



PN-UN553S/PN-UN553V Information Display Installation Guidelines

<Ver. 1.0>

Aug/7/2025

Digital Imaging Solutions Unit
SHARP Corporation

Handling this material

This document is to explain how to design and install large monitors for our business partners.

Please do not distribute this document or its contents to other companies, or use it in products of other companies.

Please note that value and expressions on this document are subject to change without notice.

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1. Overall precautions

1.1. Please follow these rules

SHARP

1

Check clothing and belongings before starting work.

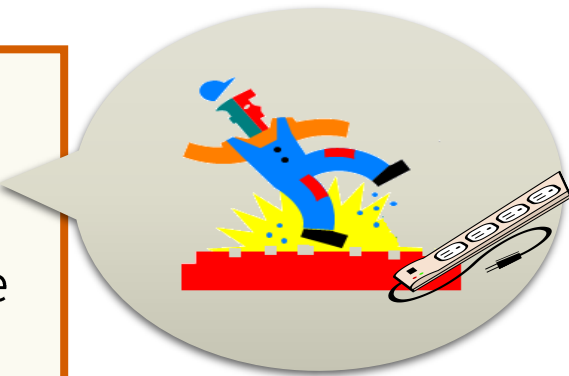
-Wear simple clothing and do not put cell phones, pens, etc. in your pockets.



2

Make sure you have enough space before starting work.

-Check the position of the power cable and check the unevenness of the floor.



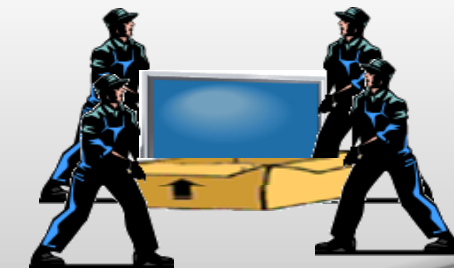
3

Before starting the work, the installation manager gives the installation worker a detailed explanation and example of how to handle the display.

Advance explanation from installation manager



Work should be done by two or more people.

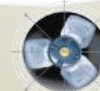


4

Regarding wall hanging brackets and stand installation.

-This unit has a thin frame and requires careful handling.
-Even if you are a contractor or worker familiar with conventional machines, please be sure to check the precautions in advance.
-Please consider installing using wall-mounting brackets and stands recommended by us and our sales companies, and request installation from us or our sales companies whenever possible.

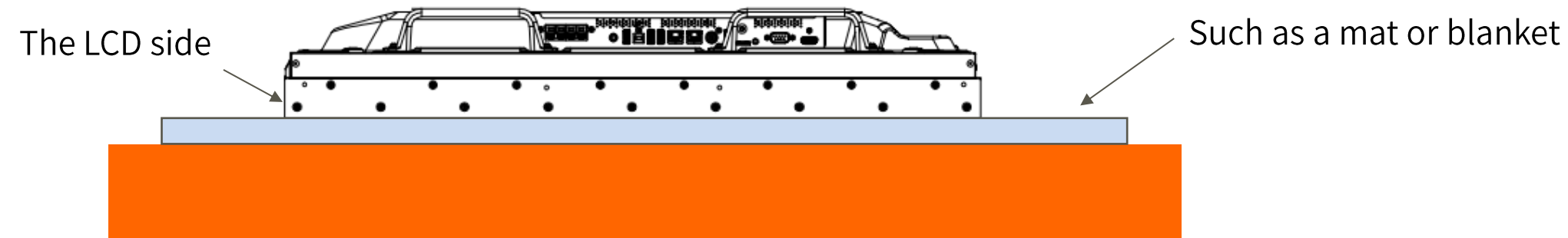
- How to unpack the packaging box.
- How to remove the display from the packaging box.
- How to check the operation and display.
- How to hold the display.
- We recommend temporarily storing the display on a temporary stand after removing it from the packaging box.
- Storage of packaging boxes.
- How to check and store display accessories.



- Precautions for fan.
- Precautions for adjacent installation.

About handling the display

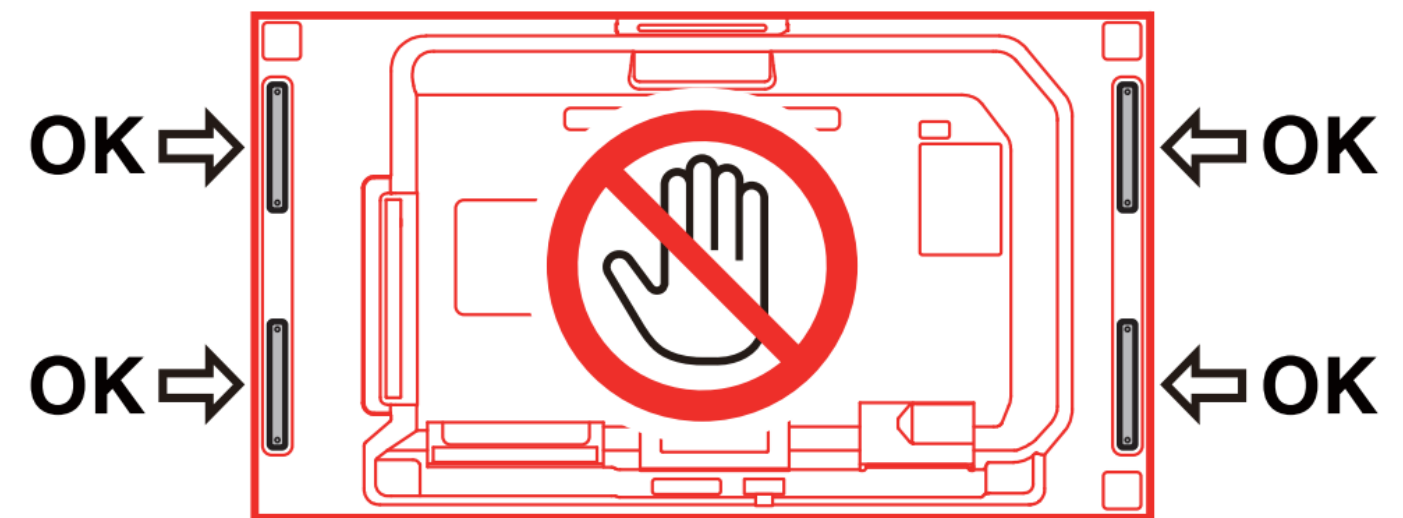
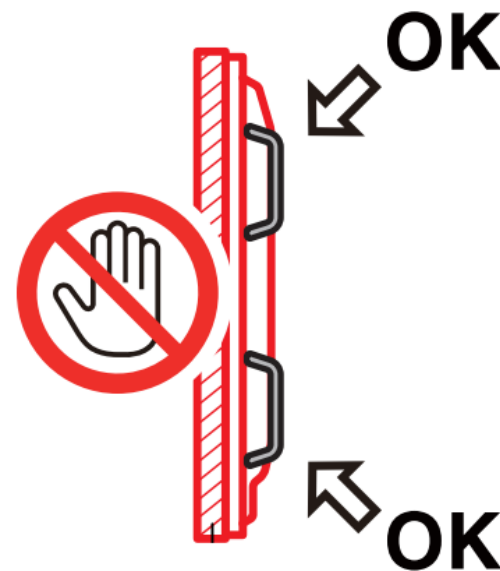
- When placing the main unit with the LCD screen facing down, please lay a soft material such as a mat or blanket on a flat surface to prevent the LCD screen from getting scratched.



- Do not touch the LCD screen

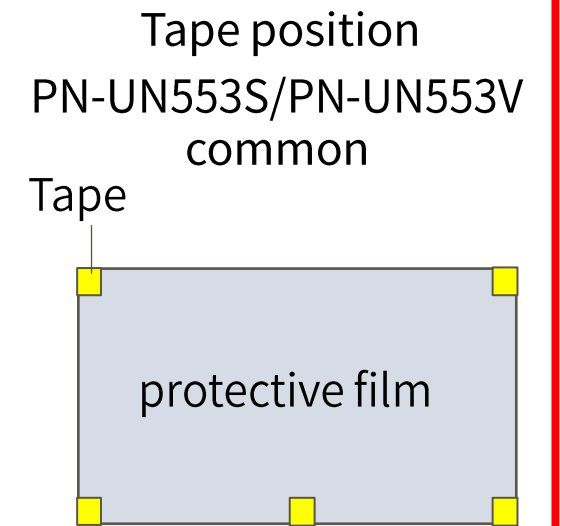
- Be careful not to hold the bezel.
- Be careful not to hit the bezel.

- When installing or moving the unit, be sure to hold the handle on the back. Do not place your hands on any other parts.



Be sure to check the operation before installation.

- **Before installing the display, check whether it is working properly and whether there are any abnormalities in appearance.** If you discover a problem after installation, you will have to take the trouble of removing it. Also, if you find a problem after installing the product without first checking its operation, it will be difficult to identify the cause of the problem.
- A protective film is attached to the display. Please remove the protective film before checking the operation. After checking, we recommend that you reattach the film to protect the screen until just before installation.



Examples of breakdowns caused by improper handling



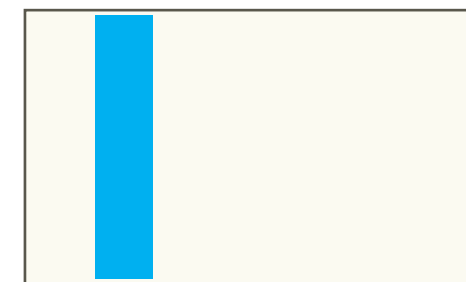
Panel crack



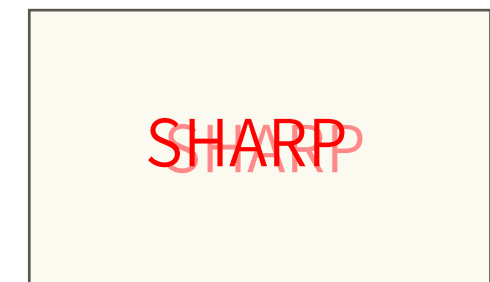
Line defect



Light leakage due to
bezel deformation



Band defect



Blurred screen



No display even when
power is turned on



Strange display

Usage conditions/Installation conditions

- Do not use the product for purposes that exceed the performance, functionality, or accuracy of the display, or for purposes that may lead to injury or death due to failure, or for purposes that may result in significant financial loss. We shall not bear any responsibility if the product is used for such purposes.
<instance>
Related to safety such as control of transportation equipment.(Aircraft, trains, automobiles, etc.) / Aerospace Equipment / Telecommunications Equipment / Nuclear Power Control Equipment / Medical Devices / Disaster prevention and security equipment / Various safety devices, etc.
- We shall not be liable for any malfunctions, damages, or losses that occur as a result of special installation (hanging from a high ceiling, etc.) or installation work performed by a party other than our company. Please carefully consider the possibility of problems occurring depending on the installation location and method,etc., and take appropriate measures before using the product.
- In the unlikely event that a product defect occurs, regardless of whether it is within the warranty period or not, the customer will be responsible for the costs associated with removing and reinstalling the product.
- Since the installation environment for information displays varies from project to project, please refer to this document and install the display in accordance with the specifications of each model.
If you are having difficulty determining whether or not the product can be installed, or if you would like to confirm the details, please contact our sales representative in charge of information displays.

2. Design precautions

2.1. Precautions for temperature and Clearance

Temperature conditions

- Operating temperature range *1 → 32°F (0°C)-104°F (40°C)
- Operating Humidity range *1 → 20%-80%RH (No condensation)
- Temperature of LCD surface → Below 140°F(60°C)

*1 : This range may change by installation conditions.

Please follow these requirements when setting the monitor.
Refer to the measures against temperature and install the monitor
in accordance with its requirements.

The thermal influence

- If the temperature is too high → Electronic component's life time will be shortened or break down.

If the internal temperature of this unit becomes too high, the unit will turn off and go into standby mode.

- If the temperature on LCD surface is too high → Monitors will break down or uniformity issue will occur
- If the temperature is too low → Monitors will break down, will not start up or monitor issue will occur.

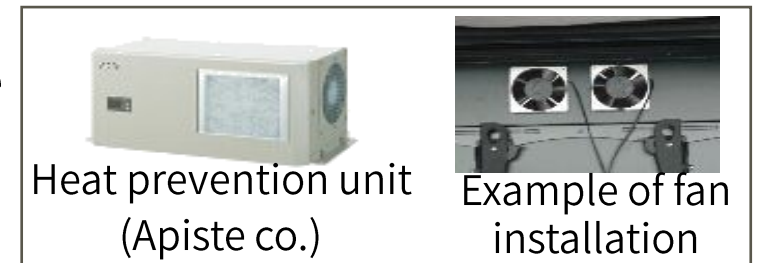
Measures against temperature (clearance)

- Even if the ambient temperature around the information display is below 104°F (40°C), if the clearance is not secured, the temperature inside the product will rise and cause a malfunction.
- In the case of a multi-display, it is necessary to ensure clearance in the front, back, top, bottom, left, and right, regardless of whether it is wall-mounted or installed on a stand. (See next page for dimensions)
- If you put it in a housing, the conditions will change depending on the position and size of the ventilation holes, and whether or not a fan is included.

Measures to take in case of insufficient clearance

The effectiveness of each measure differs depending on the environment. Please choose the best measure for respective environment as follow.

- Using a cooling fan(However please note that the temperature inside the casing is difficult to be lowered when dust is corrected and use the filter and clean it regularly.)
- Improve the ventilation by widening its space
- Using a heat exchanger



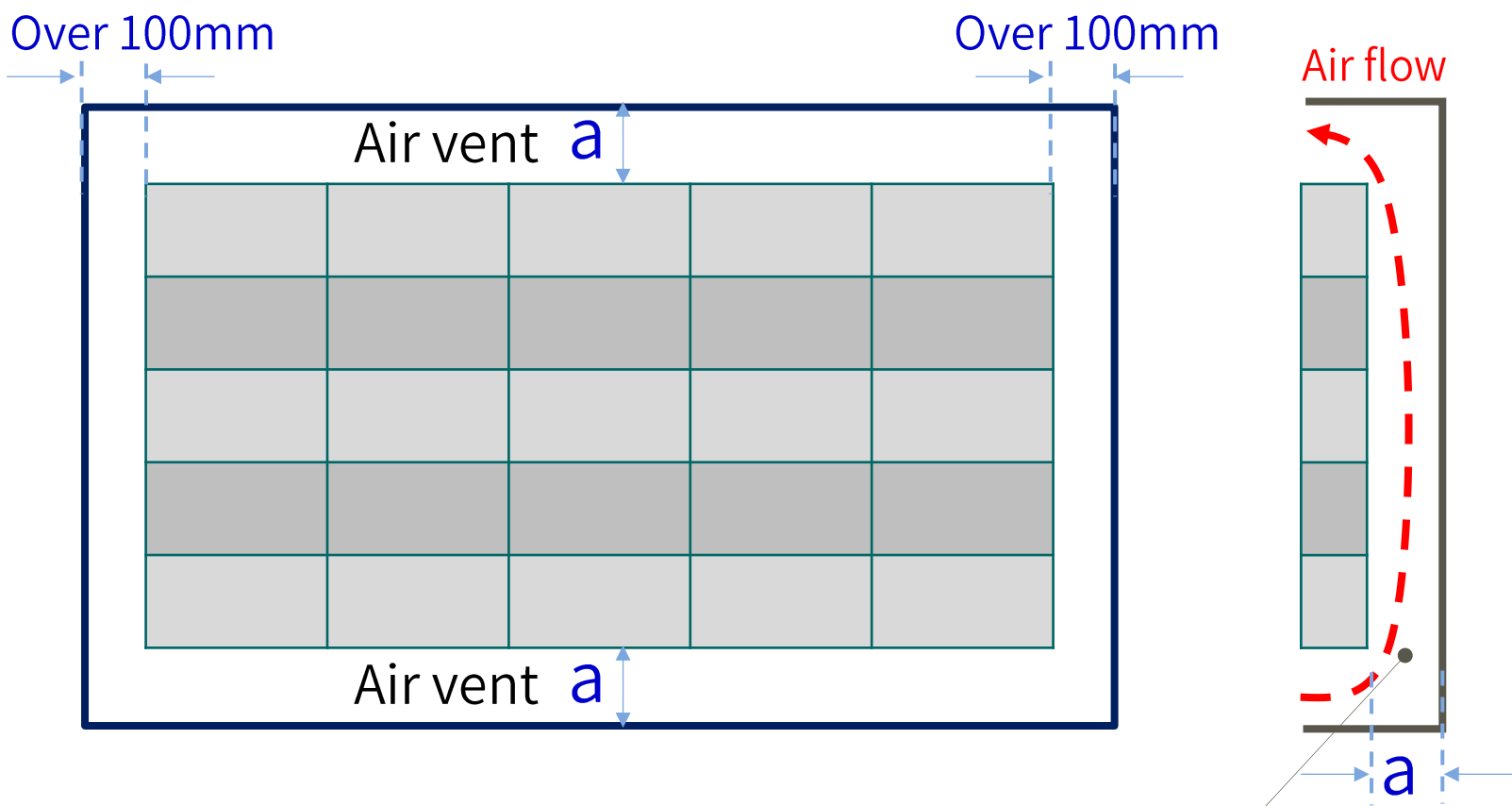
If it is difficult to secure sufficient space or if the unit is to be installed in a location where the operating temperature will exceed 40°C, measures such as installing an air conditioner will be necessary.

If the temperature will fall below 0°C, measures such as heating will be necessary.

About the clearance required for the top and bottom/back

- This unit determines the required clearance (top/bottom/rear dimensions) by the number of vertical layers/cooling air speed/brightness.
- Please take measures to prevent dust from forming on the ventilation openings, and perform regular cleaning and maintenance to ensure that the airflow does not stop due to blockages.
Please check items 3.8-3.9 for the necessary space for maintenance.

Required clearance dimensions



• Specification temperature (Below 40°C)

Required dimensions for (a)

- 1) In case of natural cooling (Ventilation speed 0.2m/s)
- 2) In the case of forced air cooling ① (Ventilation speed 1.5m/s : A wind that cannot be felt)
- 3) In the case of forced air cooling ② (Ventilation speed 3m/s : Feel the wind on your face)

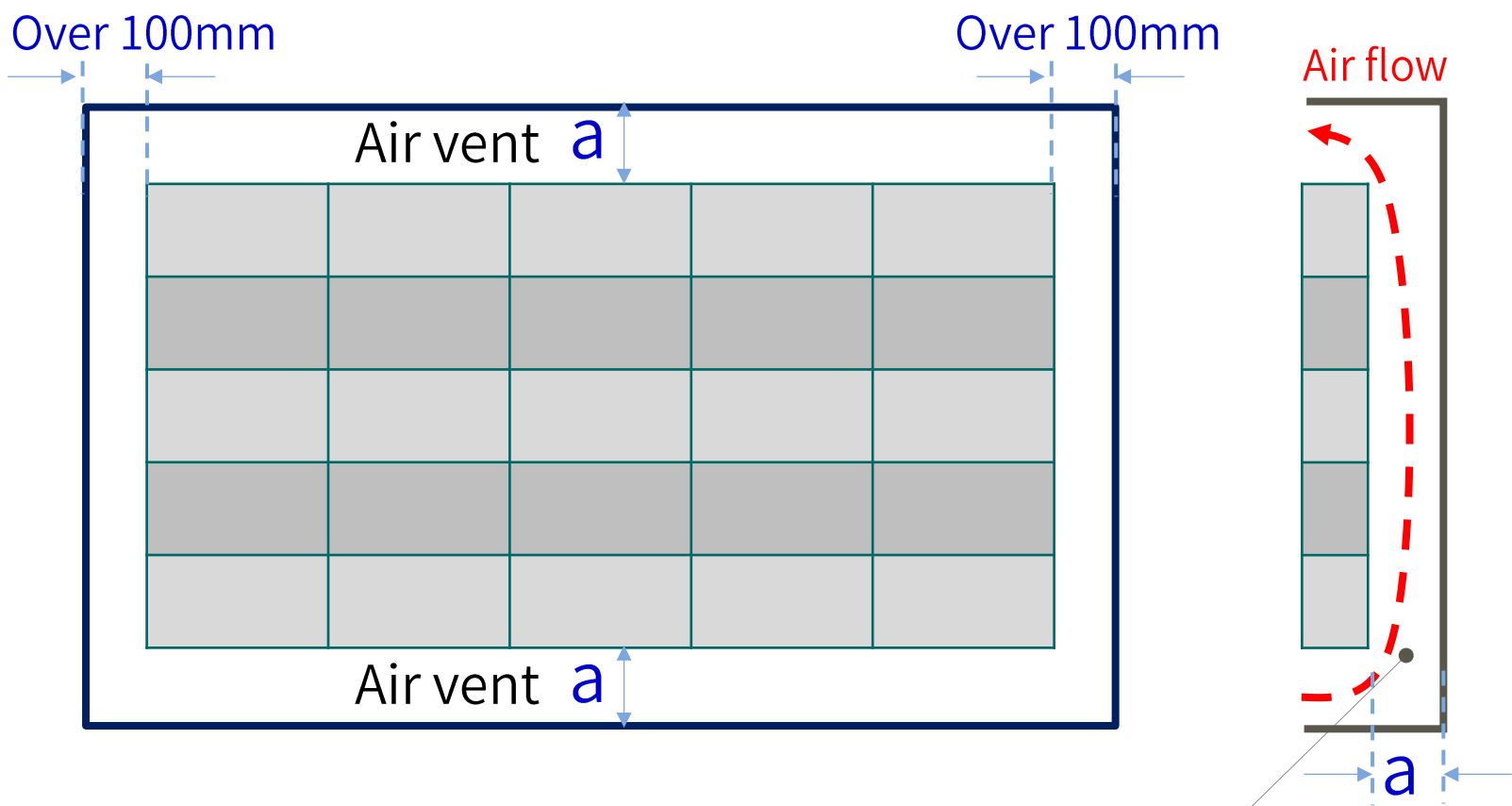
Horizontal installation	Brightness 100% setting			Brightness 70% setting		
	In case of natural cooling	In the case of forced air cooling ①	In the case of forced air cooling ②	In case of natural cooling	In the case of forced air cooling ①	In the case of forced air cooling ②
	Ventilation speed 0.2m/s	Ventilation speed 1.5m/s	Ventilation speed 3m/s	Ventilation speed 0.2m/s	Ventilation speed 1.5m/s	Ventilation speed 3m/s
2 units	Over 250mm	Over 40mm	Over 30mm	Over 200mm	Over 30mm	Over 30mm
3 units	Over 370mm	Over 50mm	Over 30mm	Over 300mm	Over 40mm	Over 30mm
4 units	Over 490mm	Over 70mm	Over 40mm	Over 400mm	Over 60mm	Over 30mm
5 units	Over 610mm	Over 90mm	Over 50mm	Over 500mm	Over 70mm	Over 40mm

Vertical installation	Brightness 100% setting			Brightness 70% setting		
	In case of natural cooling	In the case of forced air cooling ①	In the case of forced air cooling ②	In case of natural cooling	In the case of forced air cooling ①	In the case of forced air cooling ②
	Ventilation speed 0.2m/s	Ventilation speed 1.5m/s	Ventilation speed 3m/s	Ventilation speed 0.2m/s	Ventilation speed 1.5m/s	Ventilation speed 3m/s
2 units	Over 430mm	Over 60mm	Over 30mm	Over 360mm	Over 50mm	Over 30mm
3 units	Over 650mm	Over 90mm	Over 50mm	Over 530mm	Over 80mm	Over 40mm
4 units	Over 860mm	Over 120mm	Over 60mm	Over 710mm	Over 100mm	Over 50mm
5 units	Over 1,080mm	Over 150mm	Over 80mm	Over 880mm	Over 120mm	Over 60mm

About the clearance required for the top and bottom/back

- This unit determines the required clearance (top/bottom/rear dimensions) by the number of vertical layers/cooling air speed/brightness.
- Please take measures to prevent dust from forming on the ventilation openings, and perform regular cleaning and maintenance to ensure that the airflow does not stop due to blockages.
Please check items 3.8-3.9 for the necessary space for maintenance.

