

Installation and Maintenance manual

LED Module/LED DISPLAY LED Display Kit [Models for indoor use] LED-E012i **LED-E015i**

LED-E018i **LED-E025i** [Models for indoor use] LED-E012i-108 LED-E015i-135 LED-E018i-162 LED-E012i-217 LED-E025i-217

LED Display Kit [Models for indoor use] LED-E012i-10N LED-E015i-13N LED-E018i-16N LED-E012i-21N LED-E025i-21N

MODEL: LED-E012i, LED-E015i, LED-E018i, LED-E025i

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- (2) The contents of this manual are subject to change without notice.
- (3) Great care has been taken in the preparation of this manual; however, should you notice any questionable points, errors or omissions, please contact us.
- (4) The image shown in this manual is indicative only. If there is inconsistency between the image and the actual product, the actual product shall govern.
- (5) Notwithstanding articles (3) and (4), we will not be responsible for any claims on loss of profit or other matters deemed to result from using this device.

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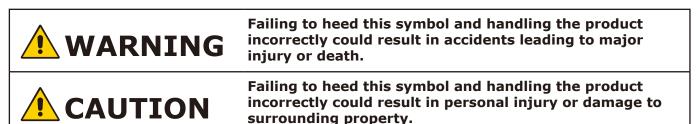
Important Information

Safety Precautions and Maintenance

FOR OPTIMUM PERFORMANCE, PLEASE NOTE THE FOLLOWING WHEN SETTING UP AND USING THE LED DISPLAY SYSTEM:

About the Symbols

To ensure safe and proper use of the product, this manual uses a number of symbols to prevent injury to you and others as well as damage to property. The symbols and their meanings are described below. Be sure to understand them thoroughly before reading this manual.



Examples of symbols

\triangle Indicates a warning or caution. This symbol indicates you should be careful of electric shocks.
Solution Soluti Solution Solution Solution Solution Solution Solution S
 Indicates a mandatory action. This symbol indicates that the power cord should be unplugged from the power outlet.

• Be sure to read the following before using the product to use it correctly and safely.



Do not apply vibrations or shocks to the product.

Do not install the product to unstable locations or locations subject to vibrations.

Always ask a technician to perform the installation.

Do not connect the cables with wet hands. Otherwise, it may cause an injury or an electrical shock.

Do not repair or modify the product yourself. Otherwise, it may cause an injury, a fire or an electrical shock.

In case of thunder, do not touch the power cord. Otherwise, it may cause an electrical shock.

Connect the product to the correct voltage. If the product is connected to a voltage other than the specified voltage, it may lead to a fire or an electrical shock.

In case of a malfunction (nothing is displayed on the screen, etc.) or if smoke, abnormal heat, or a strange sound or odor is generated, turn the power off and immediately ask a technician or your retailer for repair.



Install the product so that the vents are not obstructed.



Make sure there are enough people available to ensure safety (at least two people) when installing or moving the product. Otherwise, it may lead to an injury.



Be sure to ground the product. If the product is not grounded, there is a risk of electrical shock in case a malfunction occurs.



In case foreign matter has entered into the product, immediately disconnect the power supply and stop using the product.



After the installation, if a problem such as loose screws occurs, immediately ask a technician or your retailer for repair.



Do not put objects into the product. Otherwise, it may cause a fire or an electrical shock.

In case the product is in contact with water or another liquid, immediately disconnect the power supply and stop using the product. If you continue using the product in that state, it may lead to a malfunction, a fire, or an electrical shock.



When using the power connector (WAGO), do not use it outdoors or in a humid environment. Otherwise, it may cause a fire or an electrical shock.

When connecting the power cord to the product's AC IN terminal, make sure the connector is fully and firmly inserted.

Do not damage the power cord. Do not put heavy objects on it, place it near heaters, pull it with excessive strength, or apply a strong force on it while it is bent.

A damaged power cord may cause a fire or an electrical shock.

Do not install the product in narrow places where heat tends to build up.

Do not use the product in an environment with low heat dissipation. Otherwise, it may cause a malfunction.

W w th th ca

The RJ-45 port of the product is for use with the product only. Do not connect it to a network. Connecting this port to a network that may receive over-voltage current may cause damage to the product or an electrical shock.

Do not use the product in a vehicle or another means of transportation.

Do not place the product under direct sunlight or near heaters.



This product is designed to be used indoors. Do not use it outdoors. Otherwise, it may cause a malfunction. Do not use or store the product in the following places.

- Near heaters
- Places with lots of humidity or dust, or places subject to oily smoke
- Places where water or oil may splash
- Places with lots of corrosive gases, such as near hot springs
- Places where the product may freeze
- Do not place the product on its side, face down, or upside down.
- Places with lots of vibrations



If you will not be using the product for a long time, disconnect it from the power distributor for safety purposes.



Disconnect the power supply when performing the maintenance.



Install the product in accordance with the local laws and regulations.

Use ESD gloves when handling Pixel cards to prevent static electricity from the human body and contamination due to finger oils, perspiration salts, flaking skin, and/or other forms of human excretory secretions. The LED modules and their electrical components are sensitive to biological agents and exposure to such risks degradation of materials and performance. Eliminate any static electricity from your body before touching the Pixel cards by touching an aluminum sash, a door knob, or some other metal object.

This product can only be serviced in the country where it was purchased.

Recommended Use & Maintenance

About the LED lamps

The surface of the pixel card is vulnerable to shocks, so do not press or hit the surface.



LED lamps are sensitive to static electricity and surge voltage, which may damage their components and decrease their reliability.

Take measures against static electricity during the installation. Do not touch the LED display areas.



When you install the product or when you use it for the first time after leaving it unused for a long time, follow the instructions below.

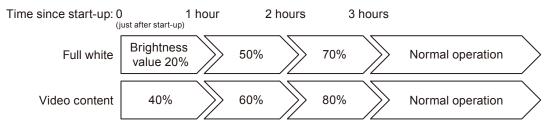
The LED lamps may absorb and hold moisture during the LED module installation or if not used for a long time. Therefore, in such cases, the brightness must be increased gradually during a break-in period before setting the normal brightness.

If the LED lamps are lit with 100% brightness while moisture is retained, the temperature will rise very quickly and the water inside the lamps will evaporate and expand. This will cause the encapsulating resin to expand, which may lead to separation of the boundary surface inside the LED lamps. This separation can cause the LED lamps not to light up properly.

Lamp break-in

Configure the brightness settings as shown below with a video displayed on the LED module.

After a break-in period of approximately 3 hours, the LED module can be used under normal conditions.

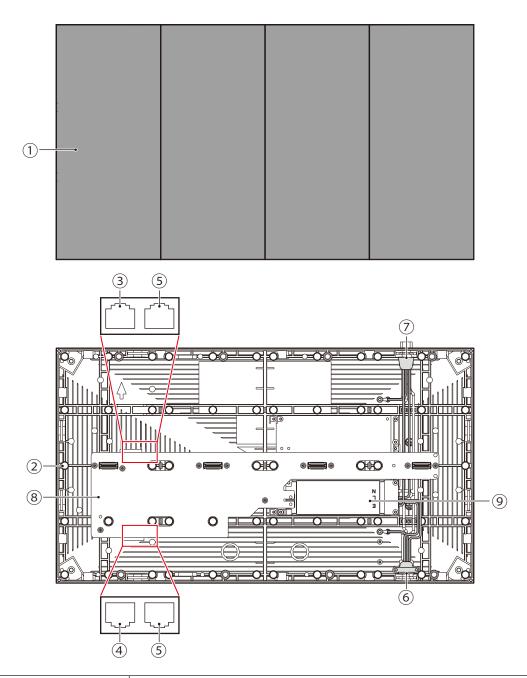


About the Pixel card



The surface of the pixel card is easily scratched, so handle it with care so as not to push or rub it with a hard object. Be careful not to stain the surface of the pixel card with your fingers. If the surface of the pixel card becomes dirty, wipe it gently with a dry cloth. Also, use a clean cloth and avoid using the same cloth repeatedly.

