function (FPGA, Calibration data, etc.)

7. Cabinet Calibration
   - RGB CC Calibration of each Module
   - Edge Correction of each Module
   - CC On/Off and Edge On/Off
   - Batch Upload/Download of module calibration data available through Import / Export
7. Settings and How to Use

7-1 Control Program for PCs

**LSM(LED Signage Manager)**

- **Main Window-Connection 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 Signage Box:**
   IP address, MAC address, ID range of LED cabinet (all/connected/not connected), serial number, version information
7. Settings and How to Use

7-1 Control Program for PCs

LSM(LED Signage Manager)

• **Main Window-Preference**

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
7. Settings and How to Use

7-1 Control Program for PCs

LSM(LED Signage Manager)

- test pattern using LSM

1. S-Box Test Pattern
   - Utilize when installing cabinets (only for test)

* When the test pattern is turned on / off or the pattern is changed, background screen may be visible for a while by overlay layer switching.
8. Issue and Solution

Problem Case 1

Rule 1: The 1st Cabinet from I/G board must be ID #2 for the LSM Setup

Rule 2: The 1st Cabinet from I/G board must be set as Master. The 2nd Master cabinet is not allowed for the LSM connection.

Situation: After changing Main board or Cabinet, If the original Master cabinet is move the other place,

LSM configuration will be fail because of violation of rule 1.
during the LSM setup it cause a network fail because the 1st cabinet is not ID #2.

Solution: Do LSM SETUP again to Set ID.
8. Issue and Solution

Problem Case 2

Rule 1: The 1st Cabinet from I/G board must be ID #2 for the LSM Setup

Rule 2: The 1st Cabinet from I/G board must be set as Master. The 2nd Master cabinet is not allowed for the LSM connection.

Situation: After changing Main board or Cabinet, If the original Master cabinet is move to slave cabinet area.

Although the 1st cabinet is set as a Master after doing factory reset, LSM configuration will be still fail because of violation of rule 2. LSM setup can be start, but can’t be complete because of the 2nd Master cabinet.

Solution: Do Factory Reset the 2nd Master Cabinet
8. Issue and Solution

How to do Factory Reset

After checking cable connection order, the cabinet which is not display the proper picture position will be Wrong positioned Master cabinet. In this case, Do factory reset to change to slave cabinet.

Refer the below guide to do factory reset in front side and backside.

The 1st cabinet is not ID number 2. Because all cabinets connection are failed.

Factory Reset in back side

Press button over 10 Seconds.

Set LSM again.

The 14th cabinet which is displaying the not proper picture position might be wrong positioned Master cabinet.

Factory Reset in front side

Remove Top Right-side one module in the front

Push the Reset Button for 10 Seconds.
9. Cable Connection

9-1 Cable Connection

- If using 110V, you can connect at most 2 IFJ(IF012J) devices.
- If using 220V, you can connect at most 4 IFJ(IF012J) devices.
- 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.
9. Cable Connection

*Reference: Power system design*

1. Power system should be designed according to Screen composition.
2. Cabinets that consist same screen (FHD / UHD) must be powered by same power system.
3. Cabinets that connected to same I/G Board (whether or not it makes FHD/UHD screen) must be powered by same power system.

(※ If you have a large number of cabinets and need to separate power, configure the switch to power on simultaneously.)

> S-BOX gives IDs to connected cabinets and it transfer data in order. If the former ID is off while the latter ID is on, error may occur in data transfer.
9. Cable Connection

9-2. The caution for Cabinet installation and Cable connection (Full Front)

1) The set installation order Must be Left -> Right direction. Because The structure of Wall mount hole for cabinet installation is downward diagonal 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
   → Interface Gender should be installed at Left-Center side of LED wall (refer to page 13)
   (Within 2~4M compared to first and last cabinet for connecting OCM cable)
9. Cable Connection

9-3 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) 1st row: Install set form Left-end

Check Gap between module inside cabinet

2) Connect Power/Signal Cables

3) 2nd row: Bottom to top

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

4) Same way
## 9. Cable Connection

### 9-4 Cable Connection : Data flow standard

© Connect OCM cable Forward direction

<table>
<thead>
<tr>
<th>Case 1:</th>
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<td>ID:2</td>
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- **Forward**
- **Reverse**
9. Cable Connection

9-4 Cable Connection : Data flow standard

◎ Connect OCM cable Forward direction

Case 2:

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</table>

ID:2
9. Cable Connection

9-5 Cable Connection : OCM cable installation standard

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

P1.26 FHD
Apply COVER CAP to POWER IN CABLE of the top cabinets.
10. Seam Adjustment

• Check and Adjust Seam

① Check whether there is any Black Line between the cabinets in White Screen. (Fig.1)

② Check whether gap, differences occur between each module. (Fig.2)
   ※ Gap: appears as a black line in every direction.
   ※ Difference: A bright white line occurs in one direction whereas a black line occurs in the opposite direction.