Required clearance dimensions



- Specification temperature (Below 40°C)

Required dimensions for (a)

- 1) In case of natural cooling (Ventilation speed 0.2m/s)
- 2) In the case of forced air cooling ① (Ventilation speed 1.5m/s : A wind that cannot be felt)
- 3) In the case of forced air cooling ② (Ventilation speed 3m/s : Feel the wind on your face)

Horizontal installation	Brightness 100% setting			Brightness 70% setting		
	In case of natural cooling	In the case of forced air cooling ①	In the case of forced air cooling ②	In case of natural cooling	In the case of forced air cooling ①	In the case of forced air cooling ②
	Ventilation speed 0.2m/s	Ventilation speed 1.5m/s	Ventilation speed 3m/s	Ventilation speed 0.2m/s	Ventilation speed 1.5m/s	Ventilation speed 3m/s
2 units	Over 210mm	Over 30mm	Over 30mm	Over 160mm	Over 30mm	Over 30mm
3 units	Over 320mm	Over 50mm	Over 30mm	Over 240mm	Over 40mm	Over 30mm
4 units	Over 420mm	Over 60mm	Over 30mm	Over 310mm	Over 50mm	Over 30mm
5 units	Over 530mm	Over 70mm	Over 40mm	Over 390mm	Over 60mm	Over 30mm

Vertical installation	Brightness 100% setting			Brightness 70% setting		
	In case of natural cooling	In the case of forced air cooling ①	In the case of forced air cooling ②	In case of natural cooling	In the case of forced air cooling ①	In the case of forced air cooling ②
	Ventilation speed 0.2m/s	Ventilation speed 1.5m/s	Ventilation speed 3m/s	Ventilation speed 0.2m/s	Ventilation speed 1.5m/s	Ventilation speed 3m/s
2 units	Over 380mm	Over 50mm	Over 30mm	Over 280mm	Over 40mm	Over 30mm
3 units	Over 560mm	Over 80mm	Over 40mm	Over 410mm	Over 60mm	Over 30mm
4 units	Over 750mm	Over 100mm	Over 50mm	Over 550mm	Over 80mm	Over 40mm
5 units	Over 930mm	Over 130mm	Over 70mm	Over 690mm	Over 100mm	Over 50mm

2.2. Precautions for direct sunlight

This product is for use indoors. Please set this monitor in a place away from to the direct sunlight, wind, or rain. These conditions may cause failure and/or deterioration.

About sunlight

- The product must not be exposed to the direct sunlight
- Please keep the product away from direct sunlight. Please install it in shaded areas like on a wall facing the north especially when using in an outdoor or semi-outdoor environment.

The effect of direct sunlight

If the product is being used under direct sunlight

- The effect of brightness
 - > Monitor would look much darker than the normal use.
- The effect of ultraviolet rays and infrared rays.
 - > It causes LCD to malfunction.
- The temperature rise may cause a malfunction.
(No matter how much you cool the surroundings, the temperature of the area exposed to sunlight is high.)
 - > Monitor will break down or uniformity issue will occur.
Cabinet will also deform.



Example of LCD darkening



Example of LCD darkening

Measures against sunlight

Please take measures against ultraviolet rays ,infrared rays and temperature.

- Set a sun-shade above the monitor
- Utilize the shade of the building
- Place the monitor where there is no direct sunlight
- Change the direction of the monitor to avoid sunlight
- Using some object which can block out the direct sunlight
(You should pay attention to strong winds like hurricanes.)



Utilizing the shade of the building



A shade above the product



Setting the monitor back to the place where there is no direct sunlight

2.3. Precautions for dust

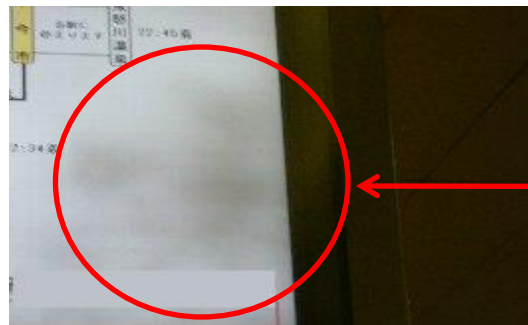
About dust

- This product is for use indoors.
 - When it is used at outdoor, or at dusty places, such as railway station or close to the traffic, the measures against dust must be considered.
- Please observe the following instructions when installing.

The effect of dust

- If the anti-dust measure against dust is not considered ->

The dust will enter into the LCD panel through the gaps and will cause the distorted image (see example below), and will break down in the end.



The dust enters into the LCD panel and causes the distorted image.

Please don't set up vent, when installing the monitor on to the pole and the wall.
The dust causes the above situation by intrusion of dust to inside of the product.

Countermeasure against dust

- Create a completely sealed enclosure.
 - The completely sealed enclosure can shut off dust so it is advantageous for installation in locations under the effect of excessive amounts of dust, outdoor, and a salt damage.
 - You will need the countermeasures against thermal at the same time, such as using the heat exchanger or the air conditioner etc.
- Regular maintenance of the enclosure is required to maintain performance.

Precautions for using anti-dust enclosure

- When using the anti-dust display(enclosure), please remove the dust with filter.

Precautions for using the filter

(1)it is possible to prolong the filter life by using two filter and exchanging the fine screen pre-filter.



(2)it may raise the internal temperature for a monitor when using the filter, because of raising the air resistance.

Please reduce the air resistance by increasing the area of filter, etc.

(3)when circulating air with a fan, it needs attention how to make the enclosure whether exhaling or inhaling air from the fan.

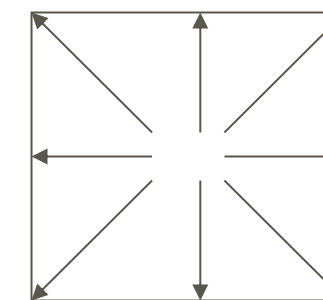
Intake air fan:

The pressure in the enclosure is higher than out of enclosure. Therefore, dust does not break in the housing. It is limited the size of intake vent. And it is difficult to suck in much air(when using in dusty area).

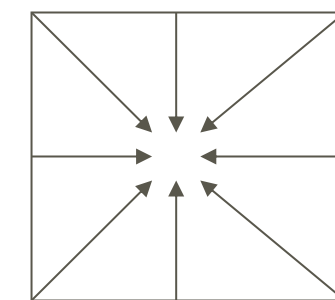
Exhaust air fan:

The pressure in the housing is lower than out of enclosure. Therefore, dust breaks in the housing. It has much size of intake vent. And it is easy to control the temperature(when using in less dusty area and severe temperature requirements).

*to keep the performance, please clean the filter regularly



Air intake fan

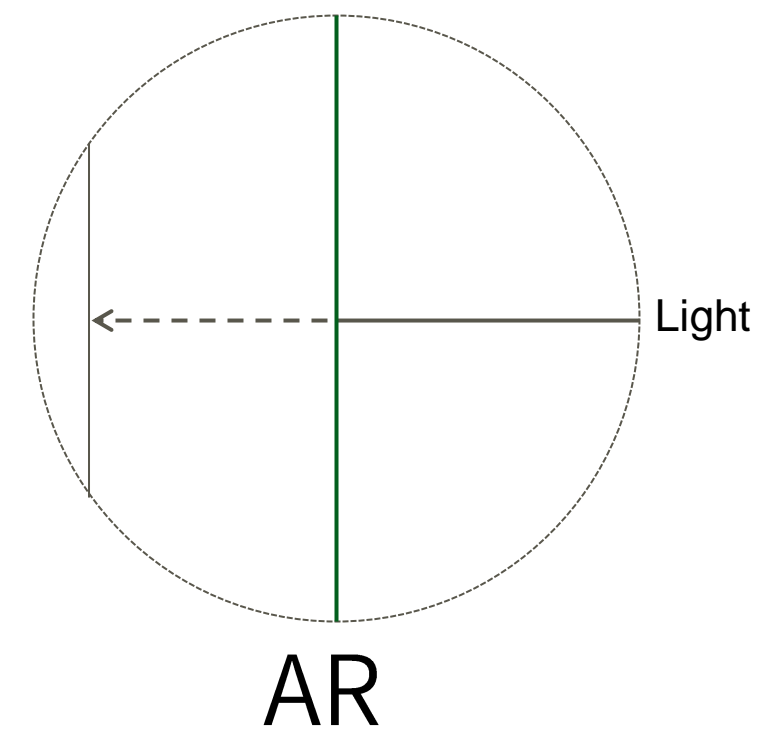
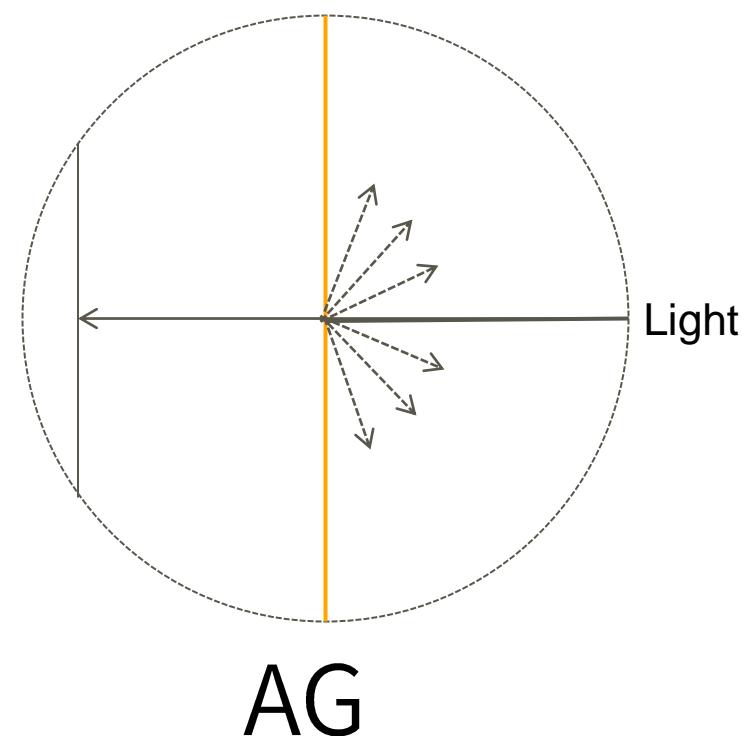
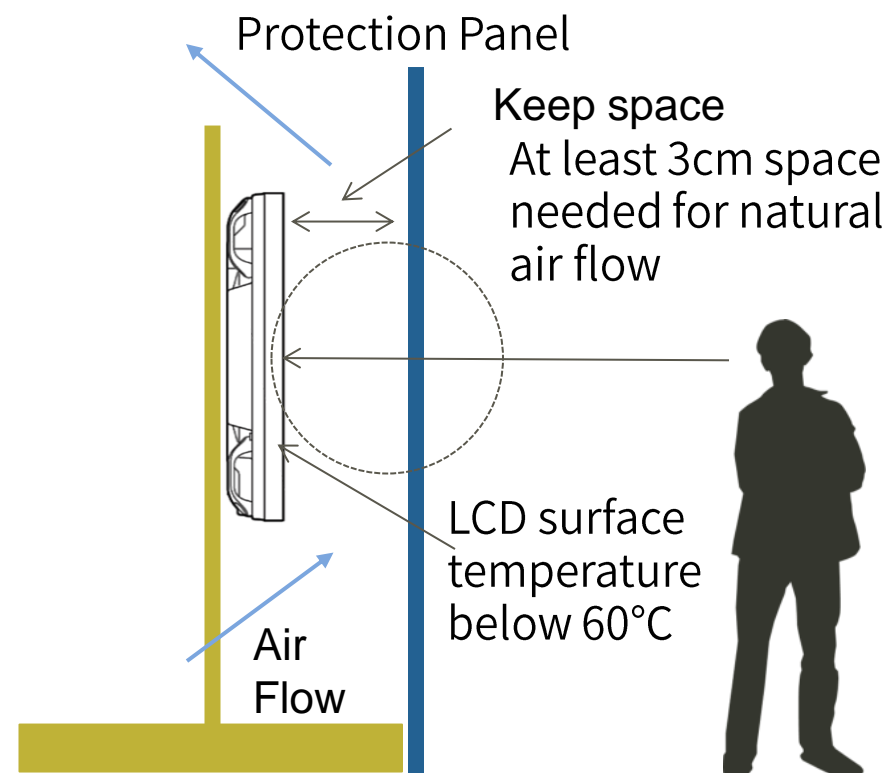


Air exhaust fan

2.4. Precautions for reflected glare

Reflected Glare

- With a protection panel, reflected glare may occur and may degrade visibility.
 - Anti glare screen protector is effective to prevent reflected glare.
 - There are two methods of anti glare.
 1. AR coating which reduces reflection and eliminates stray light.
 2. Silica coating (AG coating) which reduces reflection with scattered reflected light. AG coating is lower price than AR coating. However, images easily defocus and view angle is narrow with AG coating. Please select the right protection panel for your purposes .
- Panel surface treatment : Anti-glare treatment (Haze Value : PN-UN553S/PN-UN553V : 25%)
- Generally, when decreasing glare, image quality comes down. Therefore, please select the suitable protection panel in each installing site.
 - The closer a distance from the protection panel to the LCD panel get more clear image. However, LCD surface temperature rises.
 - Please make sure that the LCD surface temperature is below 140°F(60°C)by keeping a space (at least 3cm) between monitor and protection panel a monitor and a wall to flow the air. The space size may differ depending on installation condition and ambient air temperature. If air flow fan is required, sufficient test is needed.



2.5. Precautions for installation location, dew condensation etc

About installation location, dew condensation, water drops and salt damage

- This product is for use indoors. Please do not to be exposed to weather and direct sunlight when installing. They cause breakdown and degradation.
- Humidity condition for IDP
 - Range of humidity condition for IDP : From 20% to 80%(no condensation)
- Dew condensation and/or liquid drops will cause the breakdown of the circuit and/or LCD panel. Please install LCD away from condensation and liquid drops.
- About dew condensation
 - The environment which has high possibility of condensation
 - Place where temperature is generally low but has frequent warm air flow.
(For example : the place in front of the vents of radiators. When the radiator is turn on in a cold winter morning, condensation occurs.)
 - Near the sea, lake, mountain and so on where humidity is high
 - The environment which has high possibility of water drops
 - “Semi-outdoor” place where strong winded-rain(typhoon) could potentially reach the monitor.
 - The place which is below the pipes inside the ceiling.
(When installing in these places, countermeasures should be taken to avoid water drops to reach the monitors. For example, covering the LCD monitor with box. In such a case, do not install in a place where the wind is blowing.)
- Caution for the wind of the typhoon
 - Please install so that you can remove the influence from the wind.
- Caution for salt damage
 - Please consult with an authorized SHARP servicing dealer with us in advance when installing near the sea where salt damage may occur.
- Caution for sulfide
 - Please don't install near the hot spring and volcano where there may occur the influence from sulfide.
- Caution for organic gas and flammable gas
 - Please don't install the place where there may be organic gas and flammable gas.
- Caution for oil smoke
 - Please don't install in a place with a lot of oily smoke such as the kitchen or its vicinity.
- Caution for iron powder
 - Please don't install in places where iron powder dances, such as in factories.

2.6. Precautions for Vibration/Expansion/Afterimage

Vibration

- This monitor is not designed to set in any places with strong vibrations, such as in motor vehicles.
- If the monitor will be used in the place with possibility of even small vibration, such as at railway station's platform, should take some measures such as using a shock absorber .

Expansion

- When using acrylic or polycarbonate for the screen protective panel, consideration must be given to their expansion due to heat and moisture absorption. Acrylic is expected to expand by approximately 0.4% when it absorbs moisture. Please take care to secure the protective panel in place so that it does not become distorted due to expansion.

Shadow

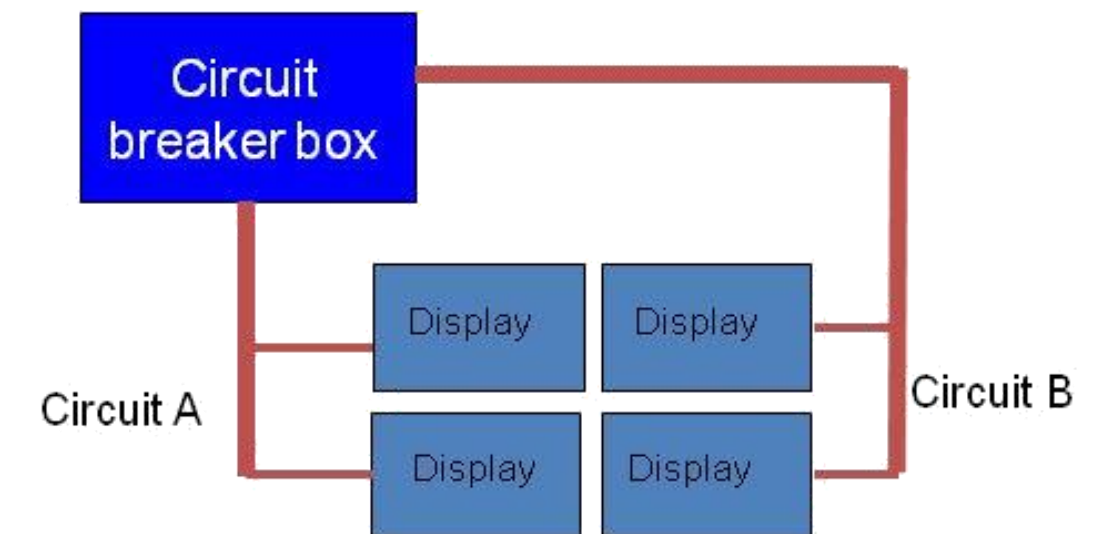
- When displaying content with white characters and figures against a gray background, streaks or uneven brightness may appear horizontally or vertically depending on the viewing angle of the screen.
- For temporary displays, the display can be restored by turning the power off, but for long-term displays, it will take time to restore, so you will need to switch screens periodically.

Afterimage

- Displaying the same screen for a long period of time will cause a temporary afterimage.
Temporary afterimages can be recovered by displaying a black screen (this can be done with the power off), a white screen or a video, but the longer the same screen is displayed, the stronger the afterimage will be and the longer it will take to recover, so it is necessary to switch screens regularly
- The following measures are effective against afterimage.
 - Display video whenever possible. For example, display 10 seconds of video after 5 minutes of still images.
 - Ensure that the contrast between the background and the displayed content is not too great, and change the color periodically.
 - Using the gamma value limit function

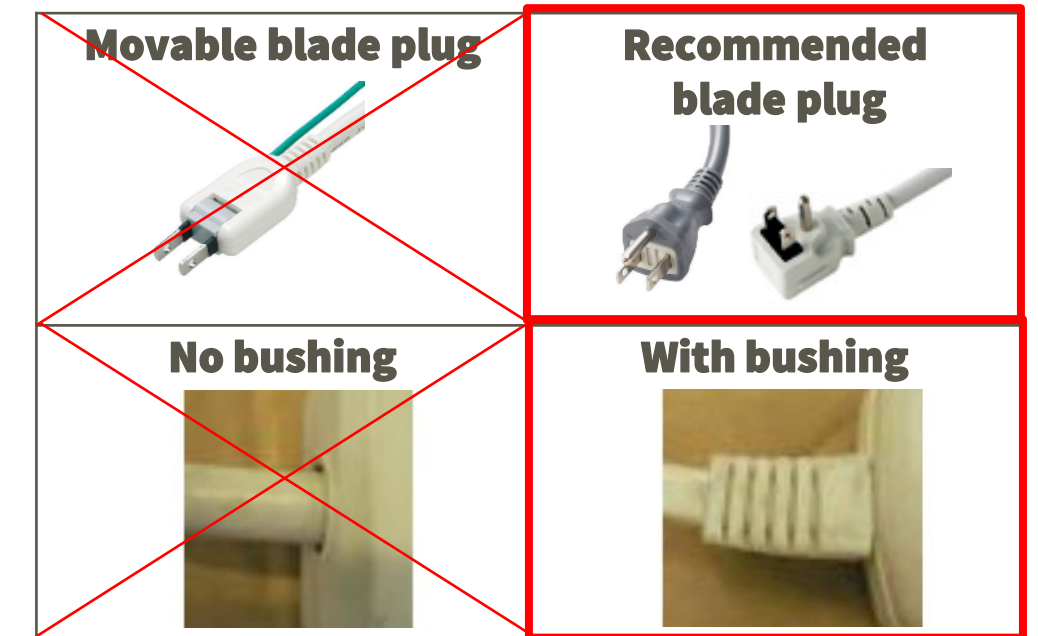
Power Supply

- This monitor is designed to be used under commercial 100V - 240V power supply. When aligning multiple screens, shortage of power supply may occur.
- Consideration should be taken to collect several circuits and supply power evenly.
- Follow your local electrical code to properly calculate load on the circuit as it changes based installation locations. It is probable that you may be able to put more than 2 displays on a circuit.
- Please consider power consumption of all other accessories that will be attached to circuit as it will also affect total power requirement. (Switcher, AV devices, etc)
- Please prevent overcurrent by shifting the power ON timing of the display, etc.



Cautions for using a power strap

- Check the neutral rating of the power strip and make sure that the total current consumption of the connected equipment does not exceed the current value of the power strip.
- It is not recommended to use a power strip of a movable blade plug that moves the plug blade. Prepare a spare ground wiring for maintenance to attach an earth strap. If an excessive load is applied to the plug blade, abnormal heating may occur, even if the current is below the rated current. Please use un-movable blade plug as much as possible.
- If the cord is pulled with an excessive force, the internal core wire may be damaged and abnormal heat may occur, therefore it is recommended that the cord is fixed with a bushing or the like.