Parts Name



	Name	Description
1	Pixel card	Display section.
2	Cabinet	The chassis to which to install pixel cards.
34	Signal input/output	To input the signal from the LED controller or the previous LED module.
		When a signal is input into \Im , the signal is output from $④$.
		When a signal is input into $\textcircled{4}$, the signal is output from $\textcircled{3}$.
5	Signal input/output	Not functioning with this device.
6 7	Power input (output)	When AC power is input into $\textcircled{6}$, AC power is output from $\textcircled{7}$.
		When AC power is input into (\widehat{O}) , AC power is output from (\widehat{O}) .
		Do not input AC power into both $\textcircled{6}$ and $\textcircled{7}$.
8	Hub board	Pixel card connectors and a receiving card are installed on this board.
9	Power unit	Supplies electric power to the pixel cards and receiving card.

Model name list

4 x 4 frame set	LED-E012i-108/LED-E012i-10N
5 x 5 frame set	LED-E015i-135/LED-E015i-13N
6 x 6 frame set	LED-E018i-162/LED-E018i-16N
8 x 8 frame set (1.2 mm pitch)	LED-E012i-217/LED-E012i-21N
8 x 8 frame set (2.5 mm pitch)	LED-E025i-217/LED-E025i-21N

Contents

				(Quantity	/	
No.	Parts	Specifications	4 x 4 frame set	5 x 5 frame set	6 x 6 frame set	8 x 8 frame set (1.2 mm pitch) (2.5 mm pitch)	
1	Power bar		1	1	1	2	
2	Power bar side cover (left)		1	1	1	1	
	Power bar side cover (right)		1	1	1	1	
3	Screw for power bar side cover	M4 x 10	7 (2+5*1)	7 (2+5*1)	7 (2+5*1)	7 (2+5*1)	
	Power bar position pin		17 (12+5*1)	21 (16+5*1)	25 (20+5*1)	29 (24+5*1)	
4	Power bar connecting part		_	_	-	1	
5	Power bar connecting screw	M4 x 10	-	-	-	29 (24+5*1)	
6	Mounting bar		3	4	5	6	
	Bolt washer	20 mm	17 (12+5*1)	25 (20+5*1)	35 (30+5*1)	53 (48+5*1)	
	Alignment bar		2	2	2	2	
	Cabinet hanger pin	Head diameter 10 mm x 25 mm	17 (12+5*1)	25 (20+5*1)	35 (30+5*1)	53 (48+5* ¹)	
7	Power bar screw	M6 x 16	17 (12+5*1)	21 (16+5*1)	25 (20+5*1)	29 (24+5*1)	

*1: Spare parts

				(Quantity			
No.	Parts	Specifications	4 x 4 frame set	5 x 5 frame set	6 x 6 frame set	8 x 8 frame set (1.2 mm pitch)	8 x 8 frame set (2.5 mm pitch)	
8	Over frame (top)		1	1	1	2	2	
9	Over frame (left, right)		2	2	2	2	2	
10	Corner frame		2	2	2	2	2	
	Slot nut		17 (12+5*1)	17 (12+5*1)	17 (12+5*1)	2 (24+		
	Screw for overframe	M3 x 10 mm	17 (12+5*1)	17 (12+5*1)	17 (12+5*1)	2 (24+		
	Adjustment plate	35 x 35 x 6 mm	10	12	14	1	8	
	Screw for Adjustment plates	Hexagonal socket head screw (M4 x 12)	45 (40+5*1)	53 (48+5*1)	61 (56+5*1)	7 (72+		
	Pixel card		64	100	144	25	56	
	Cabinet	600 mm x 337.5 mm	16	25	36	6		
	Screw for connecting cabinets	M6 x 26 mm	65 (60+5*1)	105 (100+5*1)	155 (150+5*1)	28 (280-		
	Screw for cabinet (to Power bar)	M6 x 25 mm	17 (12+5*1)	20 (15+5*1)	23 (18+5*1)	2 (24+		
	LED controller*2	Novastar MCTRL 660Pro	1	1	1	-	1	
		Novastar MCTRL 4K	-	-	-	1	-	
	LAN cable for the LED modules	750 mm	-	-	-	-	4	
	LAN cable for the LED controller* ²	170 mm 20000 mm	12 4	20 5	30 6	48 16	56 8	
	Power cord for the LED controller ^{*2}		1	1	1	1	1	
	USB flash memory		1	1	1		L	
	Safety Manual		1	1	1	1		
	Power cord*3		*3	*3	*3	*	3	

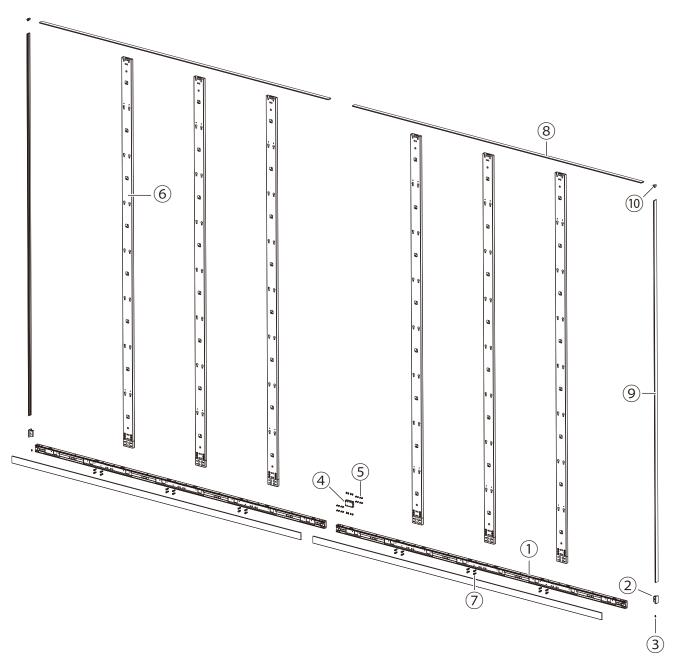
*1: Spare parts

*2: Kit model only (except LED-E012i-10N, LED-E015i-13N, LED-E018i-16N, LED-E012i-21N and LED-E025i-21N)

*3: Can be ordered by optional

Four different wall-mount frames can be used depending on the system size. Ask your retailer for more details. For other configurations, the number of contents will vary. Please contact your retailer for more information.

8 x 8 frame set



Installation Example

1. Installation location

Before the installation, be sure to review the following safety precautions to ensure proper and safe installation.