③ If gap occurs, use module with hand from the outermost corner.

④ If differences occur, disassemble low LED module, and spin the Holder-Magnet using tools to adjust the height.
   ※ If the Tool spins 0.5 rotation first, and then spins 36 degrees later, the module height will be moved by 0.1mm. (Fig.3)
   ※ Modules are at the lowest face at first, you can only adjust the difference by raising it.
   ※ If the flatness of the frame and the wall is bad, lots of modules would need adjustment.
     So, it is very important to check the flatness of the wall and Frame before you install the cabinet.
10. Seam Adjustment

• Module Disassembly/Assembly

1. Have the Unlock mark head upwards.
2. Place to LED module.
3. Separate the JIG and module at the same time.
4. Put the replaced module up on the cabinet.

5. Have the Lock mark head upwards.

6. Lock after placing on LED module.
   - Since the magnetic force of the magnet jig is strong at LOCKING, there is a concern of damage. So it is not completely close but only close until the sound is heard.

※ In the Unlock or Lock operation, there may be magnets that do not react to the magnet jigs. So, Check the magnet jig by moving it up and down.
10. Seam 조정

- In case of difficult removal or re-installing because of the narrow gap between the modules.

- If the module to be removed or re-installed does not fall out well or does not enter the correct position.
  → The module can be moved by releasing or removing the closest horizontal or vertical COVER-PCB.

- If the module does not enter the original position when trying to reinstall.
  → ① Separate a neighboring module using a magnetic jig
      ② Be careful of damage to the LED module, Put the module from the edge that can be re-positioned and push it at an angle like a picture.
Reference – Module Attachment Principle

< Operating Principle >

HOLDER-MAGNET
It is possible to adjust height by using driver. (4points / module)
=> Return in a counterclockwise direction. (1mm/1rotation)

< Removal of LED MODULE >

- LED attachment state
- N-N Push
- LED remove

< LED MODULE Attachment >

- LED Attachment
- S-N pull
- Attachment state maintenance

 ASSY BRACKET P-FRAME

ASSY BRACKET P-LED PCB

LED MODULE + ASSY BRACKET P-LED PCB

LED MODULE

BRACKET-SUB

STUD

MAGNET

HOLDER-MAGNET

BRACKET-FRONT

MAGNET JIG

S

N

S

N
1. Information and Installation Guide of Aluminum profile
2. Installation of Aluminum profile
3. Installation of Frame Kit
1. Product Info & Installation Guide

- Aluminum profile & Frame Kit composition

![Diagram of LED DISPLAY, Samsung Frame Kit, and Standard Aluminum profile]

- Installation example

![Diagram of Standing Type and Hanging Type installations]
2. Installation of Aluminum profile

- Aluminum profile installation

1. Keep the spacing of Aluminum profiles as below.
2. When assembling, the joint angle should be 90°.

<table>
<thead>
<tr>
<th>FRAME KIT</th>
<th>X1 (mm)</th>
<th>X2 (mm)</th>
<th>X3 (mm)</th>
<th>Y (mm)</th>
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<td>758.4</td>
<td>776.4</td>
<td>758.4</td>
<td>1137.4</td>
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</table>

- Aluminum profile specification

- Accessories for Aluminum profile assembly
3. Installation of Frame kit

• Prepare Frame Kit

1. Disassemble holder screws for the needed area of Frame Kit.
   (Relevant Frame: Holders in the side & Holders in the Middle/Center)
   * When using Al profile, do not use holder.

< Holder disassemble required area>
3. Installation of Frame kit

- Assemble Aluminum profile into Frame Kit

1. Assemble ASSY BRACKET SIDE starting from the left. (Assembly order: Left→Right)
2. For the locking, use M6 screw and nut to fix it onto Al profile.
3. After fixing BRACKET, use ASSY BRACKET JIG to fix next BRACKET to Al Profile.
4. Proceed with the right side assembly with in the same manner. (Detailed installation method → refer to 'Frame Kit Manual')
### Appendix ※ Certified Cable by HDBaseT

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<th>Vendor</th>
<th>Model Name</th>
<th>Vendor</th>
<th>Model Name</th>
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<td>Trends Electronics</td>
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