2.8. Connecting devices

RS-232C / LAN

- You can control monitor functions by PC by connecting RS-232C or LAN. (e.g. power on/off function)
- We recommend connecting RS-232C or LAN to displays before installing them in higher place or other places where it is hard to connect cables after installation. They may need in future monitor maintenances.
- Please use the commercially available **cross cable** for the RS-232C cable.

Media Devices and Peripheral Equipment

- When you use media devices (e.g. personal computer, DVD player) or peripheral equipment (e.g. distributor, video switching unit), check the connection operation of the devices beforehand.

Cable

- When connecting the DisplayPort terminal on the PC side to the HDMI on the display side, use an active type connection cable (DisplayPort-HDMI conversion cable) and connect and check in advance that it works. (An active type is an HDMI cable with a built-in equalizer IC for adjusting the image.)
- When you use light conversion cable to extend the transmission distance, EDID may not be read accurately. Not reading EDID accurately, monitors cannot display correctly. Check the image quality beforehand when using these devices.

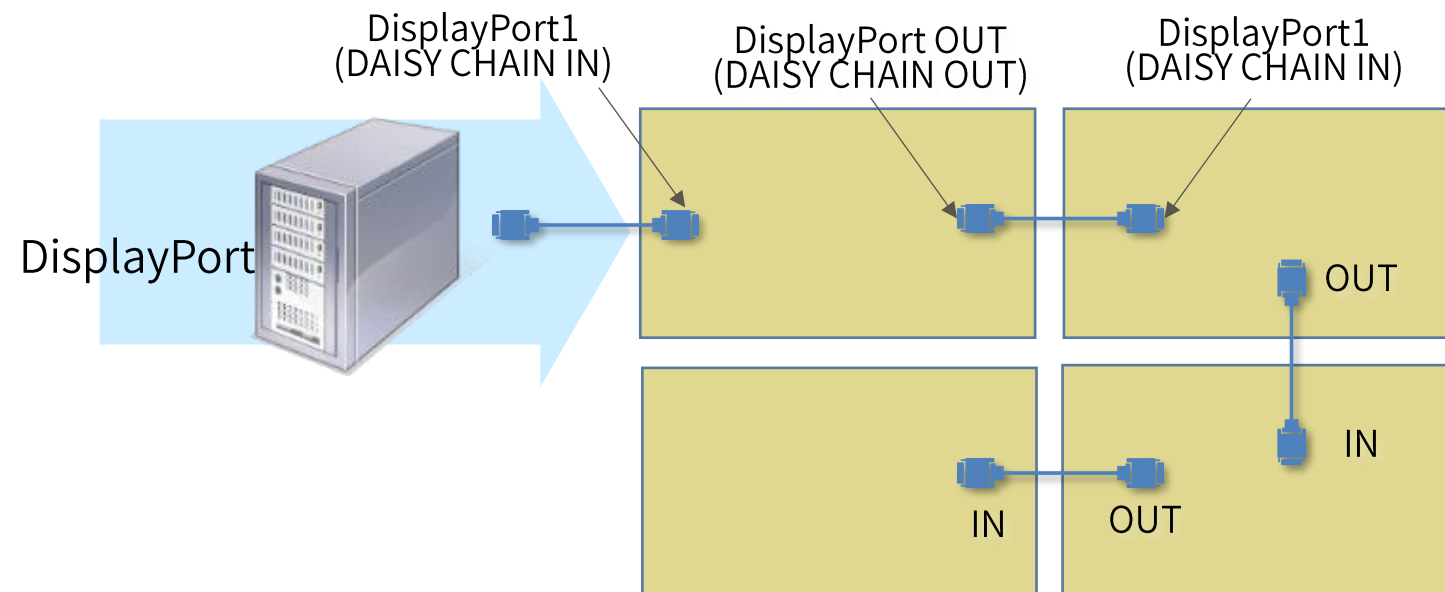
2.9. Connecting devices(daisy-chaining)

Daisy Chain Connection

- When using a daisy chain connection, connect the DisplayPort input signal to the DisplayPort output terminal and the HDMI/DVI-D/Media Player signal to the HDMI output terminal. (Analog signals cannot be daisy-chained.)
- To output HDCP-encrypted video, an external device that supports HDCP is required.
- The maximum length of DisplayPort and HDMI cables when daisy-chaining is 3m.
- Connect using commercially available or included 4K-compatible HDMI and DisplayPort cables.

DisplayPort daisy chain

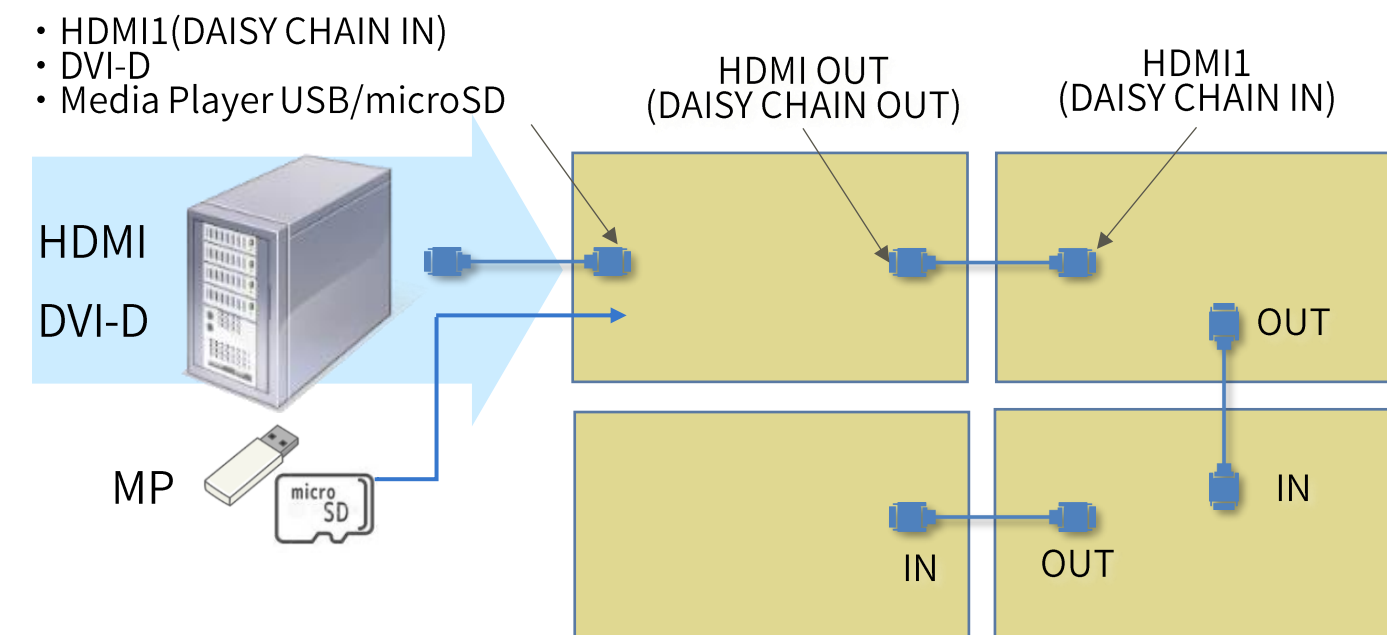
Use the DisplayPort output terminal.



- Number of connectable devices
 - For DisplayPort, up to **100 devices**.
 - However, if you use HDCP1/2.2, up to **4 devices**.^{*1}

HDMI/DVI/Media Player Daisy Chain

Use the HDMI output terminal.



- Number of connectable devices
 - For HDMI, up to **9 devices**.
 - However, when using HDCP1, up to **8 units**^{*1}, and when using HDCP2.2, up to **5 units**^{*1}

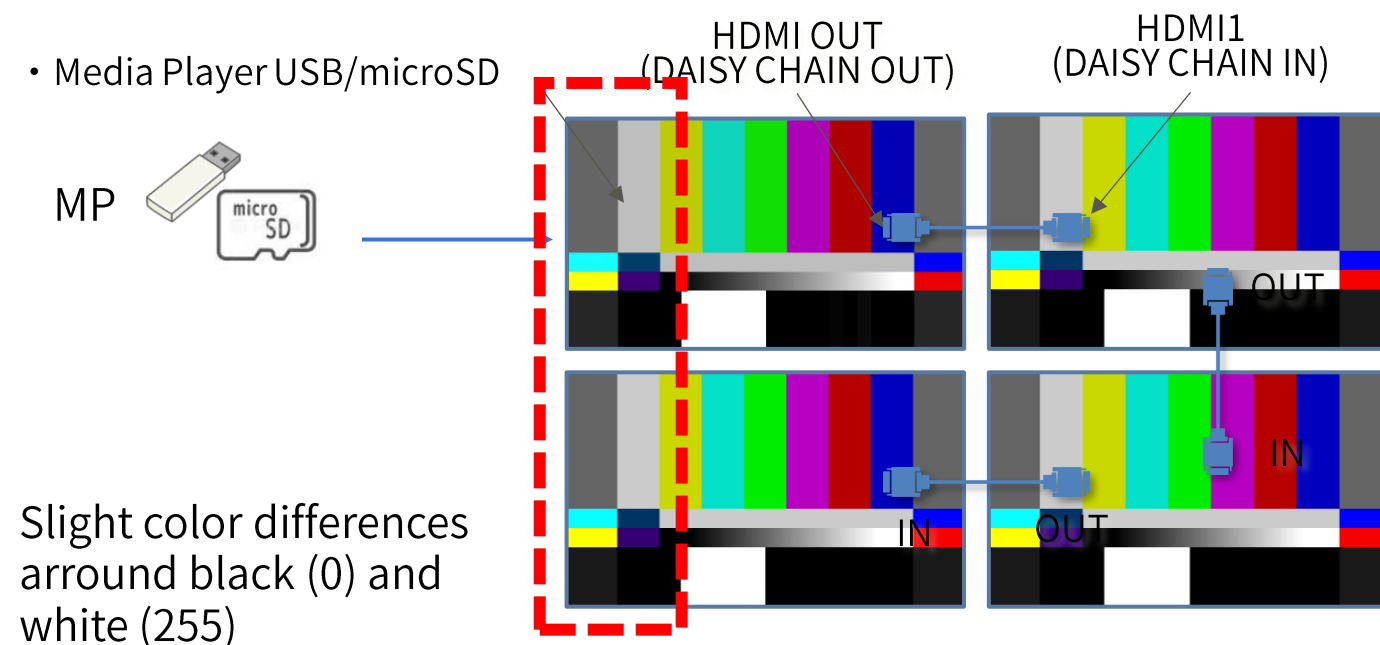
^{*1} If a distributor, matrix switcher, or other device is connected between the video output device and this unit, the maximum number may be reduced.

2.10. Connecting devices(daisy-chaining for Media Player Input)

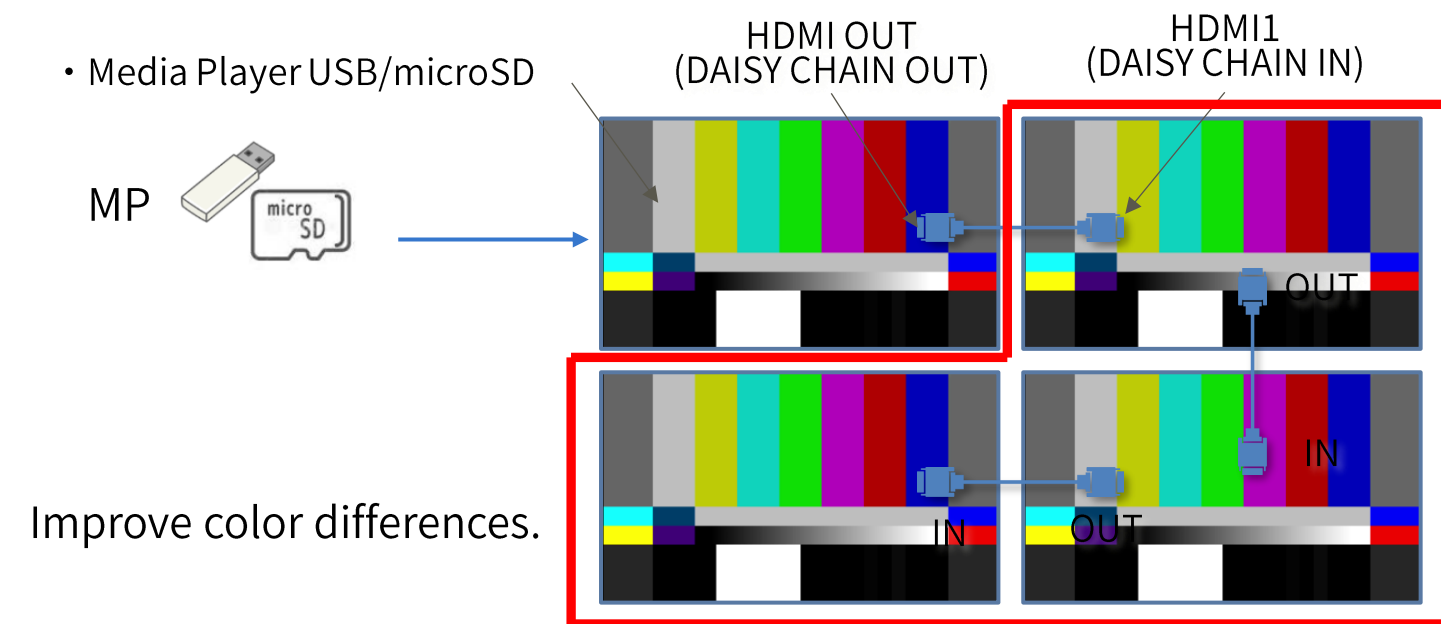
1st unit: Media Player input; subsequent units: HDMI daisy chain connection.

- When selecting MP (Media Player) as the input on the first unit and daisy-chaining the second and subsequent units via HDMI, color mismatches may occur.
- If the colors on the second and subsequent units do not match the first unit, you can improve this by changing the following setting in the OSD menu of the second and subsequent units:

OSD Menu: Set [MULTI-INPUT] – [TERMINAL SETTINGS] – [VIDEO LEVEL] to “RAW”. (Factory default: Auto)



VIDEO LEVEL = 「AUTO」

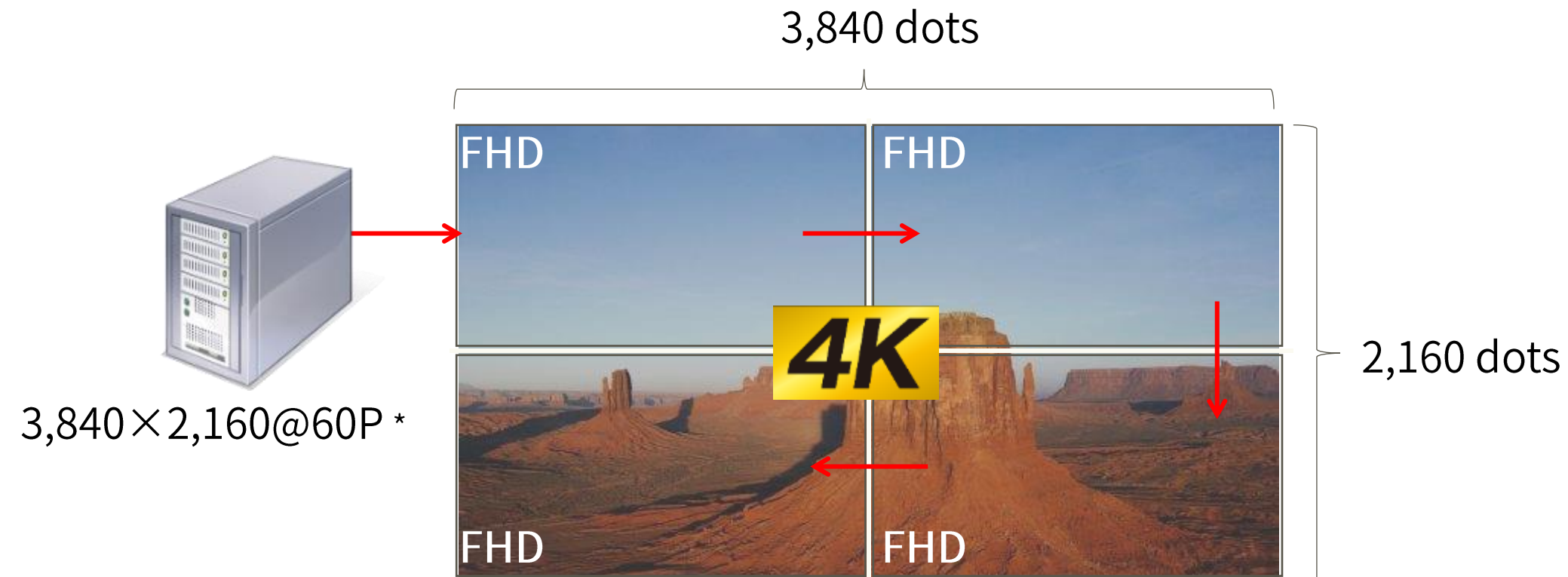


VIDEO LEVEL = 「RAW」

2.11. Connecting devices(4K daisy-chaining)

Daisy Chain Connection (4K)

- The resolution of this unit is FHD, but by using the daisy chain connection/tile matrix function (enlarge function), it can support 4K image display.
- Please connect using commercially available or included 4K-compatible cables.



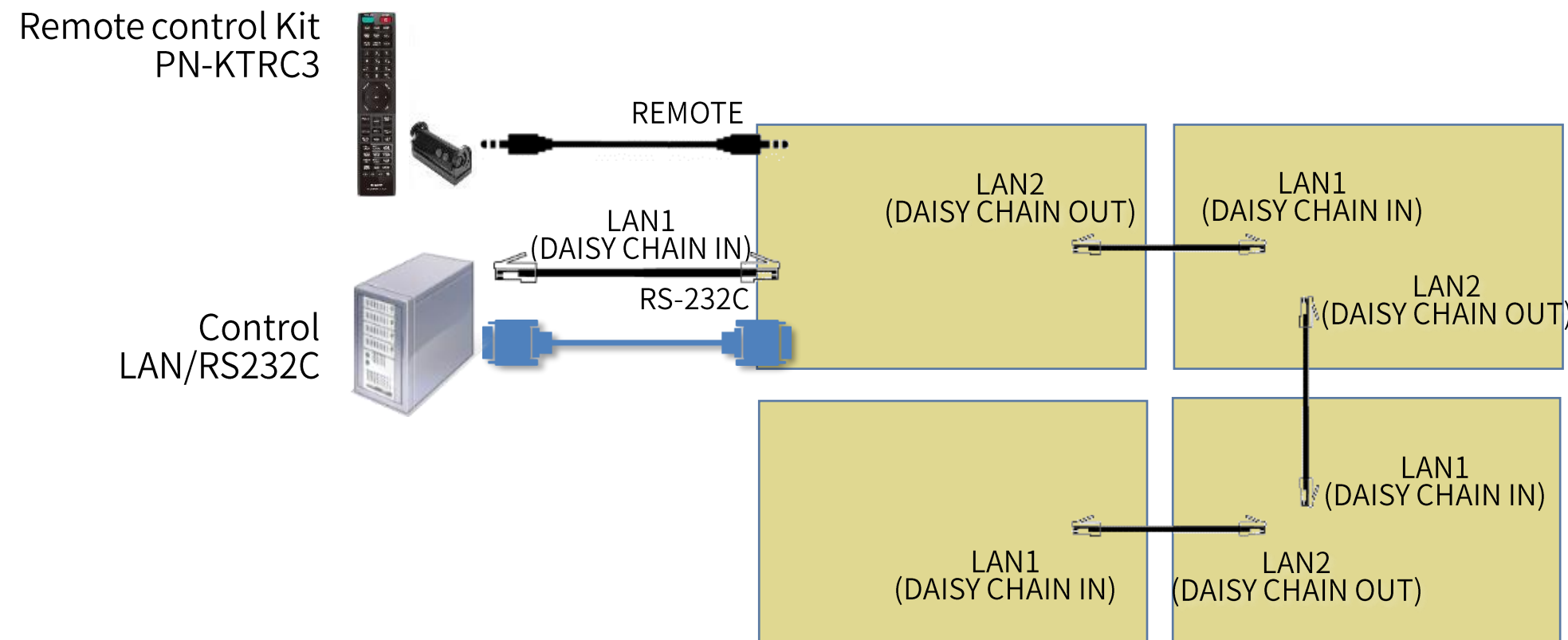
*3,840 × 2,160 @ 60P only for DisplayPort.

For HDMI, the maximum is 3,840 x 2,160 @ 30p when using the tile matrix function (enlarge function).

2.12. Connecting devices(Control Kit)

Control Kit/LAN/RS232C

- Information entered via the control kit, LAN, or RS232C can be sent to multiple displays using a LAN cable.
- Use a commercially available **cross cable** for the **RS-232C cable**. Please note that straight cables cannot be used.
- Please note that the PN-ZR01A/ZR02 control kit cannot be connected.



Up to 100 displays can be connected

2.13. Precautions for multi-display

About temperature rise

- In particular, when the displays are installed one above the other, hot air exhausted from the lower display is drawn into the upper display, which tends to increase the temperature of the upper display.
- If a multi-display system is installed with the displays close together, the temperature will rise, so it is necessary to ensure some clearance.
- If it is difficult to ensure the necessary clearance, use a combination of the following methods to meet the temperature conditions.
 - A) Lower the surrounding temperature by adjusting the air conditioner setting in the room, etc.
 - B) Lower display brightness to reduce heat generation.
 - C) Provide plenty of front and rear clearance.
 - D) Force ventilation using a fan or similar device.
(However, it is more likely to attract dust.)

About expansion

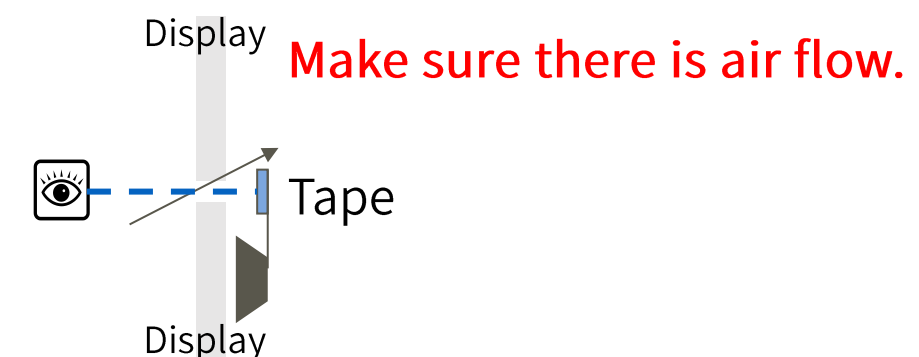
- Install the display while taking into consideration thermal expansion.
- Please ensure there is a clearance of at least 1mm between displays when installing.
- If there is insufficient clearance, the displays will come into contact with each other and the load may cause the displays to not display or may even cause malfunctions.