- Ask a technician to perform the installation.
- Make sure the product is moved and installed by enough people to ensure safety.
- Make sure that the beams or the other structures to which the product is installed have enough strength to support the weight of the product, and make sure that the product is securely fixed.
- Do not install directly the product to a surface that has not enough strength.
- When installing the product in an environment with much dust or dirt, be careful to prevent such material from adhering to the connectors on the hub board and pixel card. Adhesion of dust or dirt to the connectors may cause poor contact, leading to abnormalities of video display.
- When installing the product in a narrow place (in a wall, etc.), leave enough gaps around the LED screens to prevent an increase in the temperature.

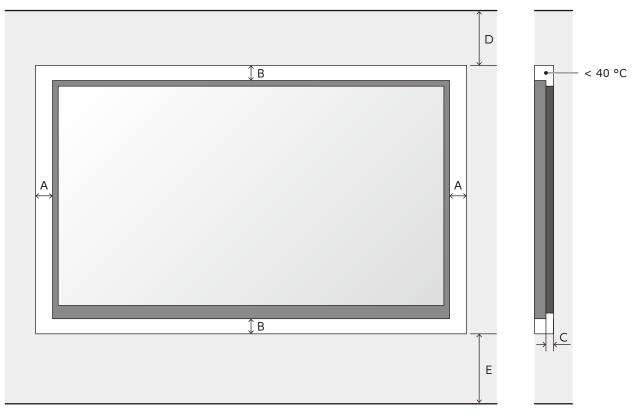
Make sure to use the product lower than the normal operating temperature.

The top of the LED module should always be installed so that the temperature is below 40°C. Pay particular attention to the installation environment (heat from the external environment, direct sunlight, heat generated by the number of displays) in order to facilitate cooling of the LED modules. If cooling is not sufficient, take measures, such as increasing the distance from the walls or installing a forced-air cooling system.

Ask a technician or your retailer for more details.

There is an example for setting.

In wall setting

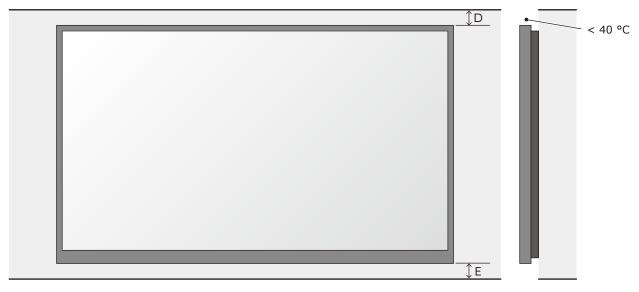


А	В	С
min. distance to sides	min. distance to top and bottom	min. distance between wall and system
60 mm	60 mm	20 mm

D	E
Recommended distance to ceiling	Recommended distance to floor
500 mm*	500 mm*

*: Depending on the temperature condition.

Wall mounting setting



D	E
Recommended distance to ceiling	Recommended distance to floor
500 mm*	500 mm*

*: Depending on the temperature condition.

If the distances are lower than these value, the cooling might not sufficient. Take measures, such as increasing the distance from the walls or installing a forced-air cooling system.

2. Mark the positions of the anchor points on the wall

- Mark the positions of the holes you will make for the anchor points (refer to the figures below and the "Anchor points number and positions" table on the next page).
- Before making the holes, check the verticality of the marks using a spirit level or a laser line level. (We recommend using a laser line level is recommended for accuracy.)

Anchor points positions: 4 x 4 frame set

600	mm 600	mm	
337.5 mm	4	ł	
337.5 mm	۰	۰	
337.5 mm	٥	٥	
<u>↓</u> 。	٥	۰	

Anchor points positions: 5 x 5 frame set

337.5 mm 337.5 mm 337.5 mm 337.5 mm 337.5 mm
337.5 mm 337.5 mm 337.5 mm
337.5 mm 337.5 mm 337.5 mm
337.5 mm 337.5 mm
337.5 mm
↓

Anchor points positions: 6 x 6 frame set

600	mm_600	mm_600	mm_600	mm
337.5 mm	Ţ	Ţ	Ţ	Ĵ
337.5 mm	•	•	•	۰
337.5 mm	0	•	¢	°
337.5 mm	•	•	•	•
337.5 mm	٥	۰	٥	۰

Anchor points positions: 8 x 8 frame set

	600 mm 600 mm	1200 mm	600 mm 6	00 mm
337.5 mm	_î <u>î</u>		î î	1
337.5 mm				•
337.5 mm				•
337.5 mm				•
337.5 mm				
337.5 mm				
337.5 mm				•
-				

Anchor points number and positions

Frame set	4×4	5×5	6×6	8×8
Anchor points (horizontal x vertical)	3×4	4×5	5×6	6×8
Horizontal distance	600 mm	600 mm	600 mm	Distance center: 1200 mm Others: 600 mm equally
Vertical distance	337.5 mm	337.5 mm	337.5 mm	337.5 mm
Anchor size	Ø10 mm	Ø10 mm	Ø10 mm	Ø10 mm

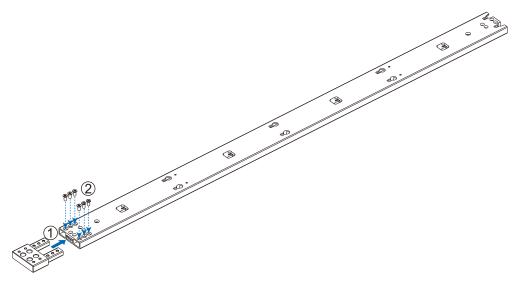
3. Make the holes at the anchor positions

- Make holes at the anchor positions using a suitable tool.
- Use screw anchors/anchor plugs as required.
- Remove the dust or dirt, and wipe off any drilling chips and dust.

4. Preparing mounting bar

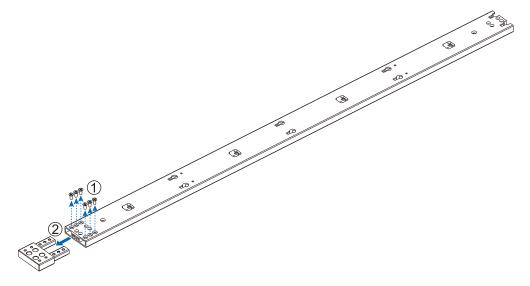
Attaching mounting bar connector

Insert the mounting bar connector and tighten it securely with 6 screws (M6 x 14).



Removing mounting bar connector

Remove the 6 screws (M6 x 14) holding the mounting bar connector, and pull out the mounting bar connector.

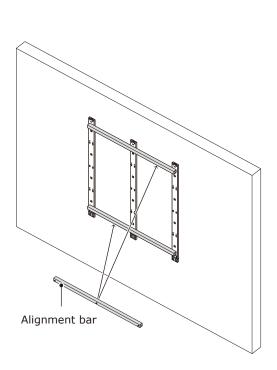


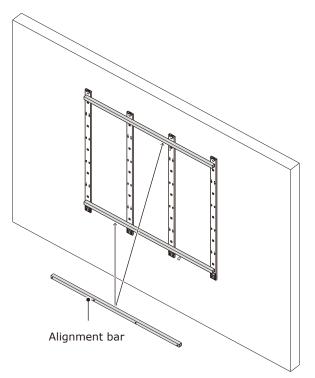
5. Install the mounting bars

- (1) Install the mounting bars on the anchor points on the wall.
- (2) Check the distance between the mounting bars using the alignment bars.