Improved appearance against gaps

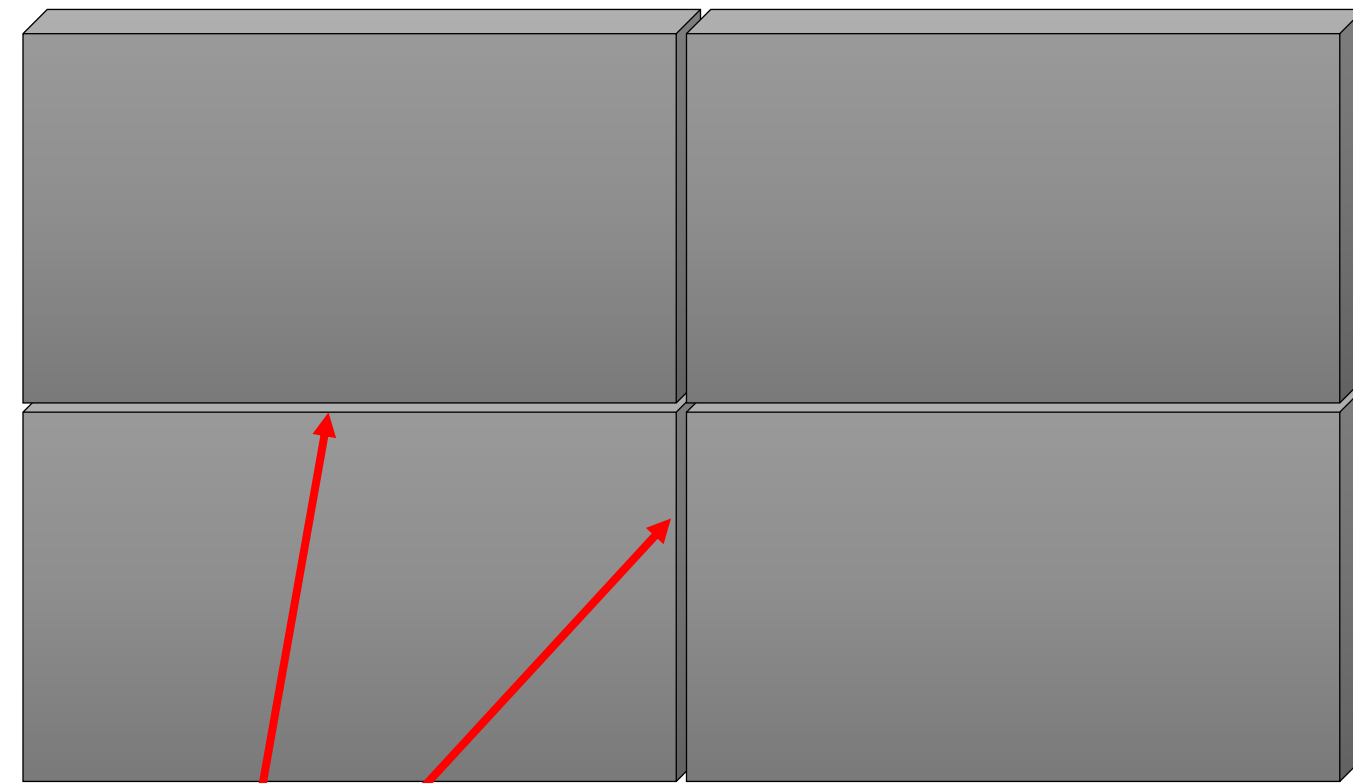
If there is a gap between the displays, light from behind may leak. Measures such as pasting black tape on the back are effective.

Precautions when applying tape:

- Do not cover the ventilation holes on the back of the unit with tape.
- The tape should be applied to the front of the cable routing.
- The tape may peel off due to deterioration, so please maintain it regularly.



2.13. Precautions for multi-display

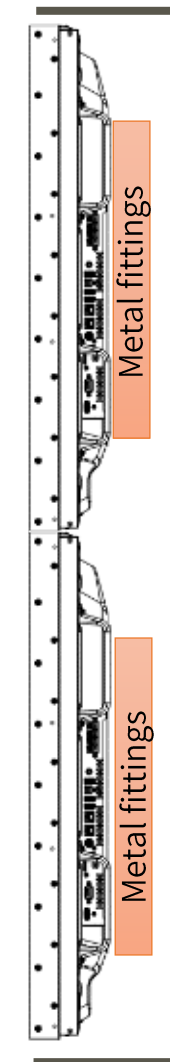


Ensure a gap between displays(1mm or more)
Attach tape to the back to prevent light leakage.

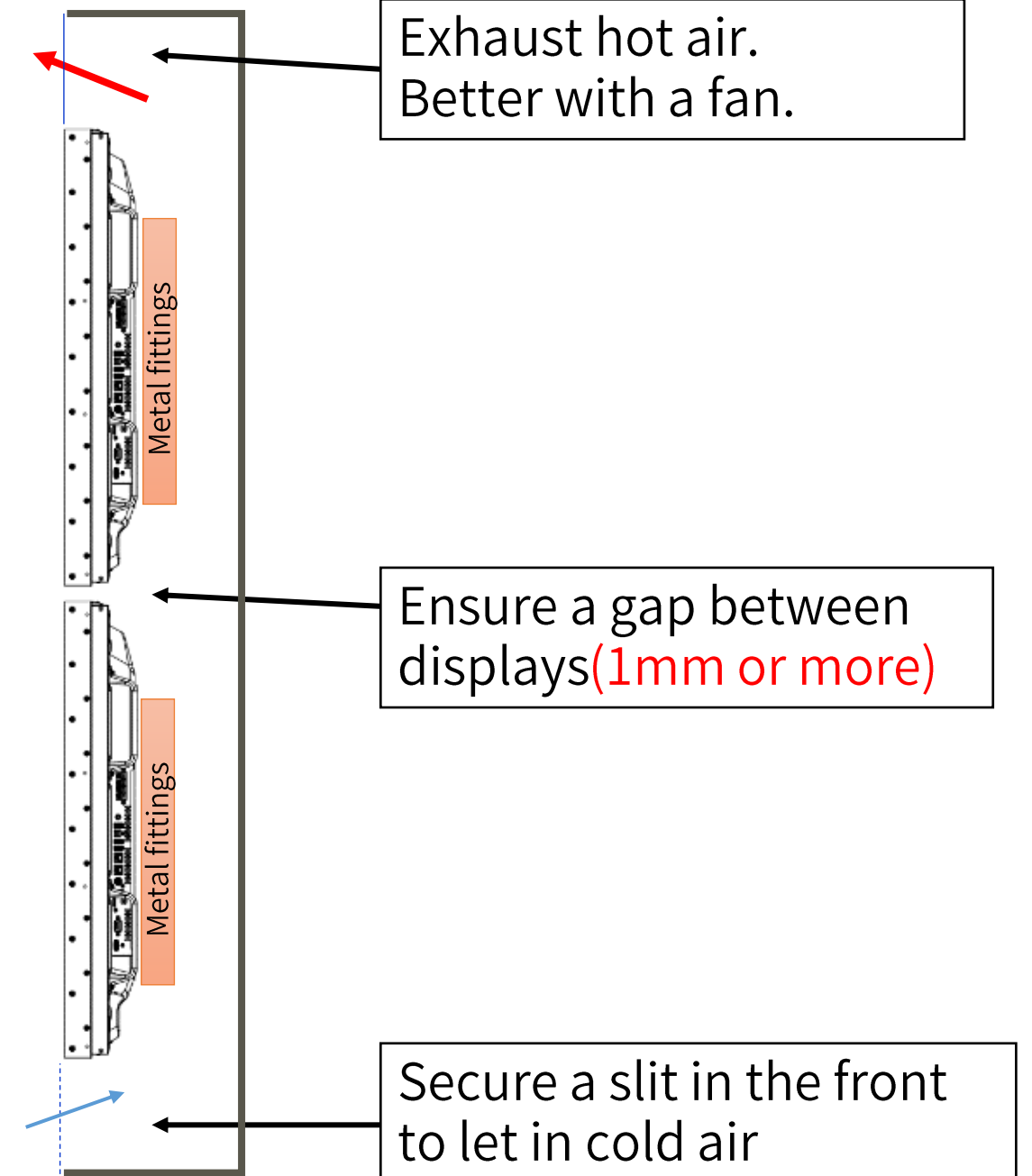
Ensure that the temperature around the display is
between 0 and 40°C.

Ensure left and right, top and bottom clearance.
Also ensure there is clearance from the rear wall.

before



after



- For clearance dimensions and cooling, see Precautions for temperature and Clearance.

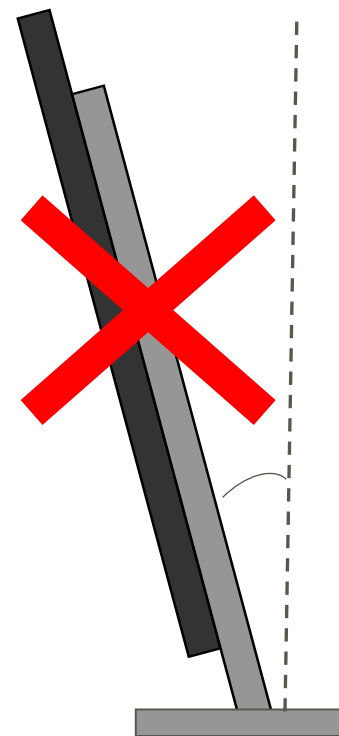
2.14. Precautions for orientation

SHARP

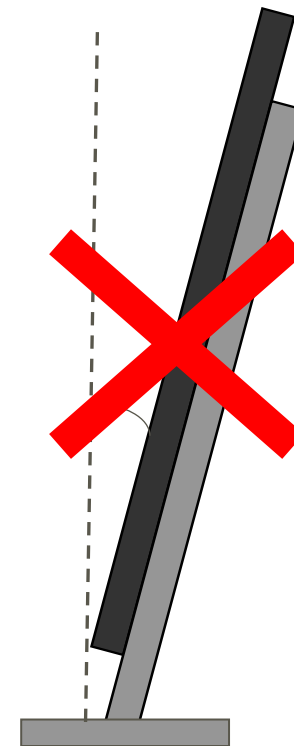
About orientation

This model should be used in a vertical installation.

downward



Upward



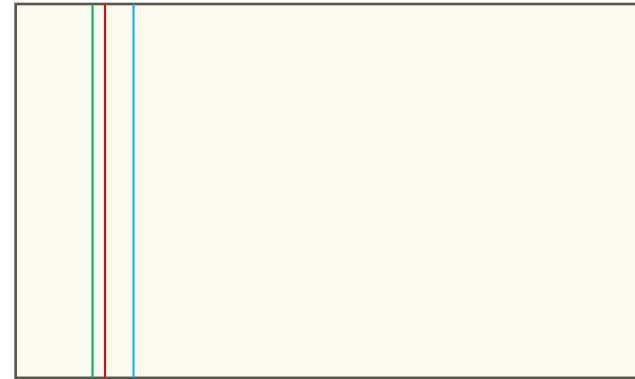
3. Installation precautions

3.1. Examples of breakdowns caused by improper handling

SHARP



Panel crack



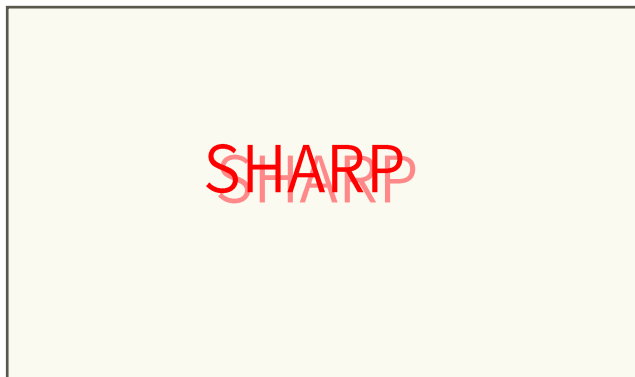
Line defect



Light leakage due to bezel deformation



Band defect



Blurred screen



No display even when power is turned on



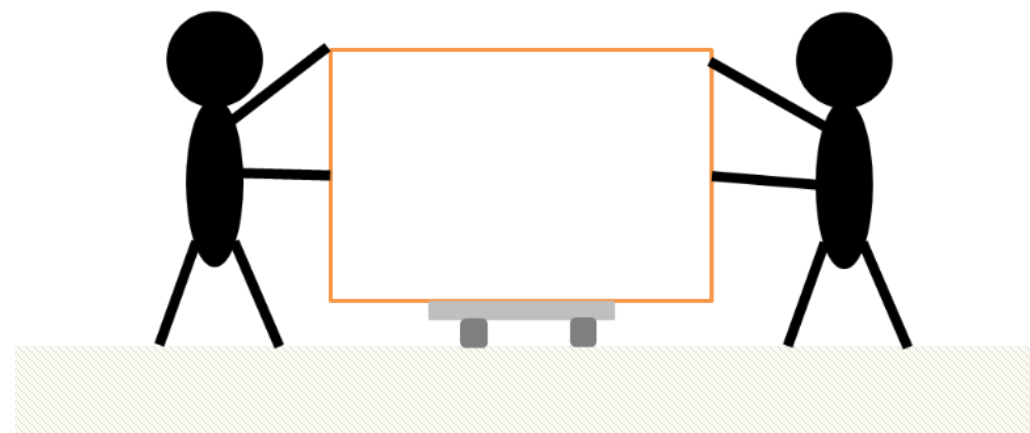
Strange display

Precautions for carrying

- When transporting the product in its packaged state, use a dolly and have two or more people carry it.
- Do not carry the main unit upright when transporting it. It cannot be carried upright even temporarily.
- If you need to use a special case, please consult with our information displays sales representative.
- Do not reuse packaging materials.

<Packaging case size>

Model	W(mm)	H(mm)	D(mm)	Weight(kg)
PN-UN553S	1,436	873	317	40
PN-UN553V	1,436	873	317	40



When transporting using a trolley, work with two or more people.

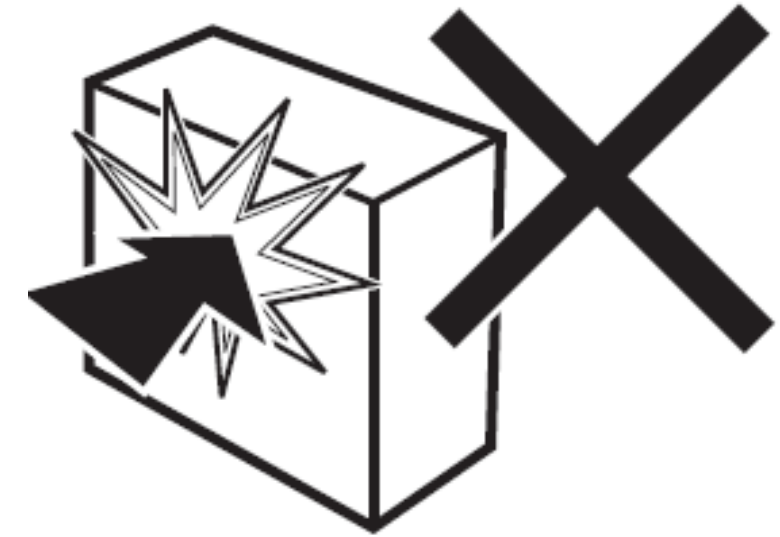
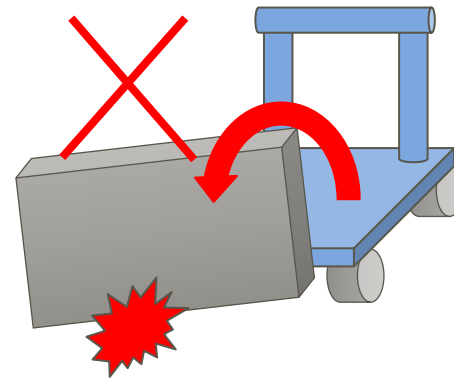
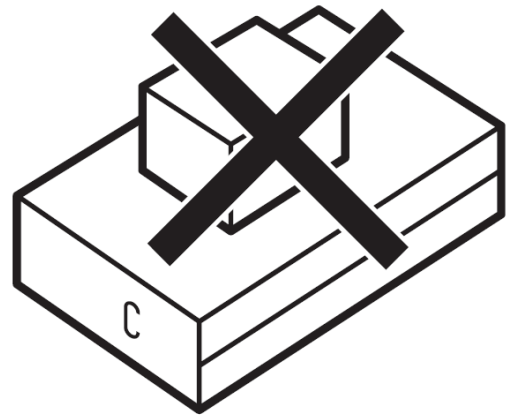


It cannot be transported upright.

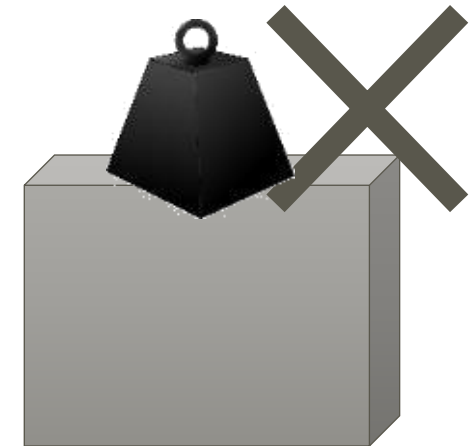
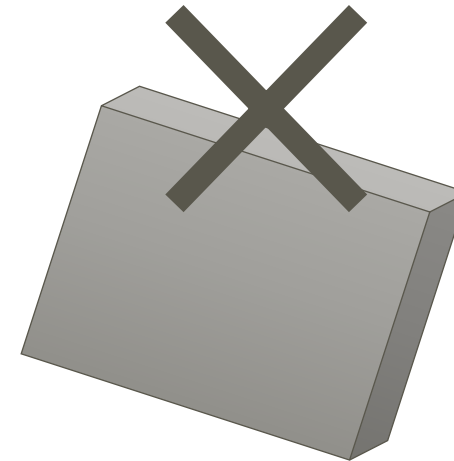
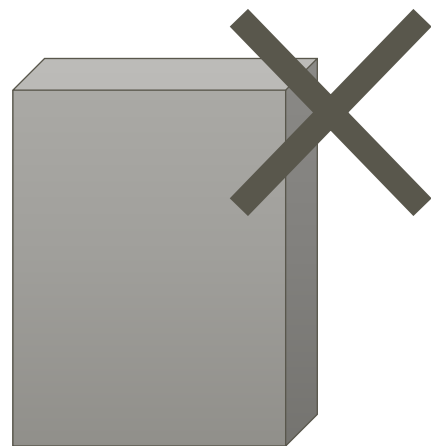
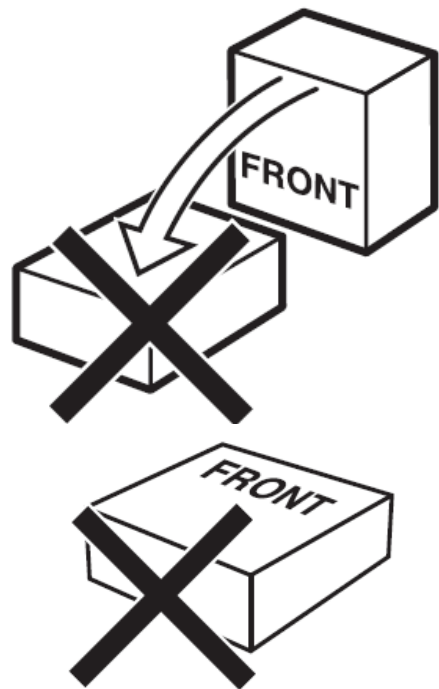
3.3. Precautions for storage and transportation in packaged state

SHARP

- Falling is strictly prohibited
- Horizontal stacking is strictly prohibited
- No trampling allowed
- Falling is strictly prohibited.



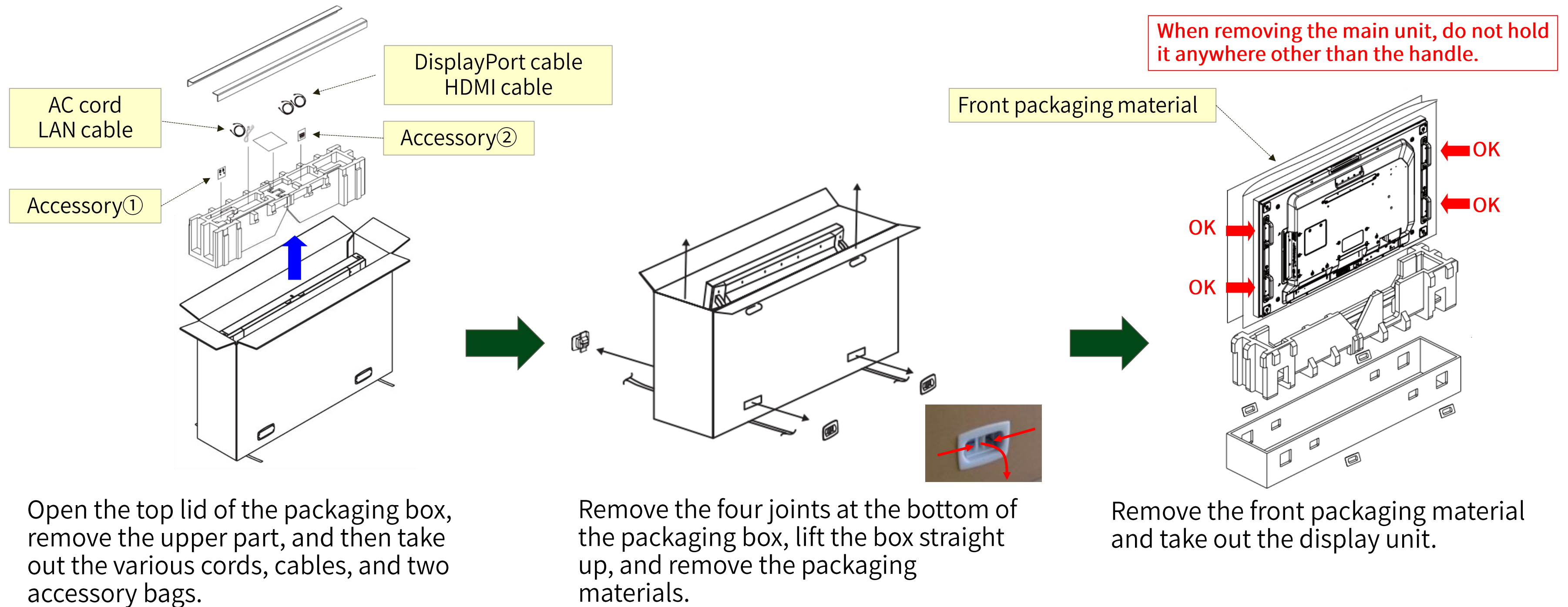
- Do not tip over
- Don't turn it sideways
- Don't store on a slope
- Don't apply load to the top



3.4. Precautions when opening the package

Precautions when opening the package

- The packaging box should be opened by **two or more people**.
- Open the top cover of the packaging box and remove the AC cord, cables, and accessory bag.
- Remove the four joints on the bottom of the packaging box and remove the packaging material.