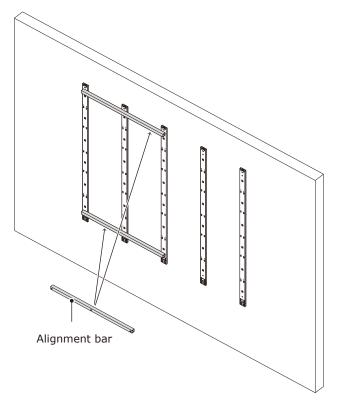
4 x 4 frame set

5 x 5 frame set

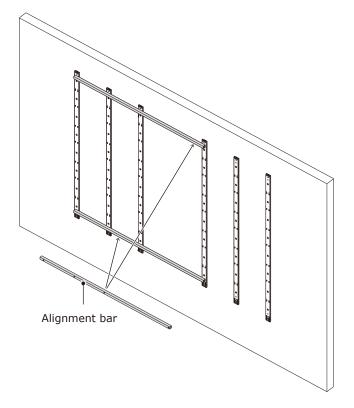




6 x 6 frame set

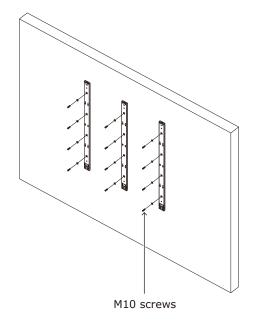


8 x 8 frame set



(3) Check the evenness using a spirit level or a laser line level and the alignment bars together. Adjust the positions if required.

Wall mounted: Mounting bar installation (4 x 4 frame set)



6. Install the power bar

Remove the power bar cover and install the power bar using Power bar screw (M6) screws.

How to remove the power bar cover

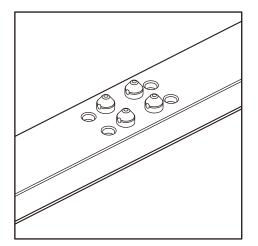
Sliding the power bar cover for removing. Power bar cover can slide left or right.

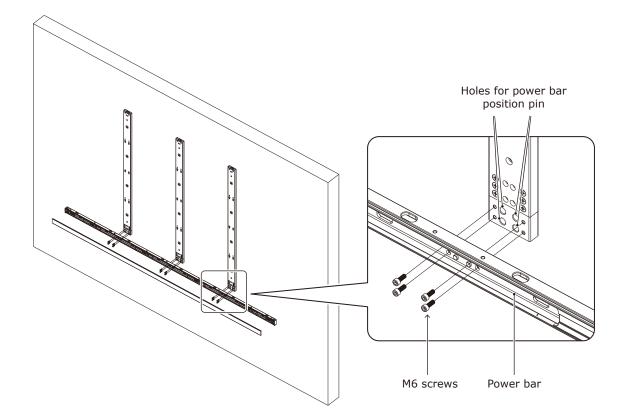


How to attach the power bar position pin

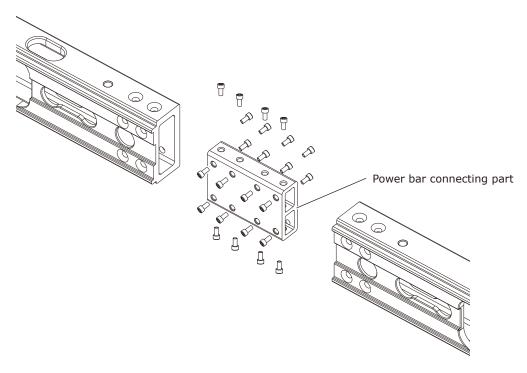
Attach the power bar position pin to the power bar.

- 4 x 4 frame set: 4 pieces x 3 places
- 5 x 5 frame set: 4 pieces x 4 places
- 6 x 6 frame set: 4 pieces x 5 places
- 8×8 frame set: 4 pieces x 3 places x 2 power bar



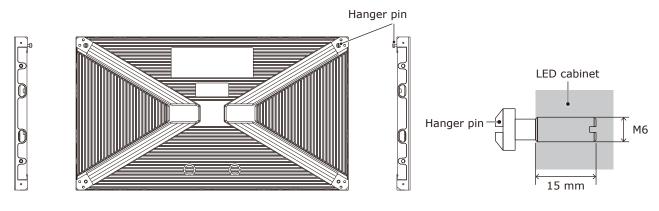


When using the 8×8 frame set, use the power bar connecting part to install the power bar.



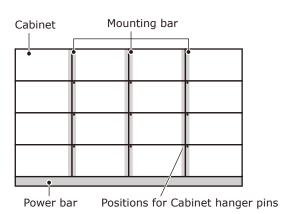
7. Install the cabinet hanger pins to the back of the cabinets

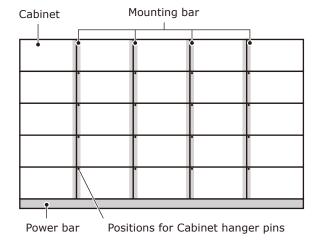
The following drawings indicate where Hangar pins are required. Insert the Hangar pins until the pitch of the screws is no longer visible.



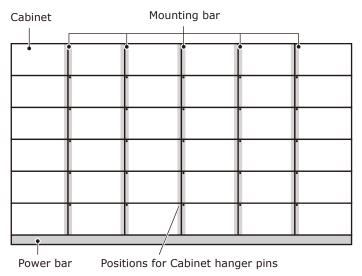
5 x 5 frame set

Cabinet hanger pins installation position 4×4 frame set





6 x 6 frame set



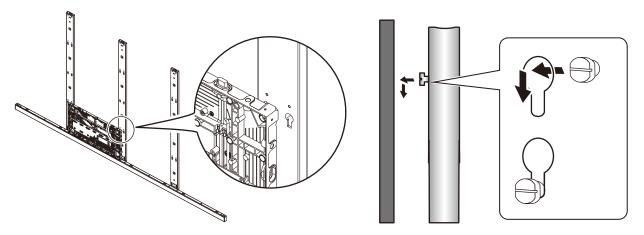
8 x 8 frame set

Cabinet	Mounting bar	Mounting bar			
	,, •	3 0		٦	
		•		4	
				1	
	•	•		1	
		•		1	
		•			
	•	•			
	•				
· ·	•				

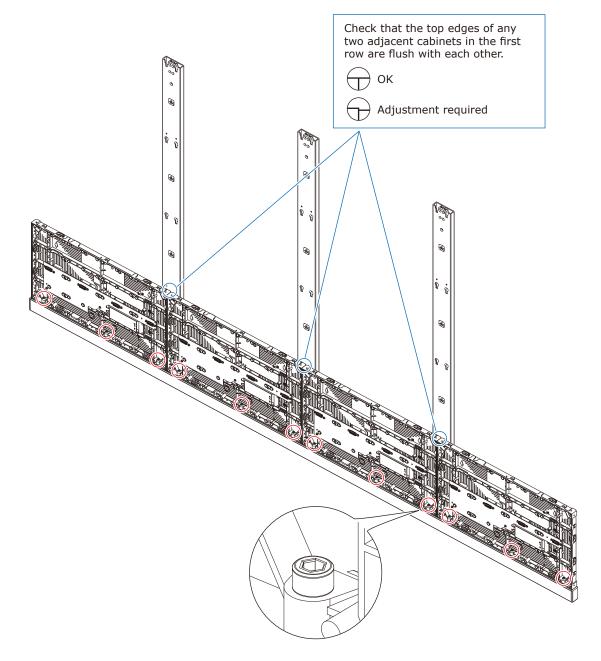


8. Install the cabinets

Hook the hanger pins, which have been inserted into the cabinets, into the holes on the mounting bars starting from the lowest row.