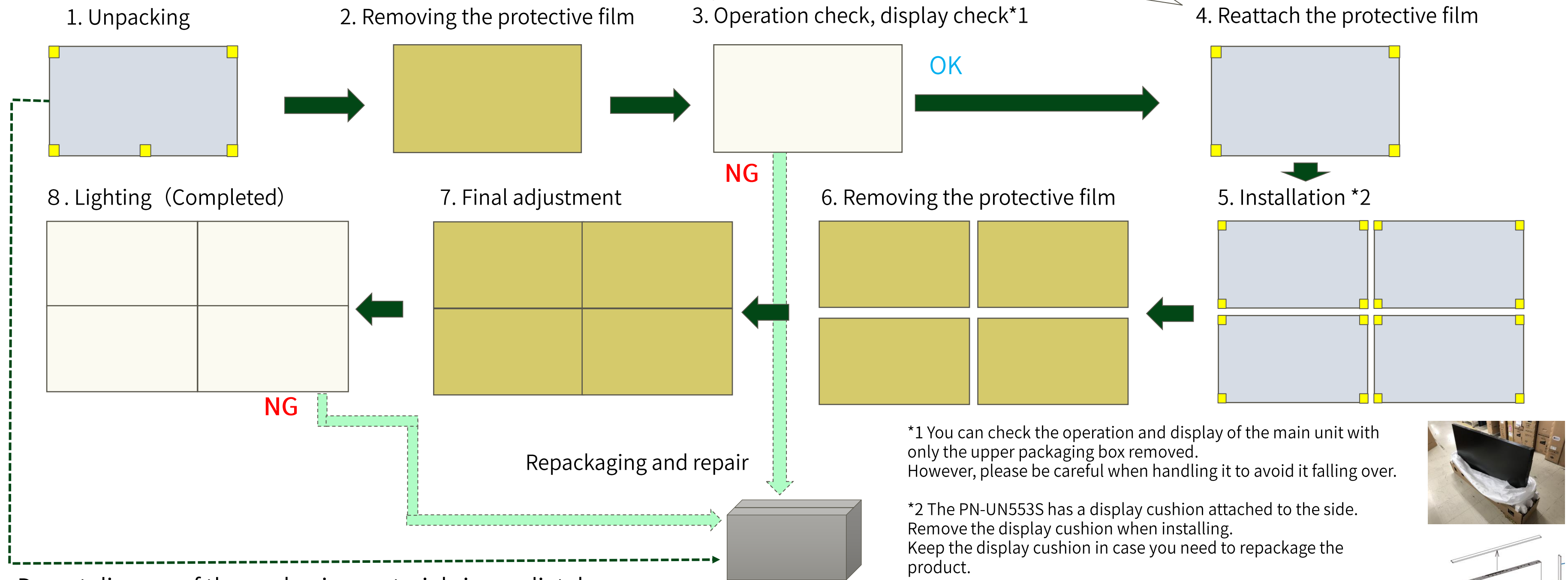
3.5. Flow of installation

Operation check and display check

In the unlikely event that a defect is found after installation, the product will need to be removed, so be sure to check the operation and display before installation.

Reinstalling the protective film

Please reattach the protective film when installing to prevent scratches.

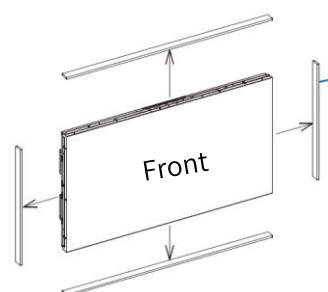


Do not dispose of the packaging materials immediately, but keep them until after installation.

*1 You can check the operation and display of the main unit with only the upper packaging box removed. However, please be careful when handling it to avoid it falling over.

*2 The PN-UN553S has a display cushion attached to the side. Remove the display cushion when installing. Keep the display cushion in case you need to repackage the product.

*3 The PN-UN553S has protective tape applied to the sides of the display to cushion impacts during installation. The next section describes how to remove the protective tape.

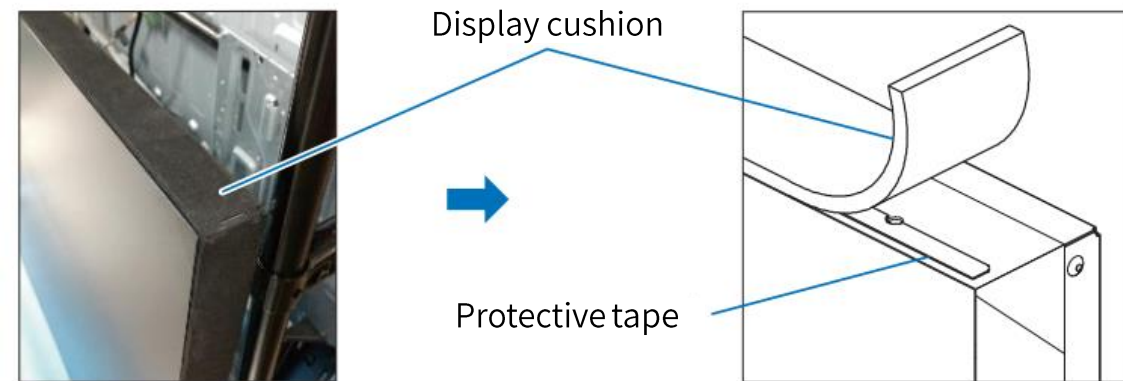


3.6. How to remove the protective tape (PN-UN553S)

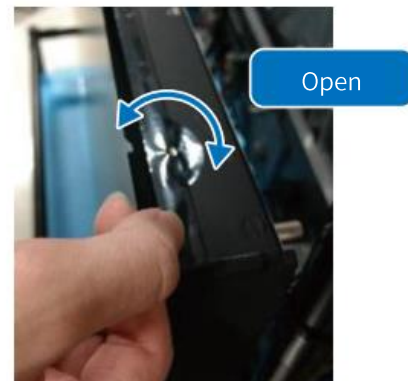
How to remove the protective tape.

The PN-UN553S has protective tape applied to the sides of the display to cushion impacts during installation. Please remove the protective tape using the following method.

- ① Please remove the display cushion.



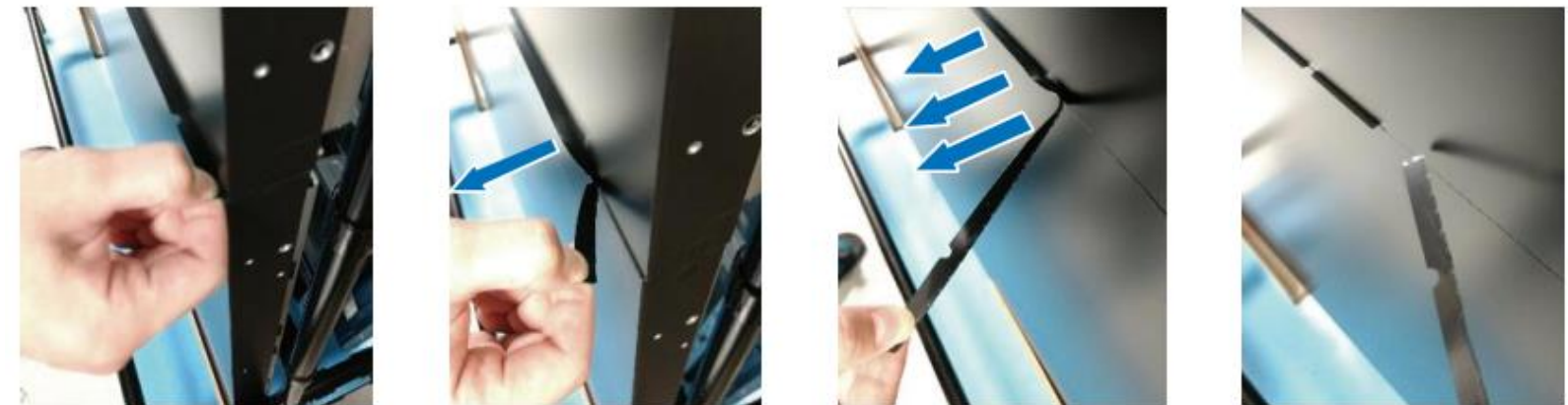
- ② Before installation, please open the protective tape towards the screen side.



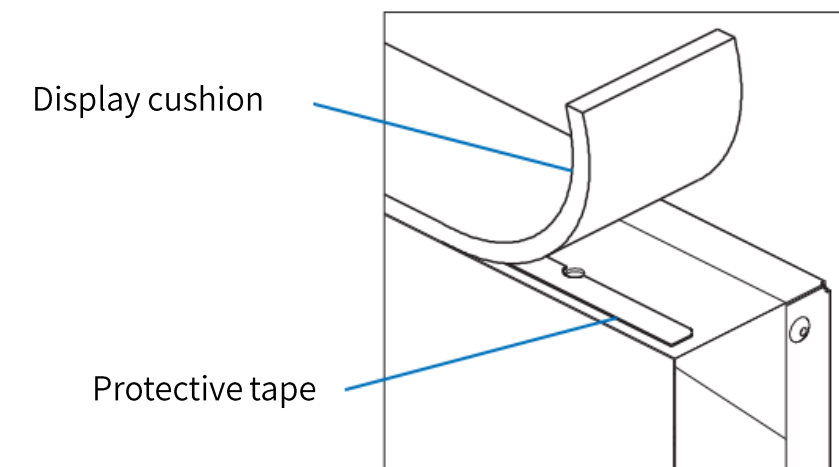
- ③ Please install the display.



- ④ After installing the display, pull the protective tape in the direction of the arrow to detach it.
Please remove the protective tape slowly, as it may cause damage to the display.

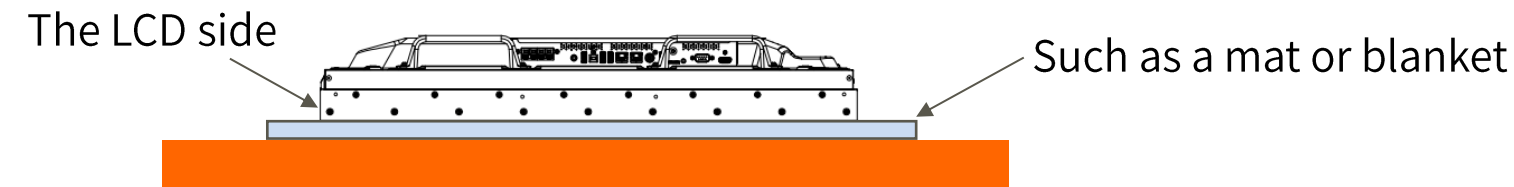


The protective tape is thin, so installation is possible without removing it. If installing without removing the protective tape, please only remove the display cushion.

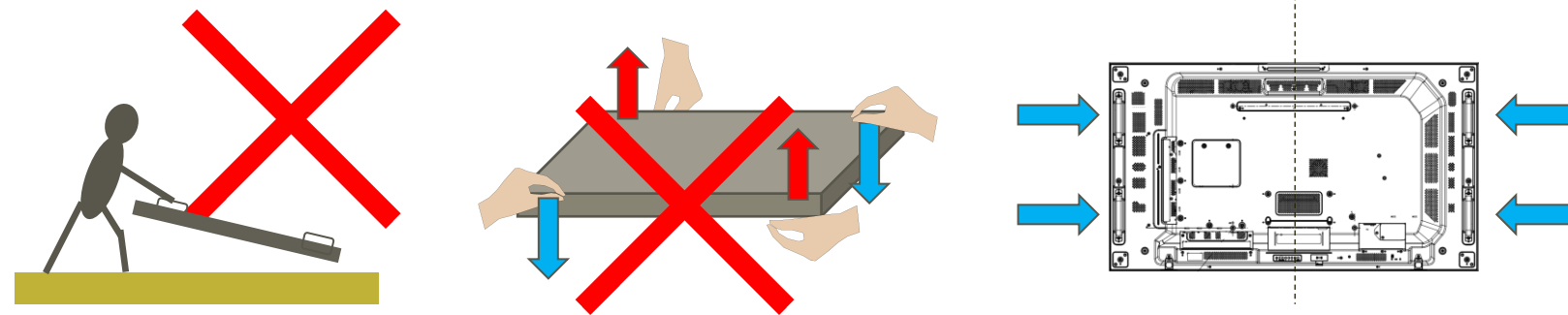


Precautions for handling the unit

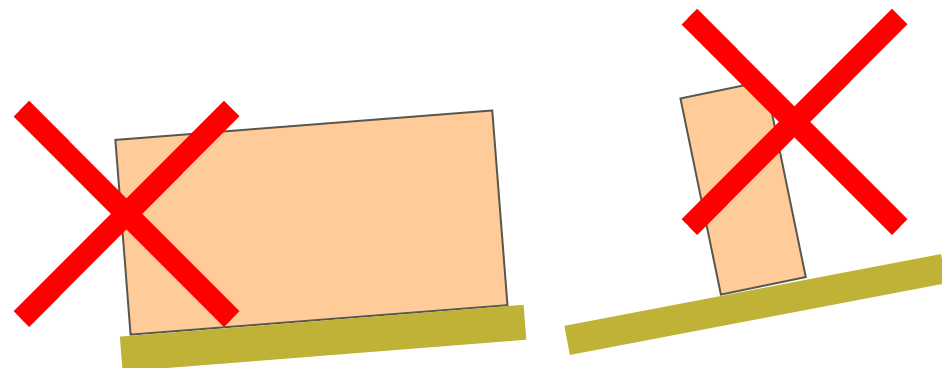
- When placing the main unit with the LCD screen facing down, please lay a soft material such as a mat or blanket on a flat surface to prevent the LCD screen from getting scratched.



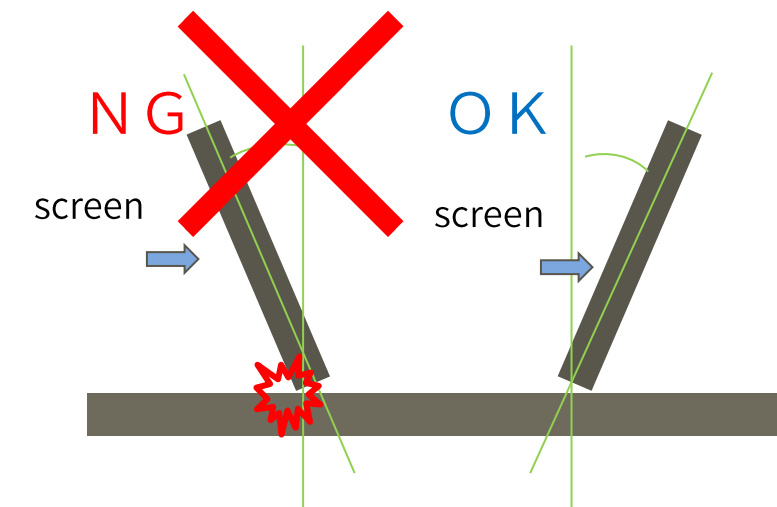
- If you try to lift a horizontally placed display by holding only one of the handles, it may become distorted. Please have two people handle the display symmetrically and work slowly.



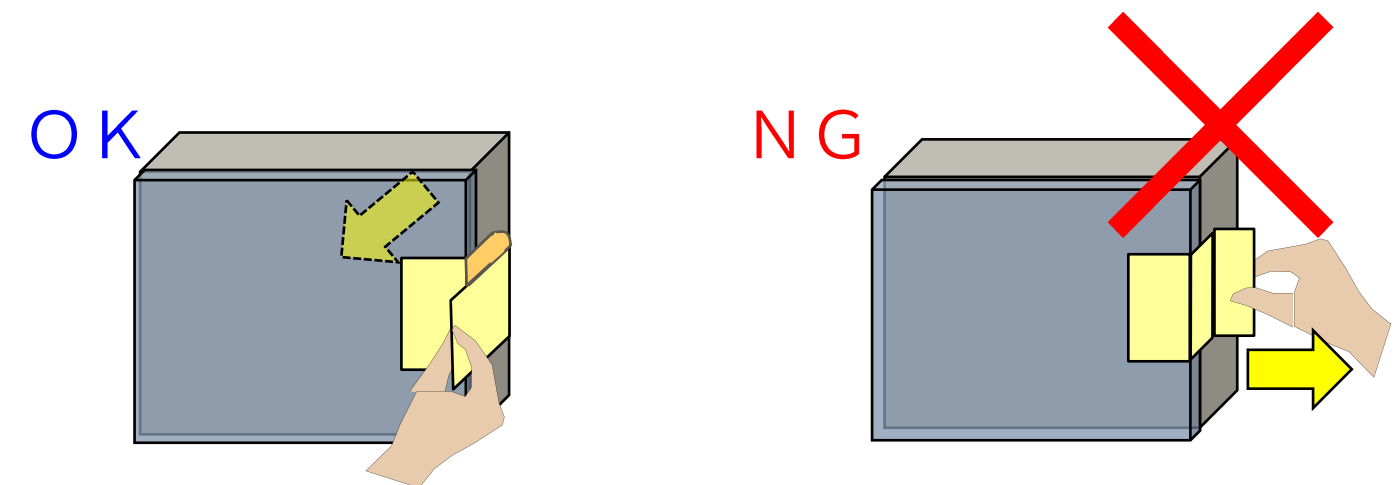
- Do not store or hold the product alone or in its package at an angle.



- Standing the display vertically using the screen frame as a fulcrum may cause malfunction. Be sure to lift the display before changing the status.

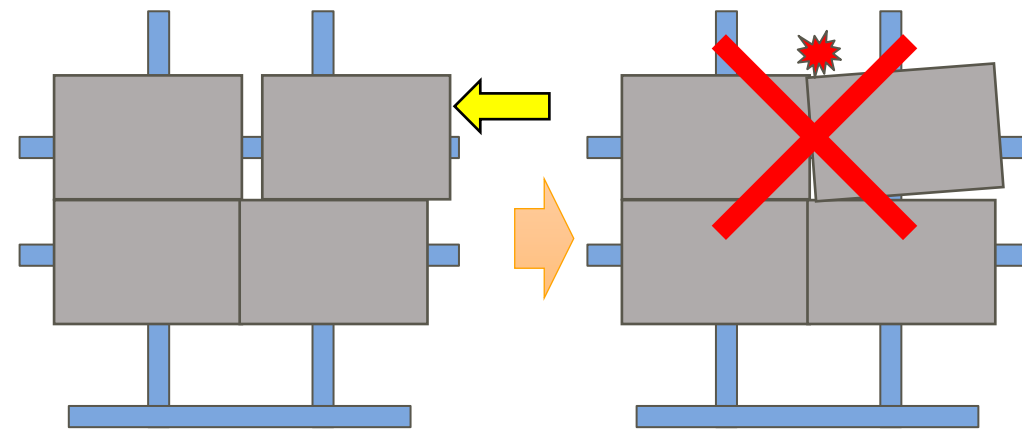


- When removing the protective film tape, peel it off slowly without peeling it in a way that opens the bezel surface.

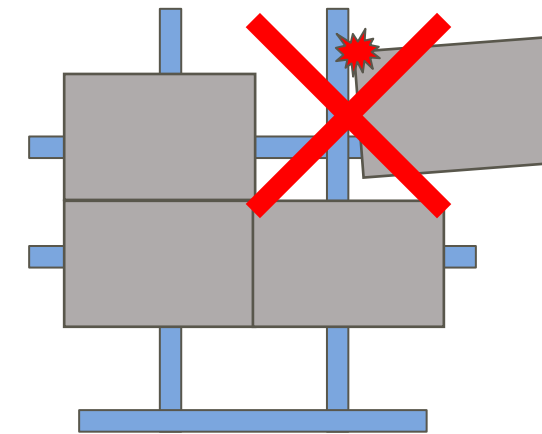


Precautions for display installation

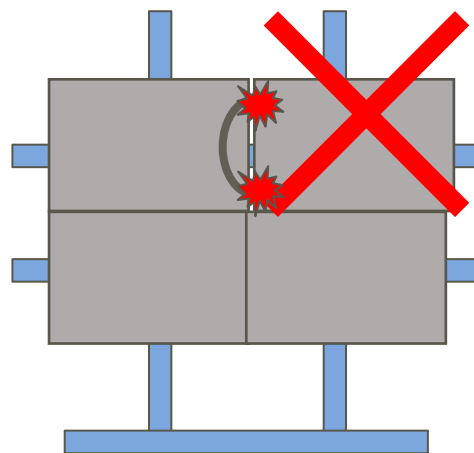
- When arranging multiple displays, be careful not to let the displays collide with each other.



- When placing it, be careful not to cause the display to collide with the metal fittings, etc.

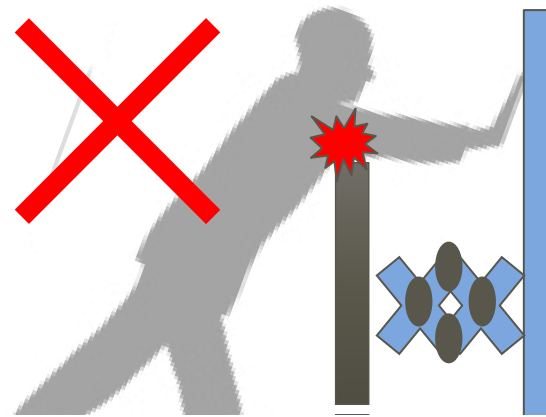


- When placing them, be careful not to pinch the cables.

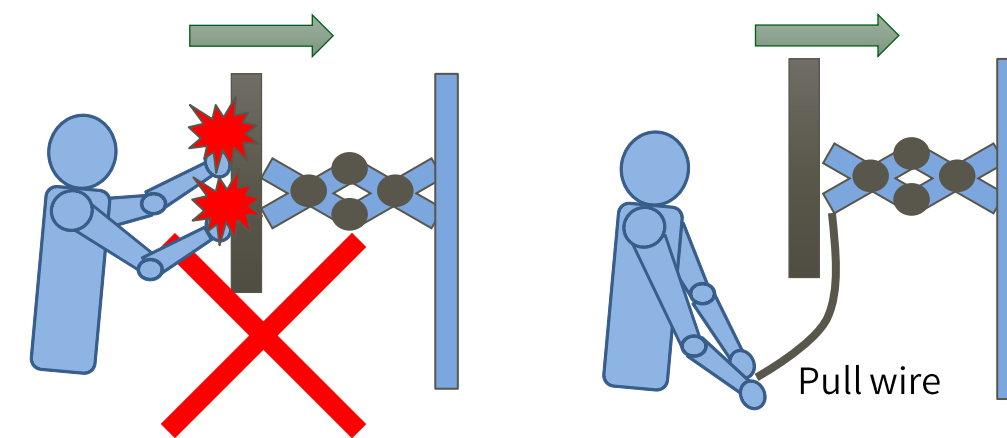


Precautions when using pantograph type metal fittings

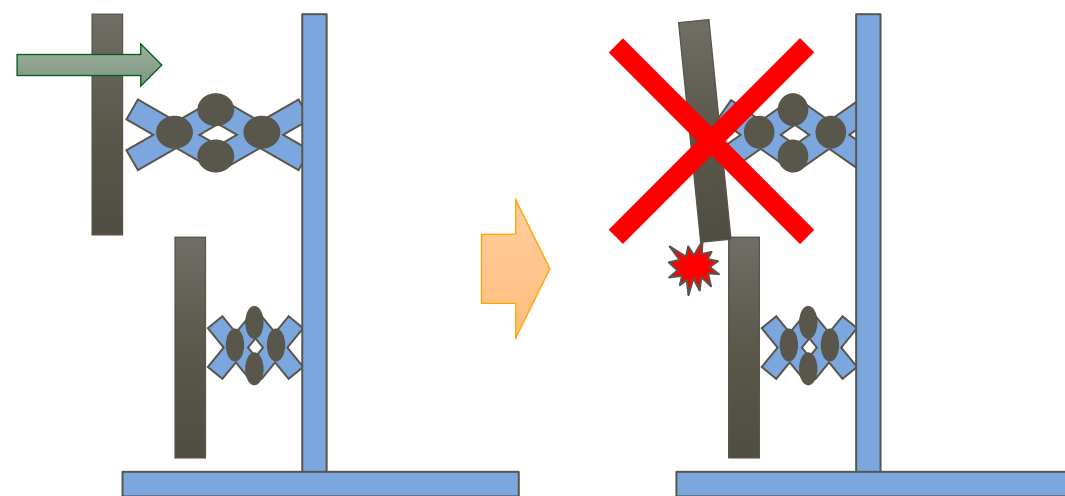
- When handling wiring, etc., do not lean on the top surface of the bezel and apply pressure.



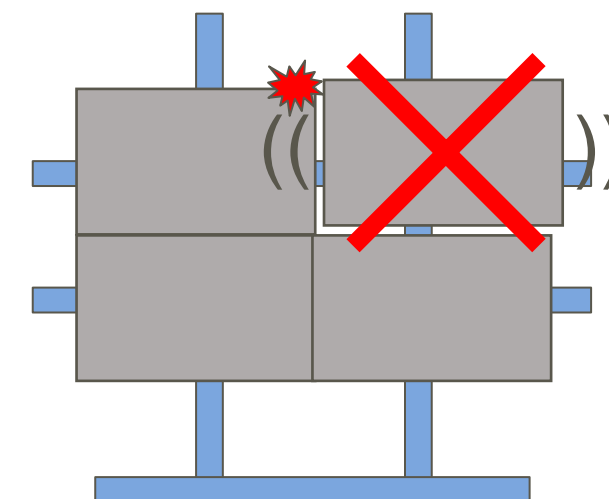
- When pushing in the display, do not push the screen directly, but use the pull wire.



- When using the pantograph type metal fittings, please take them in and out slowly so as not to cause the displays to collide with each other.



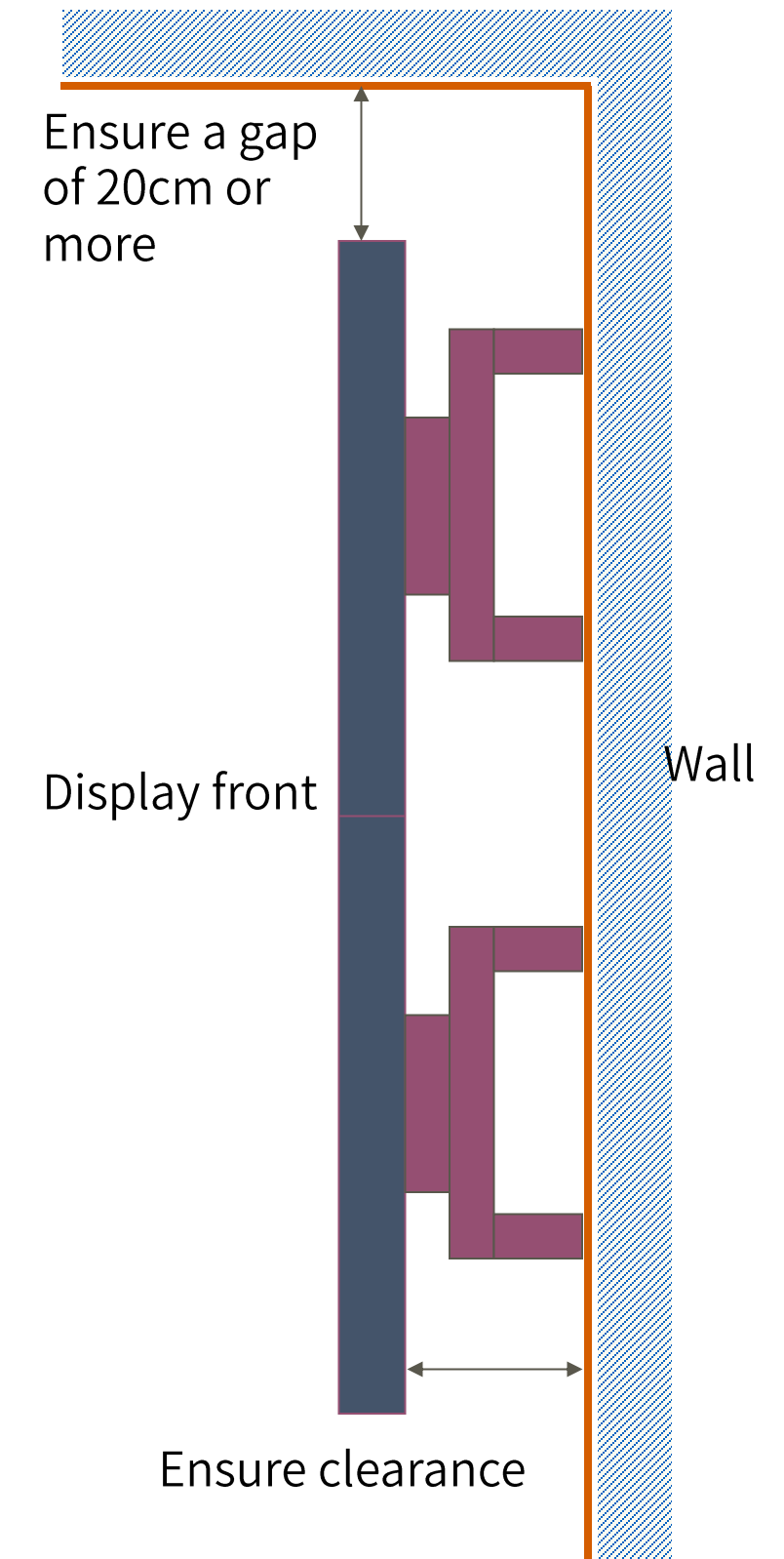
- The displays will wobble when adjusting the gap between them. Be careful not to bump the displays into each other.



3.9. Precautions for mounting on a wall

Precautions for mounting on a wall

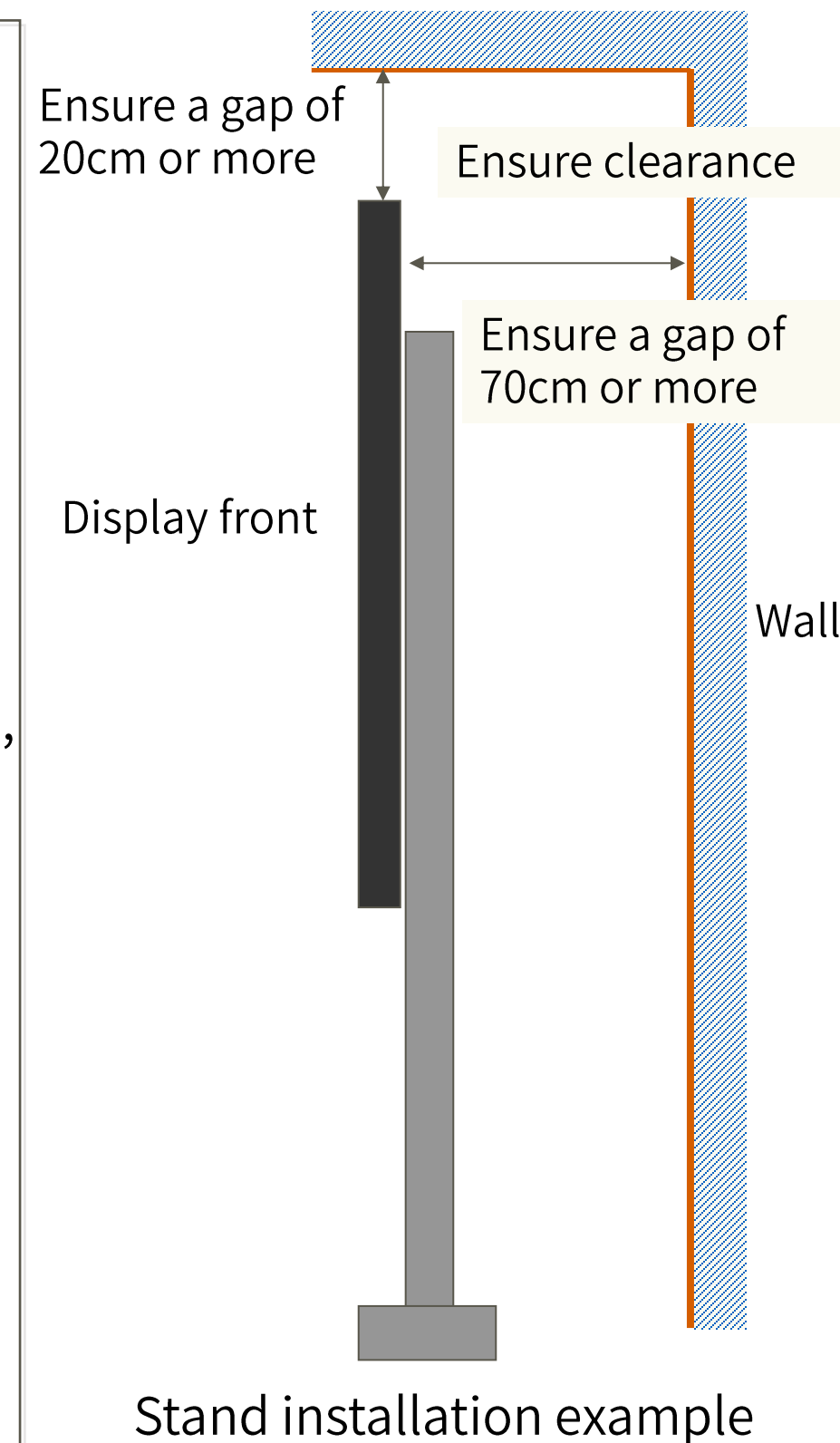
- If you are mounting the unit on a wall, you must carefully check the strength of the wall beforehand. If the wall is not strong enough, consider reinforcing the wall or using H-beams, etc.
- Since it is expected that it will be difficult to secure space for maintenance at the rear, please use a wall-mounting bracket or other device suitable for maintenance from the front, or take measures in advance such as moving forward during maintenance. Alternatively, please take measures such as utilizing a decorative wall to secure space at the rear.
- There must be sufficient clearance behind the display exhaust. If this space is small, the display may draw in warm exhaust air, causing the temperature to rise. For details, please see "Precautions for temperature and Clearance."
- Use mounting brackets that can withstand four times the weight of the unit. When mounting to a wall, etc., install in a location that can withstand four times the combined weight of the unit and the mounting brackets (such as a concrete wall or pillar).



3.10. Precautions for mounting to a stand

Precautions for mounting to a stand

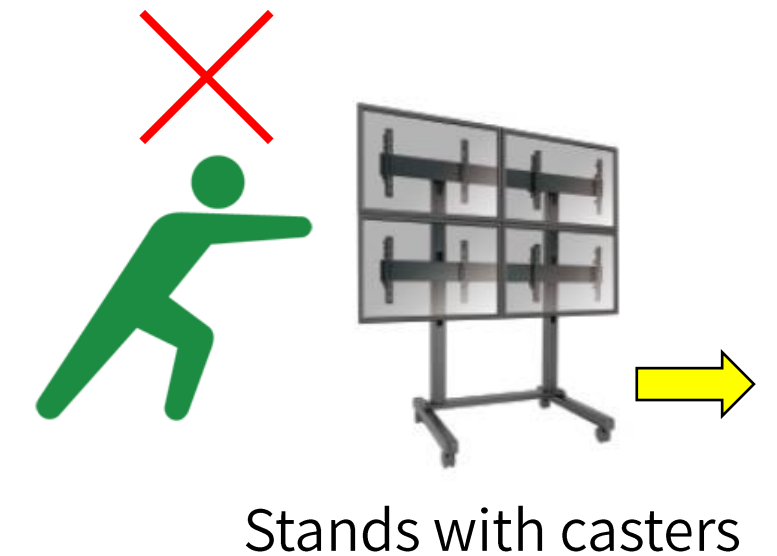
- For stands, please use products recommended by other companies listed in the "Peripheral Equipment List".
- Ensure rear clearance
 - There must be sufficient clearance behind the display exhaust. If this space is small, the display may draw in warm exhaust air, causing the temperature to rise. For details, please see "Precautions for temperature and Clearance."
 - In addition, maintenance is performed from the rear of the display, so please ensure there is at least 70 cm of space behind it. If this is not possible to ensure there is at least 70 cm of space behind the display when it is installed, please make arrangements such as allowing you to move forward when performing maintenance.
- Ensure the upper gap
 - An air exhaust space is required to remove hot air. Similarly, refer to "Precautions for temperature and Clearance." to ensure sufficient space underneath and on the sides.
 - Also, when removing the display, it will need to be shifted upwards, so make sure to leave at least 20cm of open space above it.



3.10. Precautions for mounting to a stand

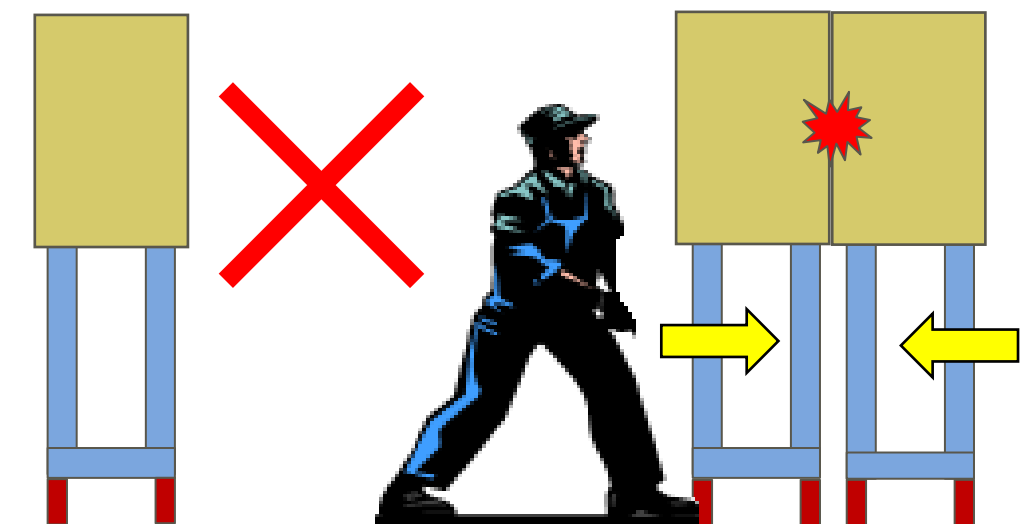
Precautions for stands with casters

- We recommend CHIEF's caster type floor stand for this unit, but it is intended for adjusting the installation position and should not be installed for the purpose of moving.
- Do not design or install a stand with the intention of moving it. There is a risk of damage due to vibration or collisions between displays.
- When installing, be sure to hold the handle on the back. Do not hold the top, bottom, left or right frames.
- Please take measures to prevent falls in preparation for shaking caused by earthquakes, etc. (Fixing with wire, anchor fixing, etc.)



Precautions for single stands

- Do not design or install a stand by combining single stands, as this may cause damage due to collisions between displays.



3.11. Precautions for installing vertically

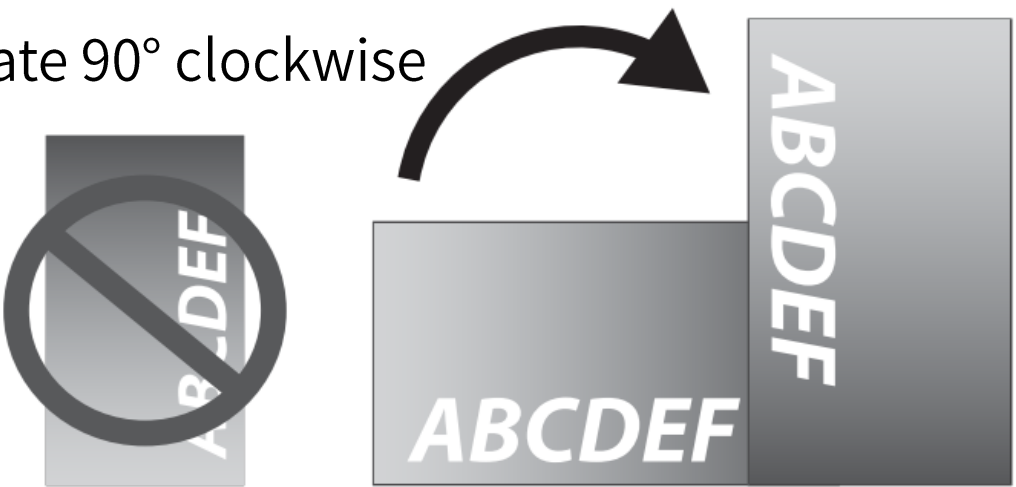
Precautions for rotation direction when installed vertically

- When installed vertically, it is rotated 90 degrees clockwise when viewed from the front. Do not install it upside down.
- Please check the orientation label on the main unit's rating plate and pay attention to the installation direction.

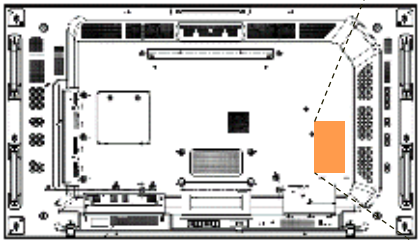
180° image rotation function

- If the content displayed is upside down when the monitor is installed vertically, you can rotate the image 180 degrees using the unit's OSD menu.
180° image rotation display menu operation : [PICTURE]-[ROTATION]-[IMAGE FLIP]-[180°ROTATION]

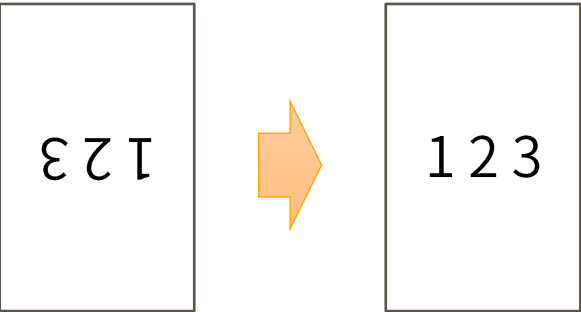
Rotate 90° clockwise



Check the upward direction label on the rating plate.



180° rotation of image



Setting the installation direction

- The OSD menu portrait display settings can be changed as follows.
Vertical installation menu operation : [OSD]-[OSD ROTATION]-[PORTRATE]

Precautions for placing the computer

- When installing a PC in the same space as a display, ensure temperature conditions that also take the PC into consideration.
Also, when installing a separate PC, consideration must be given to maintaining performance. For details, please refer to the instruction manual that came with your PC.
- Please prepare an environment where you can operate the PC while looking at the screen (wireless keyboard/mouse, etc.).

3.13. Improve video display misalignment

Function to improve display misalignment

- Two features have been implemented to improve display misalignment at boundaries occurring in fast-moving videos. Please use them according to the connection environment and operational methods.

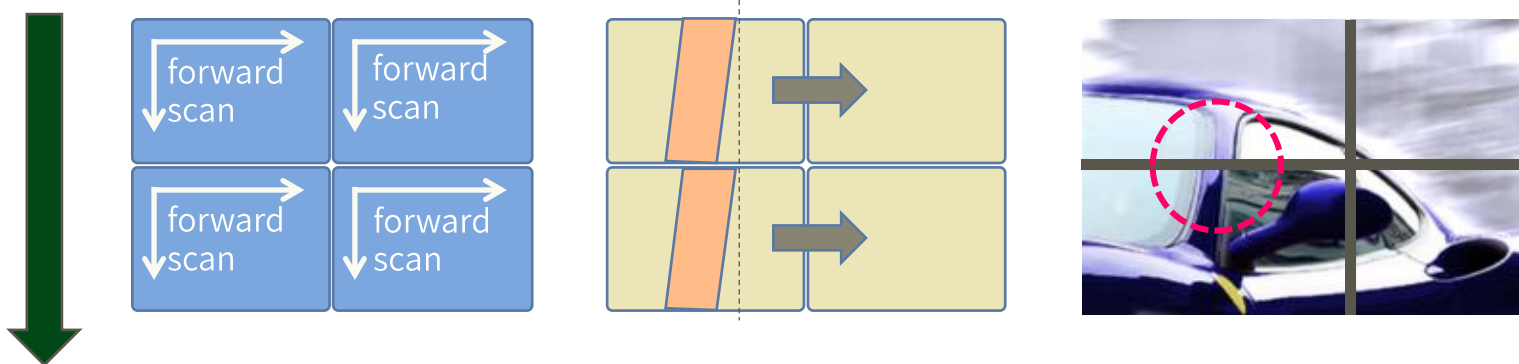
[Vertical scan inversion (reverse scan) function]

- While a normal display works from top to bottom (forward scan), this monitor is equipped with a "reverse scan" function that displays from bottom to top. By placing the forward scan and reverse scan displays above and below, we can improve the display misalignment of the boundaries.
- Setting method using OSD menu: [MULTI DISPLAY]-[TILE MATRIX]-[V SCAN REVERSE]-[AUTO]/[MANUAL]
We recommend using the vertical scan inversion feature.