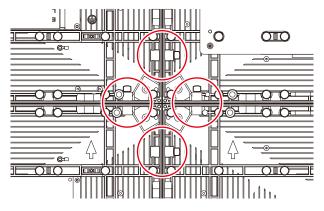


Fix temporarily the cabinets of the first row to the power bar.

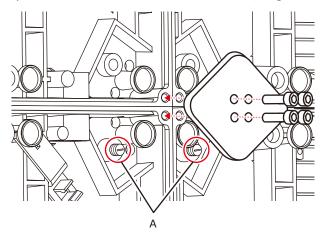


Hook the hanger pins of the cabinets of the second row to the mounting bars.

Secure the LED cabinets together using screws for connecting cabinets. Do not tighten the screws completely.



After you have installed two rows of cabinets, align the surfaces of the cabinets using the Adjustment plates.



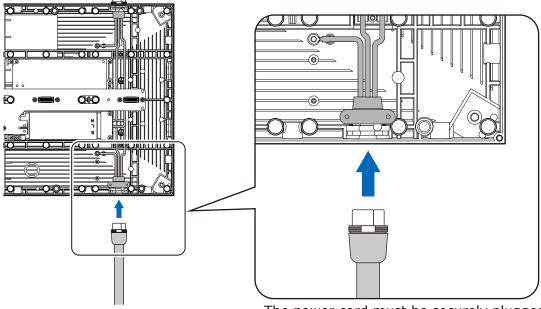
When the cabinets' surfaces are aligned, securely tighten the cabinets of the first row to the power bar, the cabinets of the first row together, as well as the cabinets of the first row with the cabinets of the second row. Remove the Adjustment plates after the screws have been tightened.

Adjust the position of the cabinet and the mounting bar by rotating the screws A on the figure with a flat blade screwdriver. Rotate the screws counterclockwise to bring the cabinet closer to the mounting bar. Follow the same procedure to install the next row of cabinets and align their surfaces.

Connect the power cord and the LAN cable from the opening at the back of the power bar.

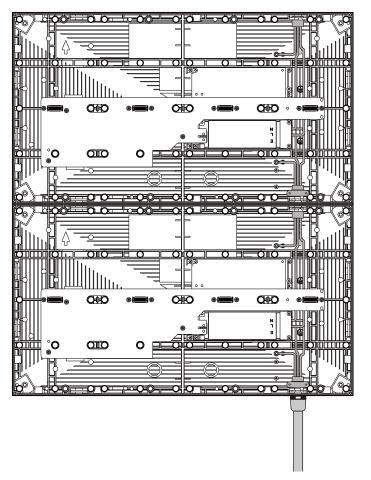
(1) Power cord connection

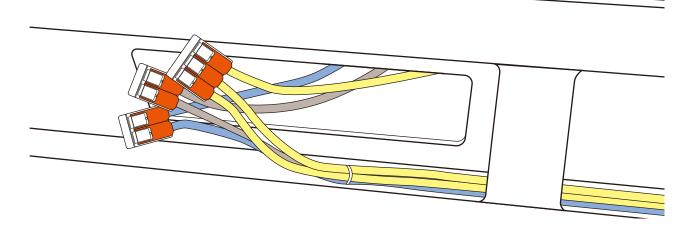
Connect the power cords to the LED modules on the first row.



The power cord must be securely plugged.

Connect the power cords between the LED modules.





Precautions on use of the power connector (WAGO)

When using the power cord connector (WAGO's product, WFR Series (WAGO 221), Models WFR-2 and WFR-3), respect the following precautions.

WAGO 221



* Visiting WAGO's homepage for more details is recommended.

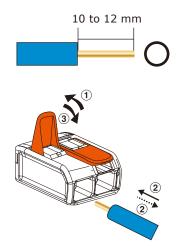
WARNING

- Always use the connector indoors (in a location not affected by moisture).
- Use the connector by respecting the installation precautions. If the connector is not used correctly, it may lead to a fire or an electrical shock.

Installation precautions

• Wire sheath peeling

Be sure to peel off the wire sheath over the specified length.



CAUTION

Do not use the connector with the core wires being sinuous.



Lever operation is necessary even for connection of a solid core wire.

• Wire sizes

Wire sizes compatible with the power connector (WAGO) are as follows.

Solid core:	φ1.6 to 2.0 mm
IV 7-stranded core:	2.0 to 3.5 mm ²
Flexible stranded core:	2.0 to 3.5 mm ²

• When reconnecting a wire once disconnected, cut off the wire end and newly peel off the sheath.

\rm CAUTION

- When reconnecting a wire once disconnected, cut off the wire end and newly peel off the sheath.
- If the disconnected wire is reconnected without this processing, it may heat up and burn out.

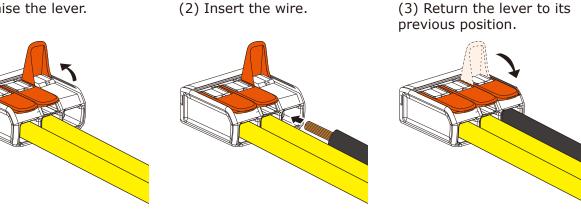
Newly peel off the sheath.

End of disconnected wire: More or less damaged.



How to connect the power cord

(1) Raise the lever.



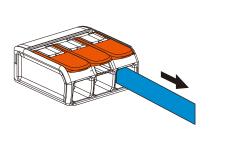
CAUTION

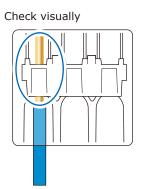
Insufficient insertion may cause poor electricity conduction and heat generation.

Power code connection checking

• Perform checking for correct and proper connection.

Lightly pull on the wires one by one to check that they will not be pulled out.



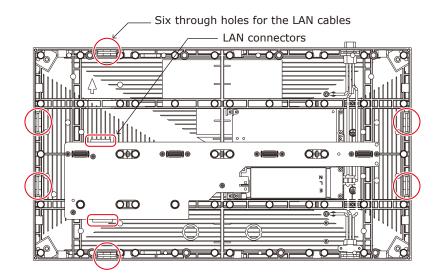


Pay attention to the wire colors of the power cord when connecting the cord. If the cables are not connected correctly, it may lead to a fire or an electrical shock.

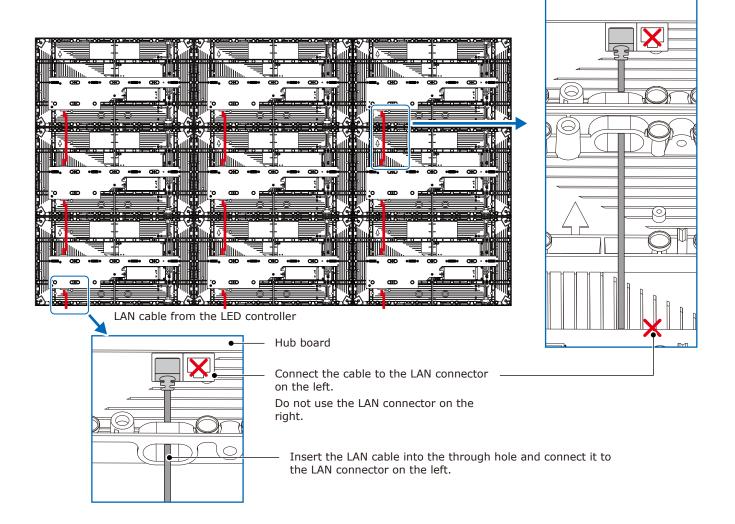
Blue (N) Brown (L) Yellow green (Ground)

(2) LAN cable connection

Connect the LAN cables for the signal between the LED modules. Use the through holes to pass the cables between the modules.

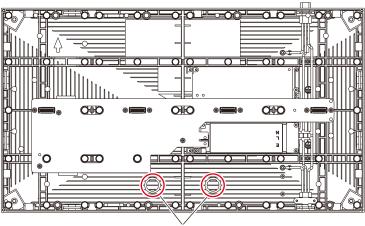


[Connection example] Connecting from bottom to top using multiple ports



Backside hole cabinet

There are holes on the back of the cabinet for passing signal cables and power cords.

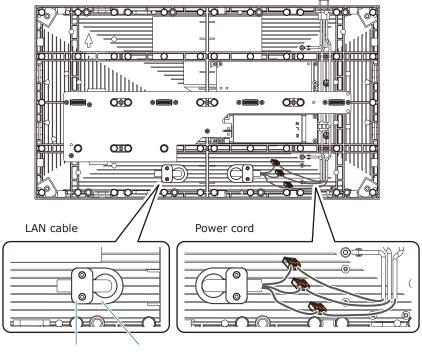


backside hole

If the hole is not drilled, place a flathead screwdriver from inside the cabinet at the edge of the round recess and tap it lightly with a hammer to make a hole.

Remove the cable fixing part and insert the cables.

Pinch the cable with the cable fixing part and attach it to the cable holder.



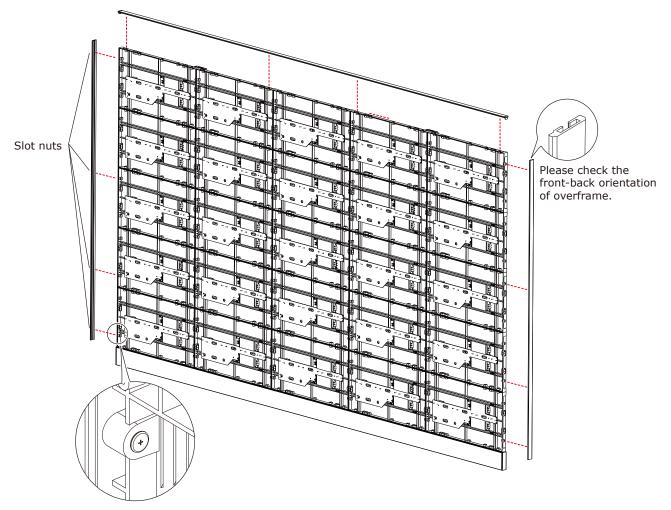
Front

Cable fixing part Cable holder

Install the power bar cover and power bar side covers using the screws when it was installed (on the front).

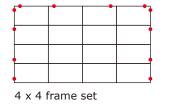


Insert the slot nuts inside the over frame into the holes of the screw for connecting cabinets and fix them with M3 screws.



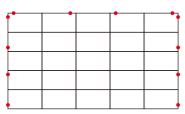
Install the corner parts to the over frame (top) and install it on the top of the cabinets.