[FRAME COMP function]

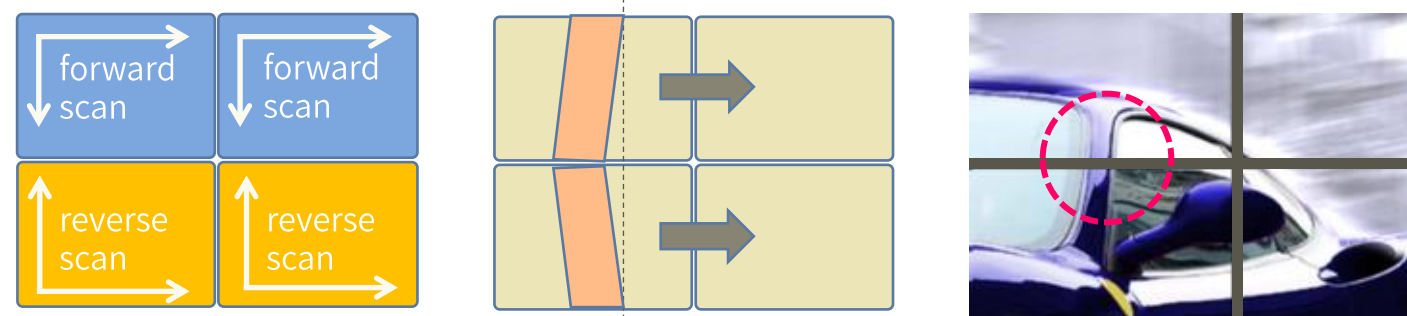
- Adjust the image display timing for one frame to improve boundary misalignment.
- Setting method using OSD menu: [MULTI DISPLAY]-[TILE MATRIX]-[FRAME COMP]-[AUTO]
Subsequently, the amount of delay can be adjusted by selecting the adjustment value.

No settings In fast-moving videos, the boundary between the first and second layers appears misaligned.



Vertical scan inversion (reverse scan) function

Adjust the display timing using reverse scanning.



[FRAME COMP] delays the display timing, which may result in the second layer's display being delayed depending on the content, potentially causing a sense of incongruity in the overall display.

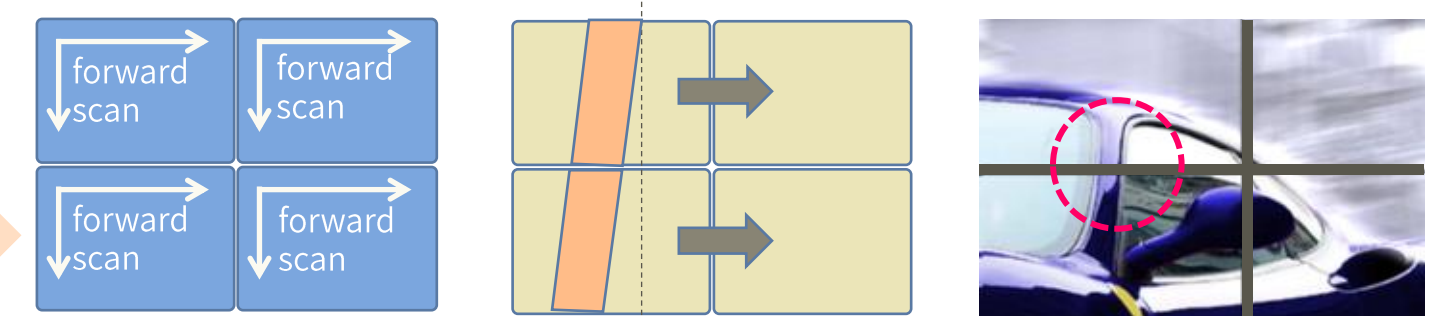
[Vertical Scan Inversion] may appear warped when displaying content with vertical band graphics, as shown in the image in the lower left.

If you are displaying general content, the [Vertical Scan Inversion] is recommended.

FRAME COMP function

Adjust the display timing of the boundary by delaying the display timing of the second layer screen.

Delay the display timing.



About maintenance and inspection

Daily and regular maintenance is required to ensure safe use.

- Daily maintenance
 1. Cleaning the LCD screen
 2. Operating status monitoring
- Regular maintenance
 1. Check the installation condition (looseness of the main body fixing angle, looseness of fixing bolts and screws, etc.)
 2. If the black tape used to "improve the appearance of the gap" is peeling off, replace the black tape.

About cleaning the LCD screen

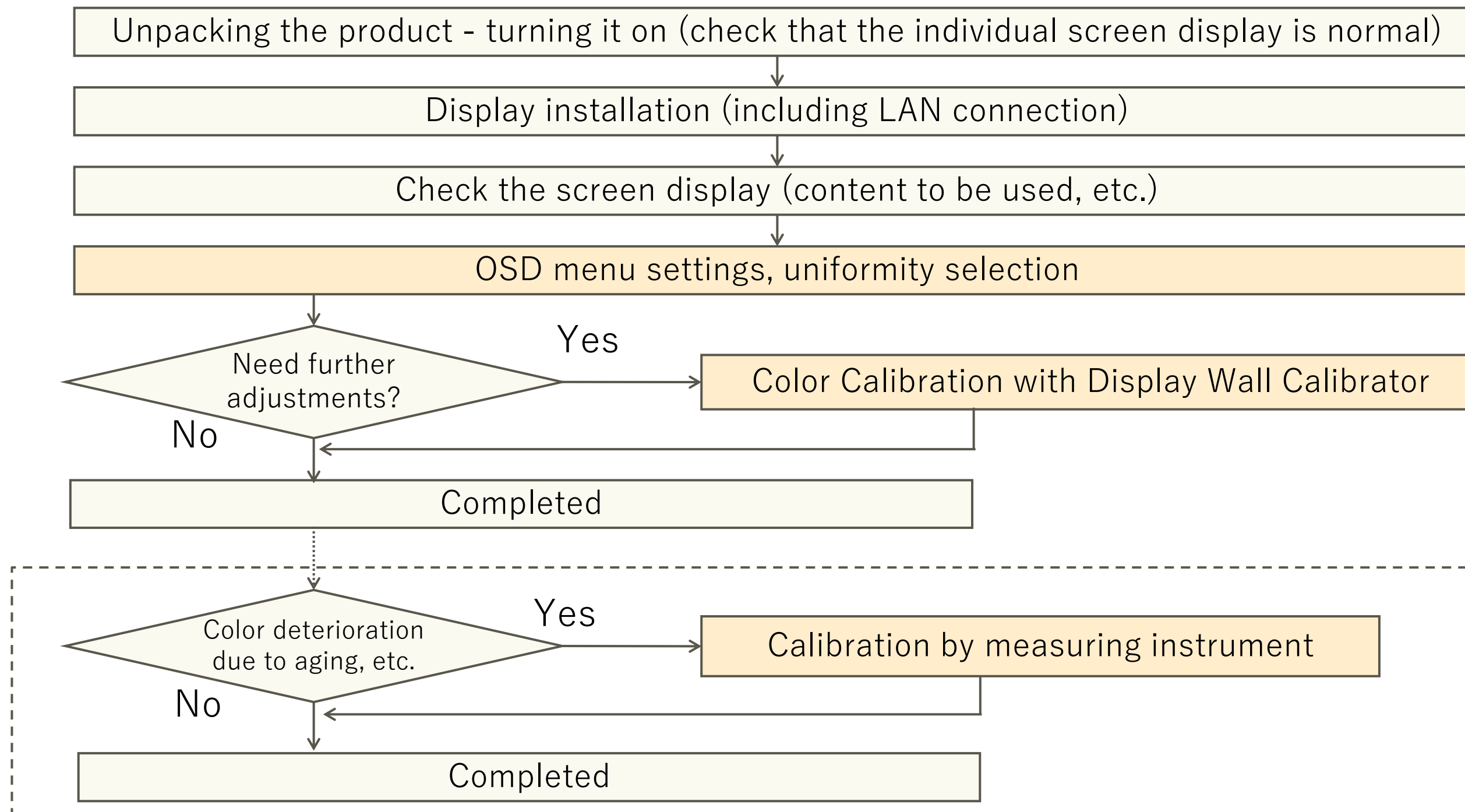
- Gently wipe the surface of the LCD panel with a soft, dry cloth (such as a lens cleaner or gauze). Please be careful not to wipe with a hard cloth or rub too hard as this may scratch the surface.
- If dust adheres to the LCD panel, use a commercially available static electricity removal brush (dust-proof brush).
- To protect the LCD panel, do not wipe it with a dusty cloth, damp cloth, or chemical cloth.

4. Color Adjustment

4.1. Flow of color adjustment

Flow of color adjustment

- When installing multiple displays, color unevenness within a screen and color differences between screens may become noticeable.
This unit allows you to perform unevenness correction using the OSD menu settings and the dedicated multi-display installation tool (Display Wall Calibrator).



Nonuniformity correction function

- On LCD multi-displays, where uneven brightness and color within a screen and color differences between screens are easily noticeable, this technology enables high-quality, uniform display.
The unevenness correction function corrects uneven brightness and color across the display surface, enabling a display with reduced unevenness across the entire screen.
- The setting method (OSD menu) is as follows. (Unevenness correction is turned on at the factory)
 - ① When [PICTURE]-[SPECTRAVIEW ENGINE]-[ON] (*);
[PICTURE]-[PICTURE SETTINGS]-[UNIFORMITY]-[1(*) / 2 / 3 / 4 / 5 / OFF]
 - ② When [PICTURE]-[SPECTRAVIEW ENGINE]-[OFF];
[PICTURE]-[ADVANCED]-[UNIFORMITY]-[ON(*) / OFF] (*: factory default setting)

■ Image of color unevenness correction

<Before correction>



<After correction>



■ Level of uniformity -ONLY when [PICTURE]-[SPECTRAVIEW ENGINE]-[ON]

- You can choose from uniformity levels 1 to 5. (The factory setting is 1.)
- The higher the level number, the stronger the unevenness correction.
The overall brightness decreases.*

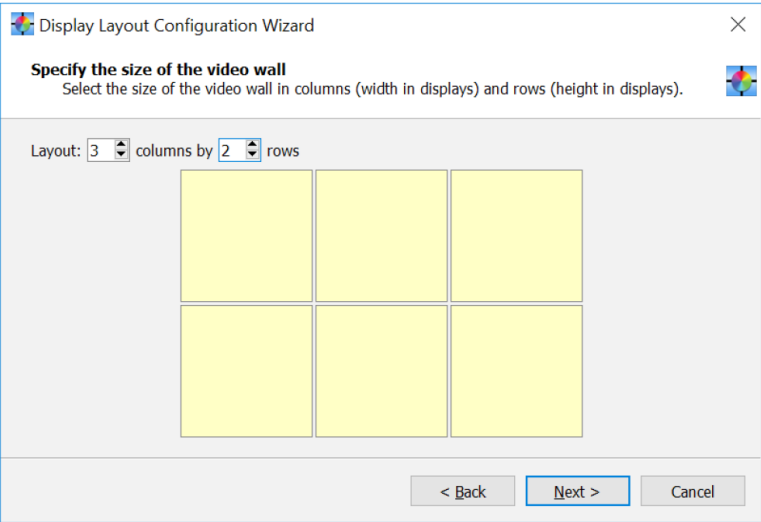
*However, the product's brightness specifications are met at all levels.

4.3. Color adjustment with Display Wall Calibrator

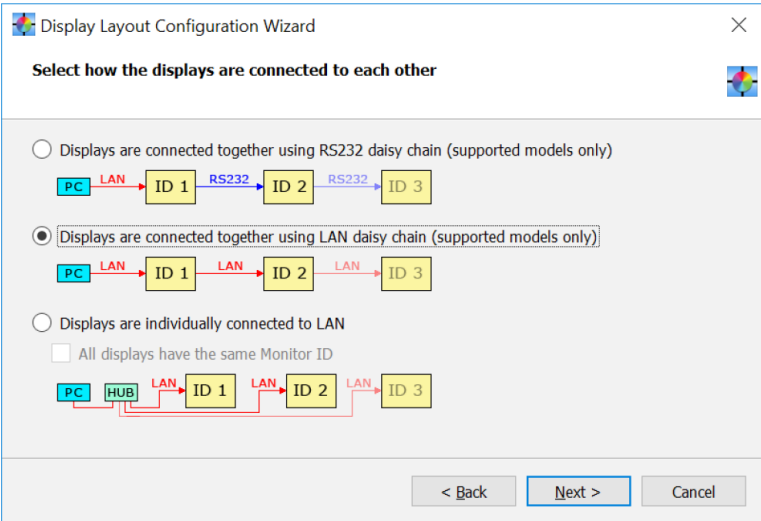
Multi-display installation tool

- Although it is possible to correct uneven color and brightness by setting the uniformity in the OSD menu of each display, using this tool allows you to adjust the color across a multi-display configuration, as well as correct unevenness in the corners of each display, enabling more precise color adjustment.

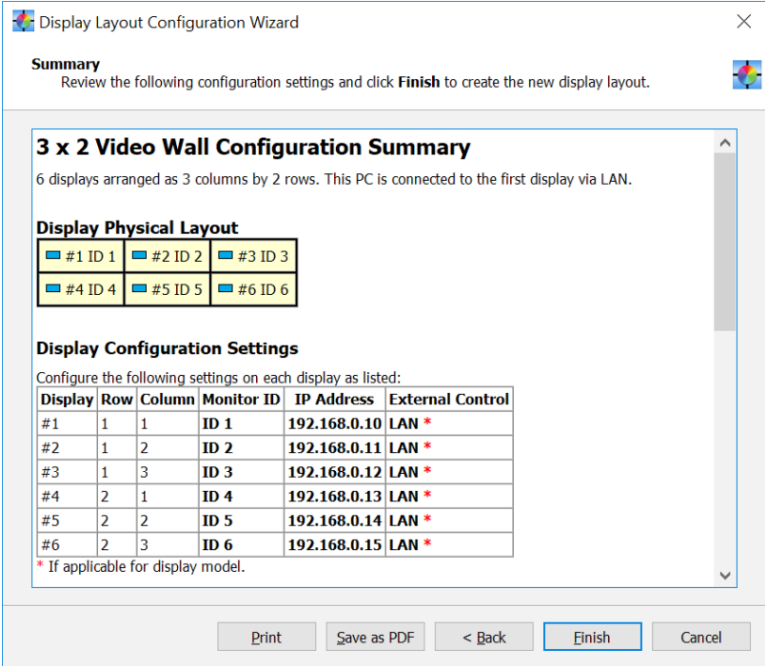
1. Video Wall Row/Column Count Settings



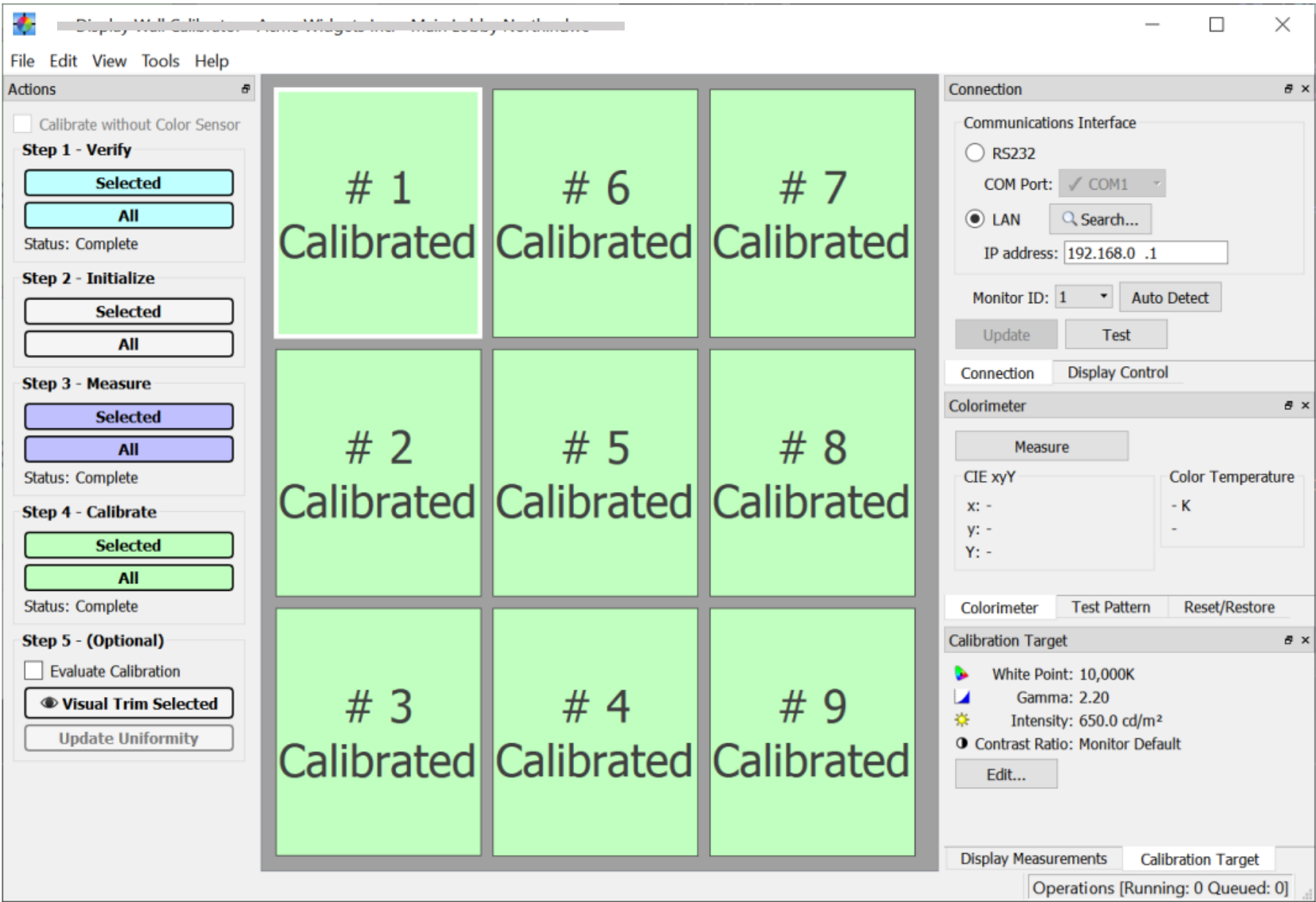
2. Displays connection settings



3. View connection configuration information / Convert to PDF



4. Multi-display installation tool main window



4.3. Color adjustment with Display Wall Calibrator

About color adjustment

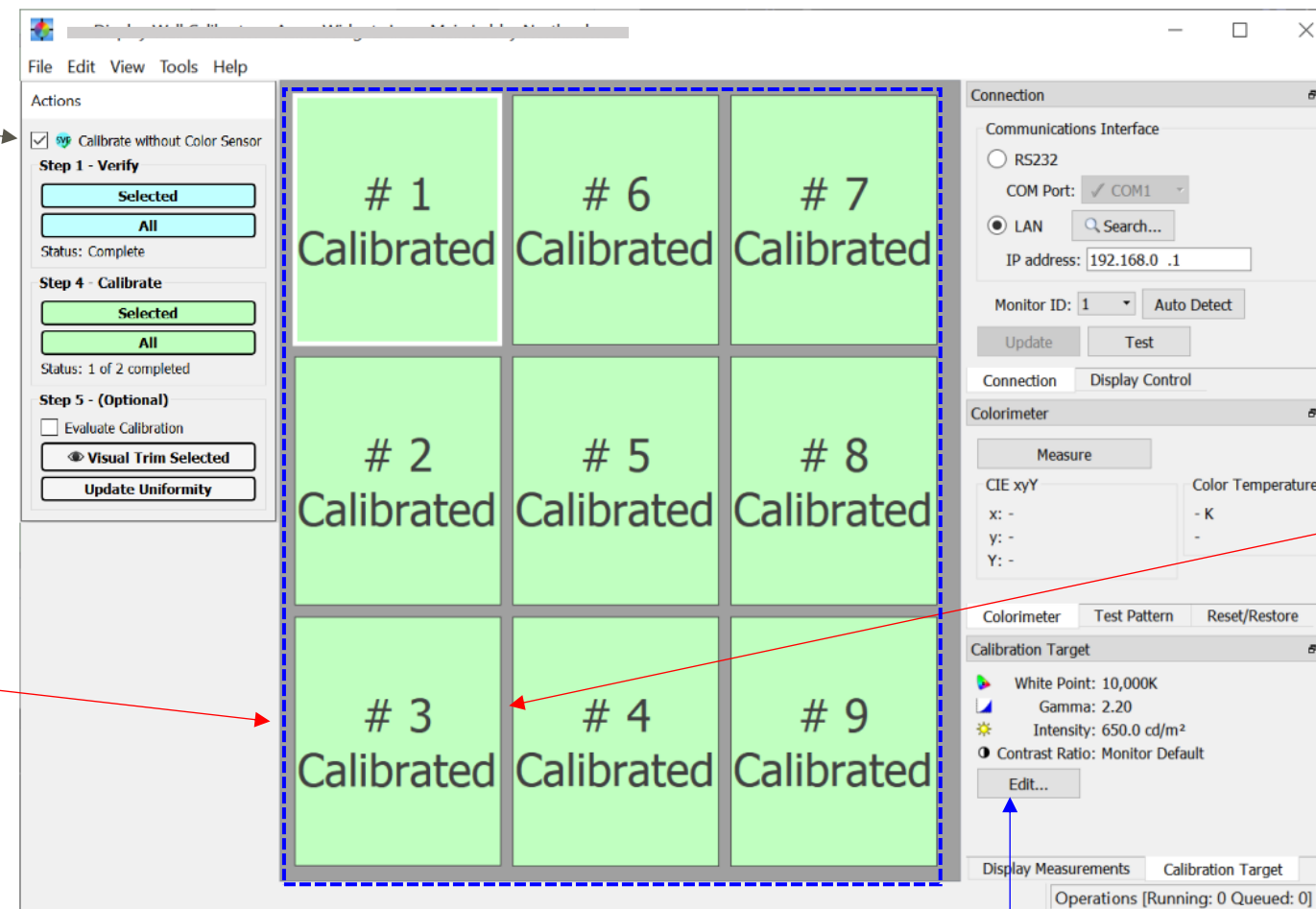
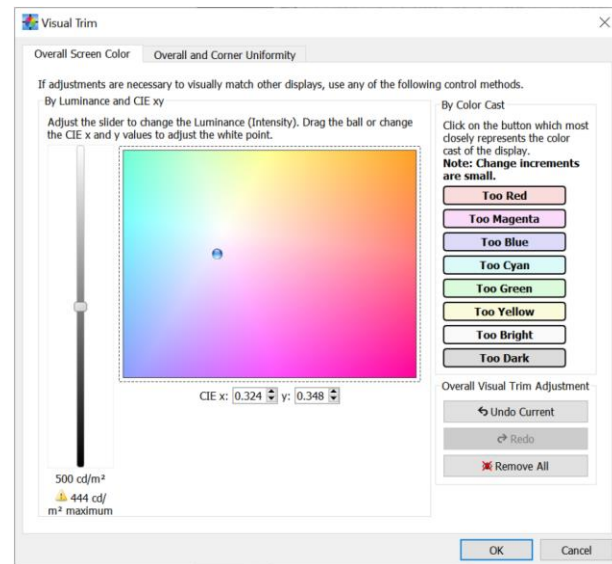
- This model is equipped with a “SpectraView Engine” and has been calibrated at the factory, so it is possible to adjust the color of the entire video wall using internal measurement values without preparing a separate color sensor.

<Multi-display installation tool main window>

1. Select “Calibrate without Color Sensor”.

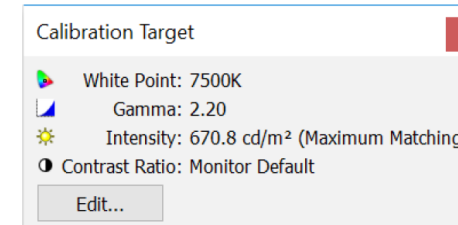
2. The brightness and color of each display can be adjusted.

< SpectraView Engine : When on >



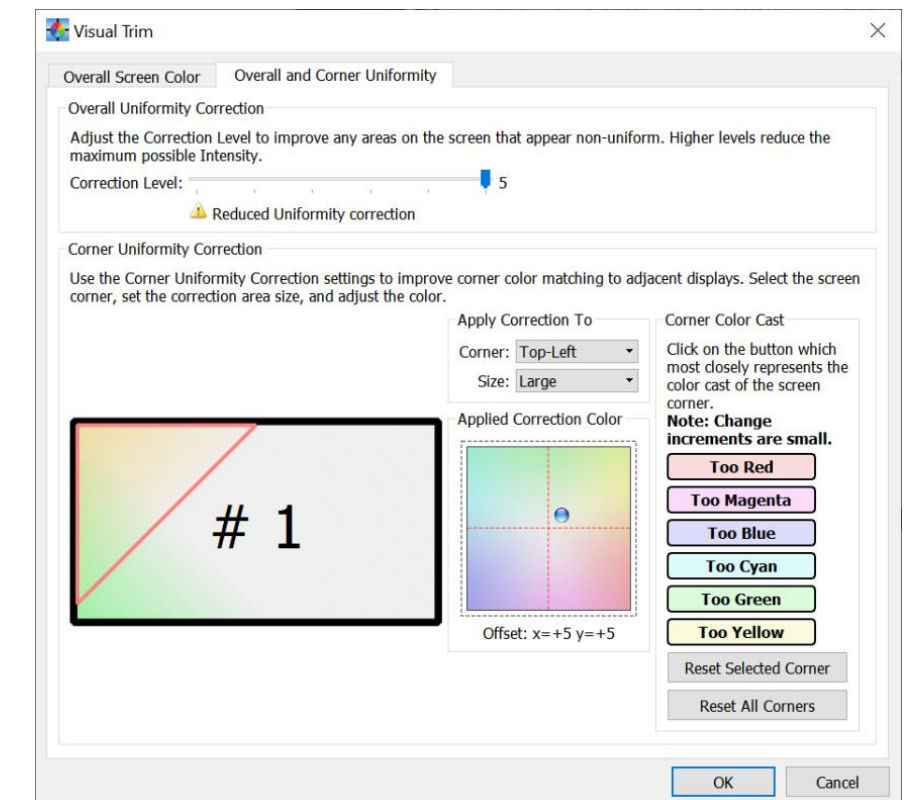
2. Set the white point (color temperature), gamma, and brightness values for the entire multi-display.

*The factory settings of PN-UN553S are 10,000K, 2.2, 500cd/m², also, the factory settings of PN-UN553V are 10,000K, 2.2, 350cd/m². No settings are required if the settings are as they were when shipped.



4. It is possible to arbitrarily specify the corner area of each display and adjust the color only for that area.

< SpectraView Engine : When on >

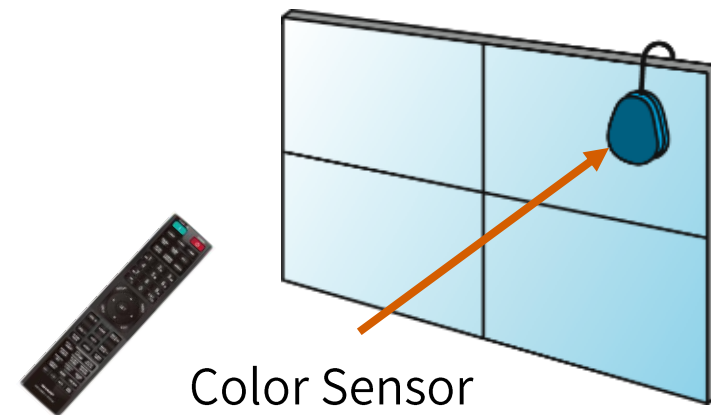


Calibration with Color Sensor

- Although the unit has stored calibration data measured at the factory, depending on how it is used, it may become necessary to measure the color again and readjust due to deterioration over time or differences between the factory and the installation environment (temperature, etc.).
- There are two ways to perform calibration: stand-alone calibration, which allows you to perform calibration without using a PC, and calibration by connecting to a PC.

1. stand-alone calibration

- Calibration can be performed without using a PC

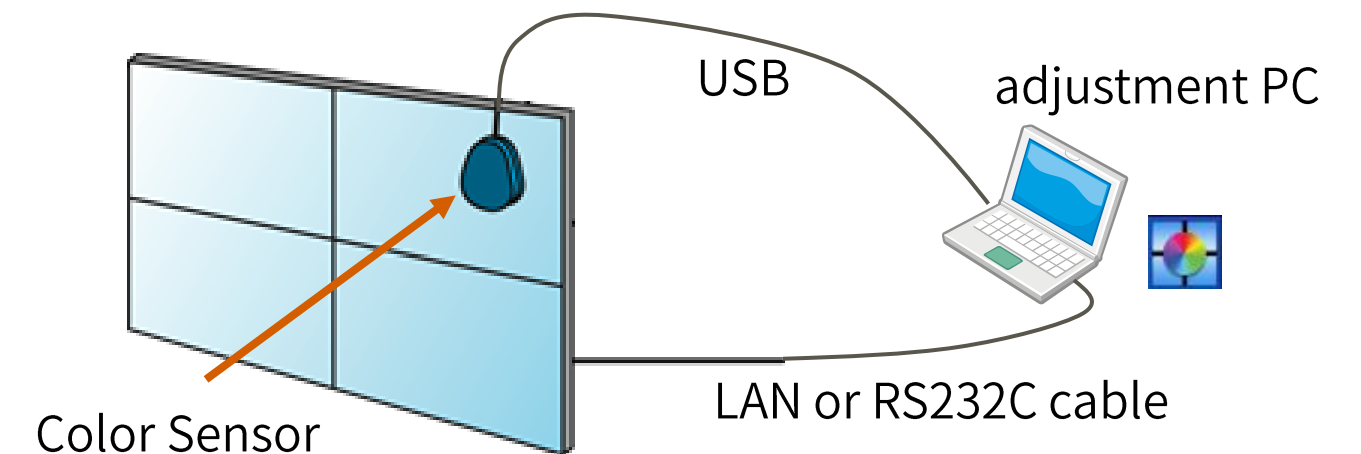


- Compatible color sensor : NEC MDSVSENSOR3

- For details, please refer to the instruction manual for the multi-display installation tool.

2. Calibration by connecting to PC

- Calibration can be performed using an adjustment PC and multi-display installation tool.

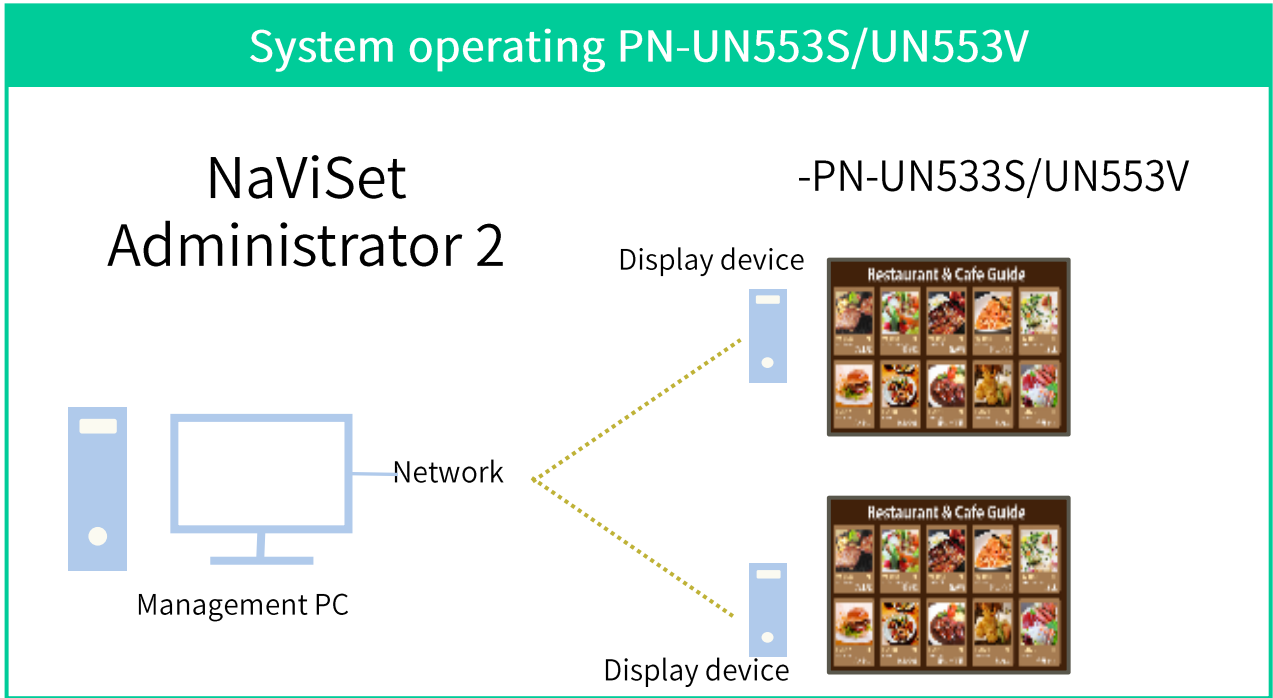


- Compatible color sensor :
 - NEC MDSVSENSOR/MDSVSENSOR3/SpectraSensor Pro
 - Datacolor Spyder3/Spyder4/Spyder5
 - KONICA MINOLTA CA-210/CA-310
 - X-Rite ColorMunki*1/Hubble/i1Display Pro/i1Display 2/i1Monitor/i1Pro/i1Pro 2/i1Studio

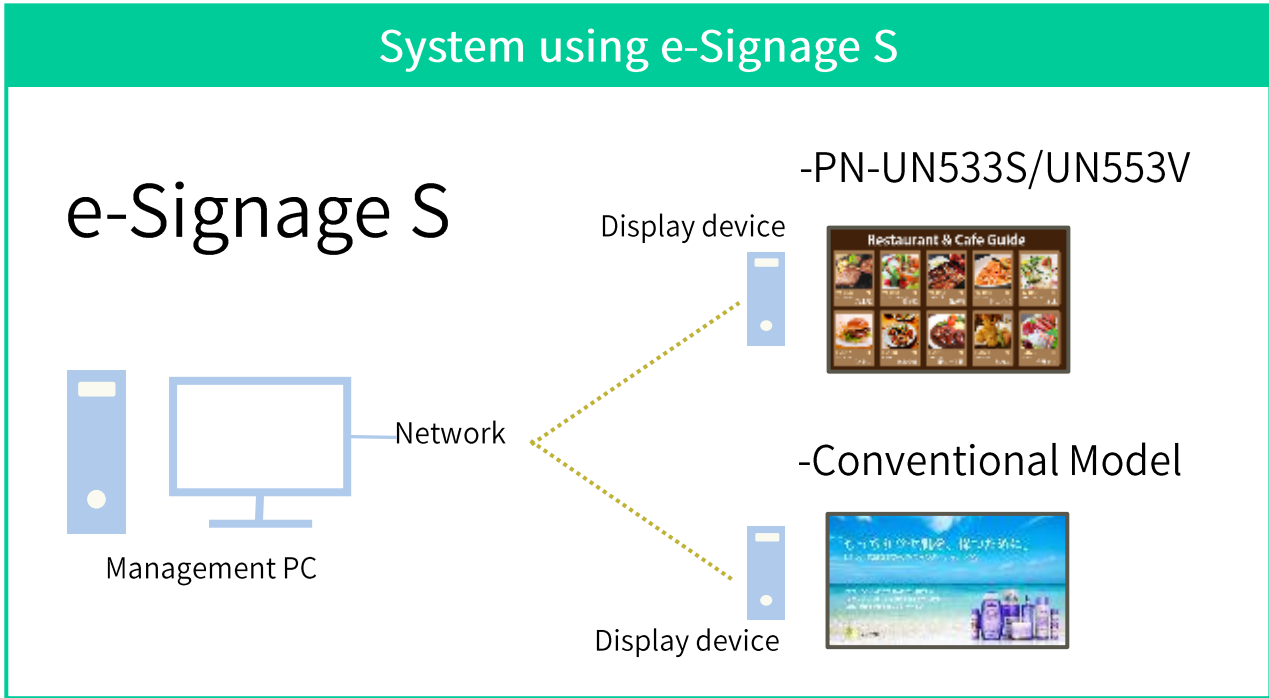
4.5. Control commands and application software

- The command for this unit is the N command.
- The applications provided are command control (NaViSet Administrator 2) and an installation adjustment application (Display Wall Calibrator).
- Also, e-Signage S is compatible.

	PN-UN533S/UN553V
Control Commands	N command
Compatible free apps	<ul style="list-style-type: none">• Command control application (NaViSet Administrator 2)• Installation adjustment application (Display Wall Calibrator)
e-Signage S	Compatible



The PN-UN553S/UN553V can be controlled with NaViSet Administrator 2.



e-Signage S is compatible.

5. Peripheral equipment and installation tools

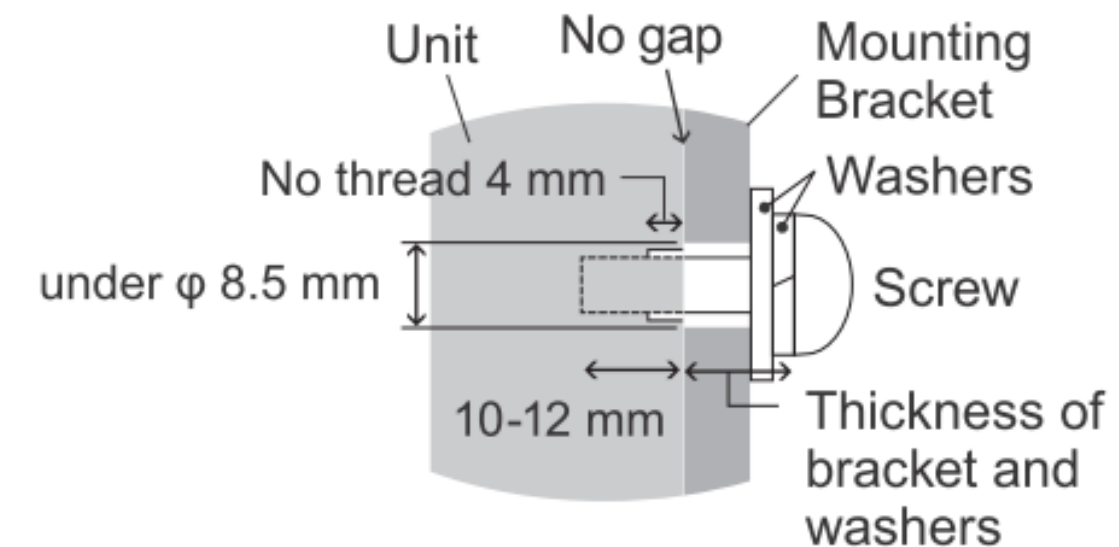
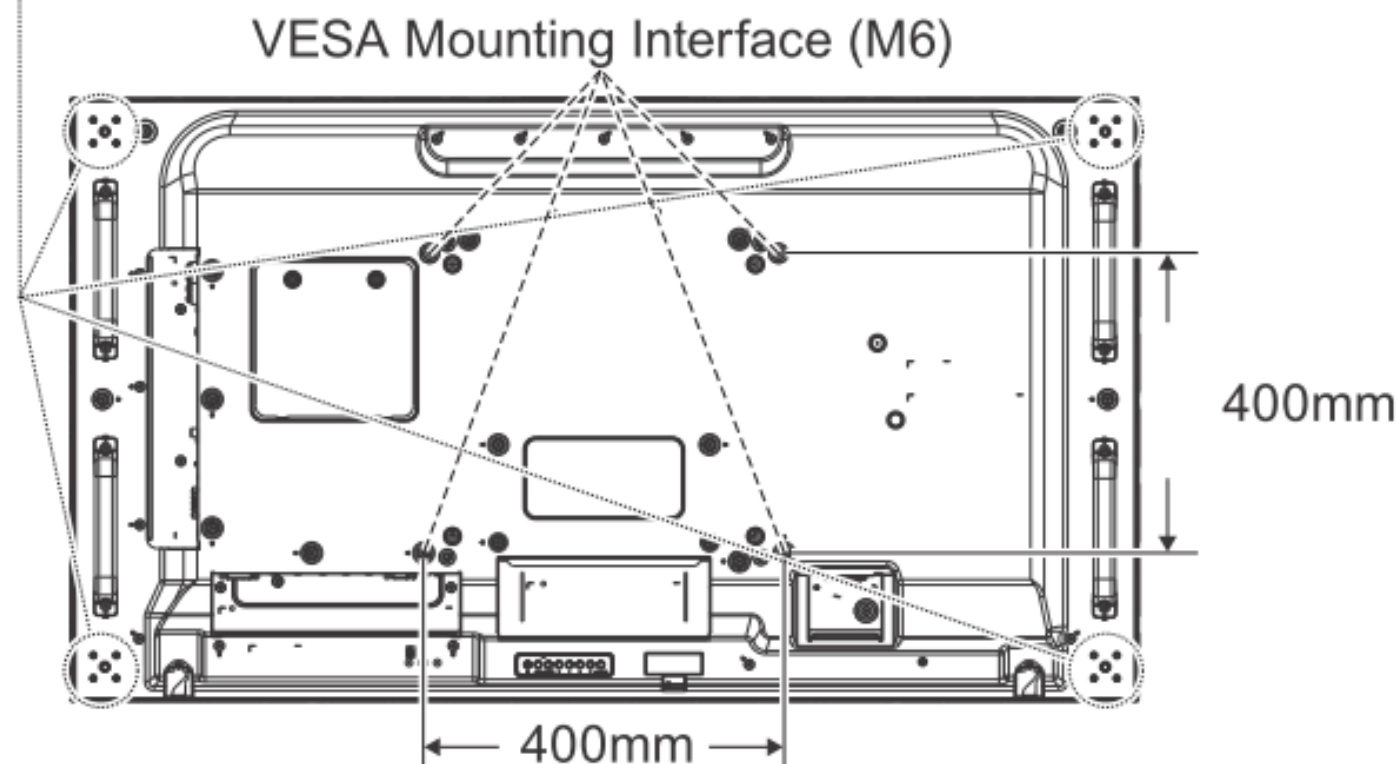
5.1. Precautions for installing peripheral equipment

Precautions for installing peripheral devices

- When using mounting accessories other than those that are SHARP approved, they must comply with the VESA-compatible (FDMIv1) mounting method.
- SHARP recommends mounting interfaces that comply with UL1678 standard in North America.
- SHARP strongly recommends using size M6 screws (10-12 mm + thickness of bracket and washer in length). If using screws longer than 10-12 mm, check the depth of the hole. (Recommended Fasten Force: 470 - 635N•cm). Bracket hole should be under Φ 8.5 mm.
- Prior to mounting, inspect the installation location to ensure that it is strong enough to support the weight of the unit so that the unit will be safe from harm.
- This monitor and bracket must be installed on a wall which can endure at least 4 times or more the weight of the monitor.
- For detailed information, refer to the instructions included with the mounting equipment.
- Make sure that there is no gap between the monitor and the bracket.

VESA standard mounting screw holes

For SHARP mounting accessory only



5.2. Remote control kit PN-KTRC3

Control Kit Features and Connections

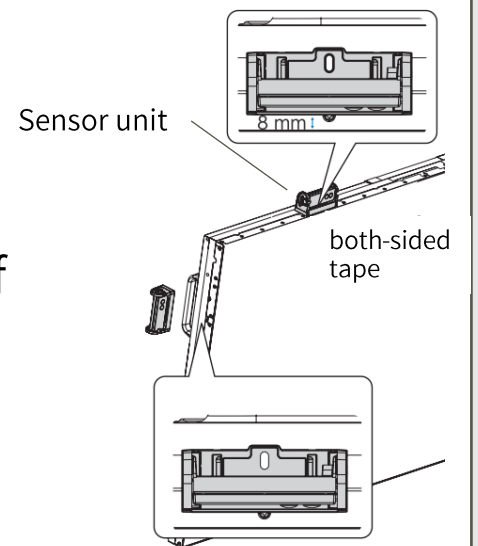
- By attaching a remote control receiver box to one of the displays that make up the multi-display setup, it becomes possible to operate all displays with a single remote control.
- To control all displays with one remote control, connect the sensor unit to the first display and daisy-chain each display with an LAN cable (up to 100 displays).

Remote control compatibility

- The remote control for PN-KTRC3 is the same as the remote control included in **PN-Mxx2/Pxx6/Exx9**.

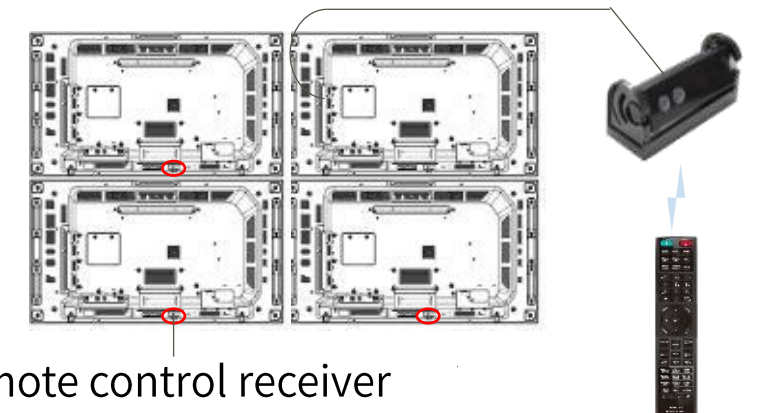
About installing the sensor unit

- The sensor unit can be attached to the display body using both-sided tape.
- It can be installed on all sides of the display. Please secure it at a position 8 mm away from the front side of the display.



About the remote control receiver

- The PN-UN553S/UN553V has a remote control receiver on the back of the unit. Even if you connect a sensor unit, the receiver on the unit to which the sensor unit is not connected may still respond to the remote control.
- To block light, we recommend that you apply light-shielding tape to the light-receiving section or connect a dummy 3.5Φ cable to the REMOTE terminal.



< PN-KTRC3 >



- Precautions when inserting the cable into the sensor unit



Sensor unit



The connector on the remote control unit is prone to incomplete insertion, so be sure to insert the cable all the way in.

SHARP