Slot nut installation locations



			•
			•
•			•





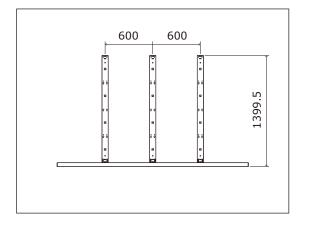
5 x 5 frame set

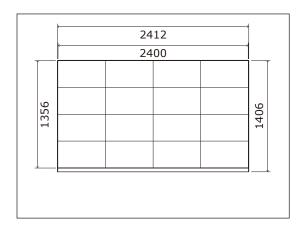
	•	•	•	•	•	•	•	
					-	-		
1								

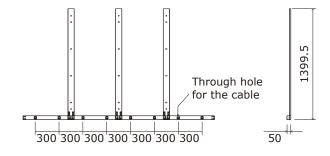
8 x 8 frame set

9. Assembly diagrams

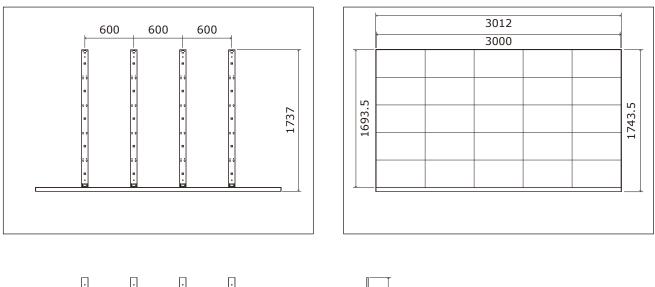
4 x 4 frame set

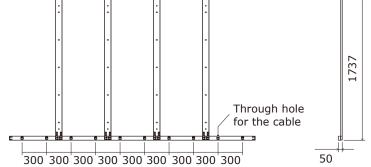




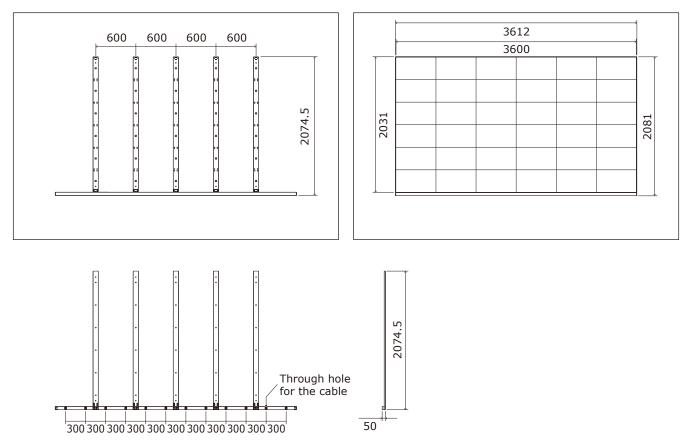


5 x 5 frame set

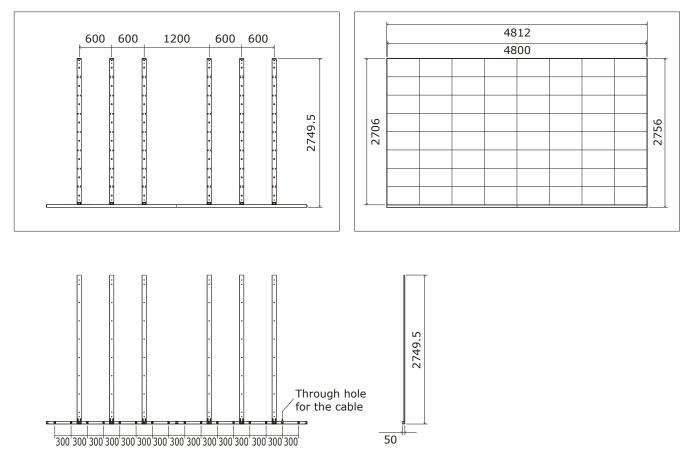




6 x 6 frame set



8 x 8 frame set

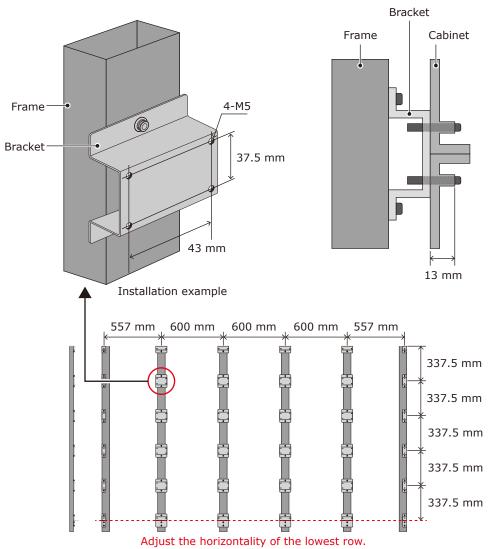


10. Installation without a frame set

A recommended example of installation when using the brackets is shown below. Please prepare the bracket by yourself. Ask a technician or your retailer for the installation procedure when not using the brackets.

Install the brackets to the frame as shown in the figure below.

Use screws with a length adapted to the cabinet thickness (13 mm). Use also brackets with a sufficient thickness to hold the screws.



For installation, please refer to the "8. Install the cabinets".

11. Wiring

(1) Maximum number of signal connections

The maximum number of connections per LAN cable is shown below.

Product name	Maximum number of connections
LED-E012i	4 modules
LED-E015i	7 modules
LED-E018i	10 modules
LED-E025i	17 modules

The maximum number of connections may differ depending on the connected LED controller. Therefore, check the specifications of the LED controller you are using. Ask a technician or your retailer for more details.

(2) Maximum number of power connections

Exceeding the maximum capacity may generate smoke or cause a fire. Check the voltage used and do not exceed the connection limits shown below.

Except Taiwan, Korea and India:

Product name	100 - 120 V AC	200 - 240 V AC
LED-E012i	13 modules	25 modules
LED-E015i	13 modules	25 modules
LED-E018i	13 modules	25 modules
LED-E025i	13 modules	25 modules

_			
	Product name	100 - 120 V AC	200 - 240 V AC
	LED-E012i	10 modules	20 modules
	LED-E015i	10 modules	20 modules
	LED-E018i	10 modules	20 modules
	LED-E025i	10 modules	20 modules

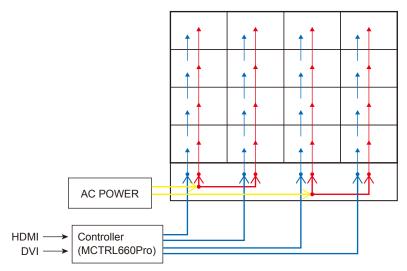
For Taiwan, Korea and India:

(3) Connection when using a wall-mount frame

This connection is an example of connection when using the maximum capacity. The power cable corresponding to the yellow part needs to be prepared by the customer.

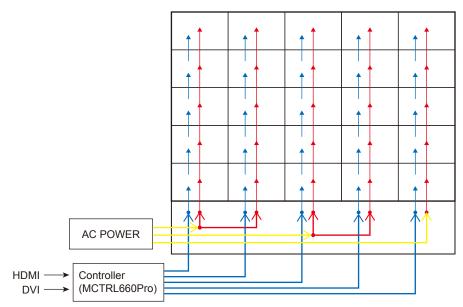
Please connect considering the capacity of the switchboard and the inrush current specification.

4 x 4 frame set



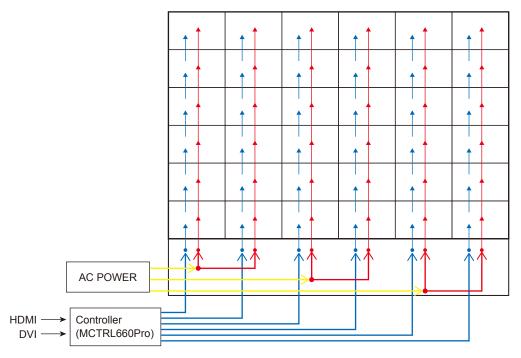
4×4 frame set		AC 100V	AC 200V
Number of power system		2	2
Current rating	per 1 module	1.5 A	0.8 A
per power system		12.0 A	6.4 A
	per frame set	24.0 A	12.8 A
Inrush current	per 1 module	30 A	60 A
25°C Cold start	per power system	240 A	480 A
Pulse width: 3ms	per frame set	480 A	960 A

5 x 5 frame set



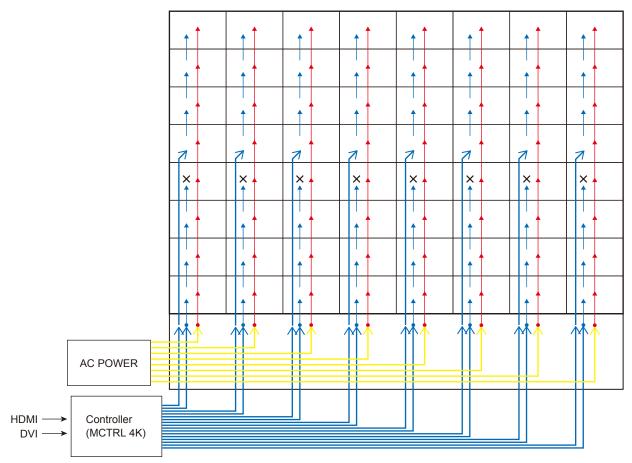
5 x 5 frame set		AC 100V	AC 200V	
Number of power sy	/stem	3	3	
Current rating	per 1 module	1.5 A	0.8 A	
	per power system	7.5 A (1 Systems)	4.0 A (1 Systems)	
		15.0 A (2 Systems)	8.0 A (2 Systems)	
	per frame set	37.5 A	20.0 A	
Inrush current	per 1 module	30 A	60 A	
25°C Cold start	per power system	150 A (1 Systems)	300 A (1 Systems)	
Pulse width: 3ms		300 A (2 Systems)	600 A (2 Systems)	
	per frame set	750 A	1500 A	

6 x 6 frame set



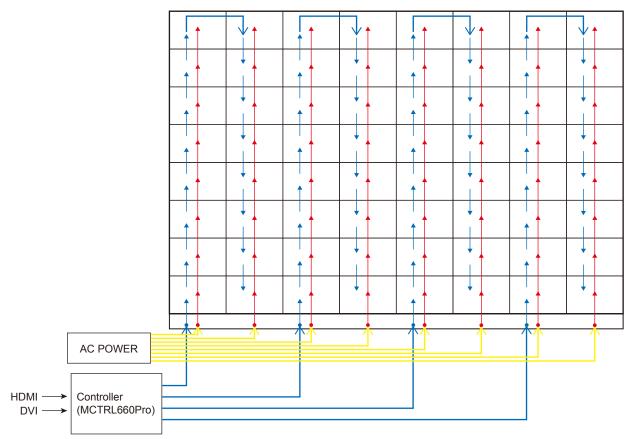
6 x 6 frame set		AC 100V	AC 200V
Number of power	system	3	3
Current rating	per 1 module	1.5 A	0.8 A
	per power system	18.0	9.6 A
	per frame set	54.0 A	28.8 A
Inrush current	per 1 module	30 A	60 A
25°C Cold start Pulse width: 3ms	per power system	360 A	720 A
	per frame set	1080 A	2160 A

8 x 8 frame set (1.2 mm pitch)



8 x 8 frame set (1	.2 mm pitch)	AC 100V	AC 200V
Number of power	system	8	8
Current rating	per 1 module	1.5 A	0.8 A
	per power system	12.0 A	6.4 A
	per frame set	96.0 A	51.2 A
Inrush current	per 1 module	30 A	60 A
25°C Cold start	per power system	240 A	480 A
Pulse width: 3ms	per frame set	1920 A	3840 A

8 x 8 frame set (2.5 mm pitch)



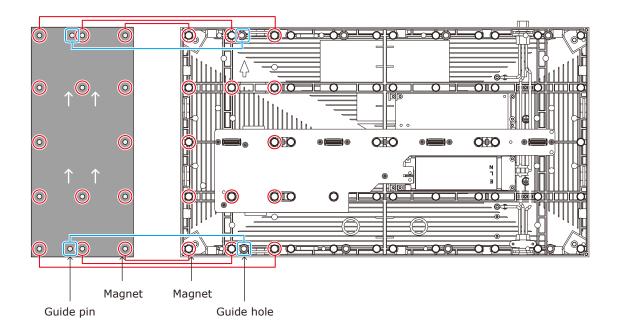
8 x 8 frame set (2	.5 mm pitch)	AC 100V	AC 200V
Number of power	system	8	8
Current rating	per 1 module	1.5 A	0.8 A
	per power system	12.0 A	6.4 A
	per frame set	96.0 A	51.2 A
Inrush current	per 1 module	30 A	60 A
25°C Cold start	per power system	240 A	480 A
Pulse width: 3ms	per frame set	1920 A	3840 A

12. Installing the pixel card

- The pixel cards contain powerful magnets. If magnetic cards come close to the pixel cards, the data contained within may be damaged. Therefore, do not carry any magnetic card when installing the pixel cards.
- When installing the pixel cards, pay attention not to damage them against the pixel cards already installed or other objects. Otherwise, the video may not be displayed properly.
- Take measures against static electricity when installing the pixel card. Do not touch the LED display areas and the back of the pixel card.
- Check that the power supply to the LED modules is cut before starting the work.
- Before installing or removing pixel cards, please ensure the wall has been powered off for 1 or 2 hours. Otherwise the thermal expansion of pixel cards increases the risk of damaging them during removal or insertion.
- If installation is not successful, please use the maintenance tool. (see English-58)

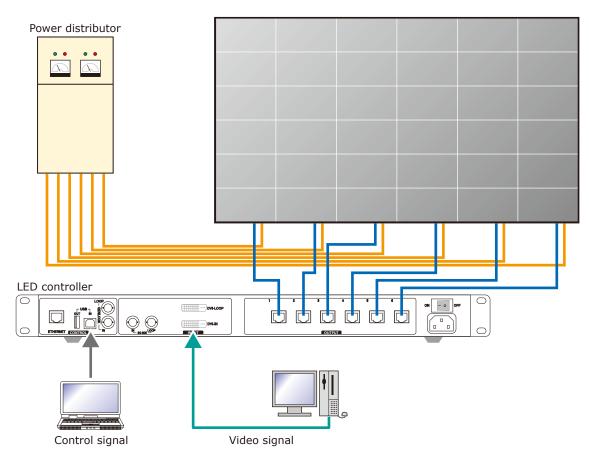
Install the pixel card to the cabinet paying attention that the arrows on the back of the pixel card and on the hub board are orientated toward the same direction, and that the two guide pins of the pixel card are aligned to the guide holes of the cabinet (two for each pixel card).

The pixel card is secured by the 14 magnets on each pixel card.



Screen Configuration

Check that all the connections are completed, and then turn on the LED modules and the LED controller.



\rm MARNING

Pay attention to the wire colors of the power cord when connecting the cord. If the cables are not connected correctly, it may lead to a fire or an electrical shock.

Blue (N) Brown (L) Yellow green (Ground)

When using LAN cables of 60 m to 100 m in length, the product may not operate correctly depending on the quality of the cables. In such a case, it is recommended to use optical-fiber cables. Ask a technician or your retailer for more details.

Preparingfor using NovaLCT software

Perform the setting using the NovaLCT control software by Novastar. Connect the supplied USB memory to the computer. Start NovaLCT*.exe. After it has started, install it following the software instructions. The NovaLCT preparation is complete.

For NovaLCT*.exe, be sure to use the file contained in the supplied USB drive. Using a NovaLCT*.exe file different than the one in the supplied USB drive may lead to malfunction.

Log in with the administrator privileges.

Display the login screen as follows: User(U) \rightarrow Advanced Synchronous System UserLogin(A). Enter the password ("admin" by default) to log in with the administrator privileges. To change the password, go to User(U) \rightarrow Change Password(U) with the administrator privileges.

A CAUTION

Do not forget the new password after it has been changed.

Enter the screen configuration menu

(1) Click "Screen Configuration" (a).

	Image: MovaLCT V5.4.3 - □
	System(<u>S</u>) Settings (<u>C</u>) Tools(<u>T</u>) Plug-in (<u>P</u>) User(<u>U</u>) Language(<u>L</u>) Help(<u>H</u>)
_	Cloud Monitoring Screen Configuration Brightness Calibration Screen Control Local Backup Files Monitoring
	-Local System Information
	Control System 1 Other Device 0 <u>View Details of Device</u>
	Monitor Information
	Service Status: Service version:3.1.1

(2) Check the port in "Select Communication Port", and then click the "Next" button (b).

Screen Configuration			×
- Select Communicatio	n Port		
Current Operatio	COM5	~	
 Configure Screer Load Config 			Browse
		Next	Close
		(b)	

Module connection settings

Start NovaLCT and log in with the administrator privileges.

In the Screen Configuration screen that is displayed, select the "Screen Connection" tab (a).

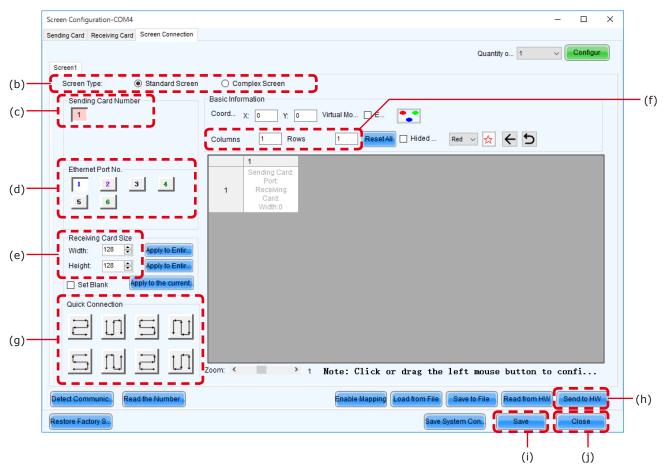


CAUTION

Do not change the settings in the "Receiving Card" tab. Otherwise, the video may not be displayed properly.

Select "Standard Screen" under "Screen Type" (b).

The settings in "Sending Card Number" (c) and "Ethernet Port No." (d) vary depending on the connected LED controller.



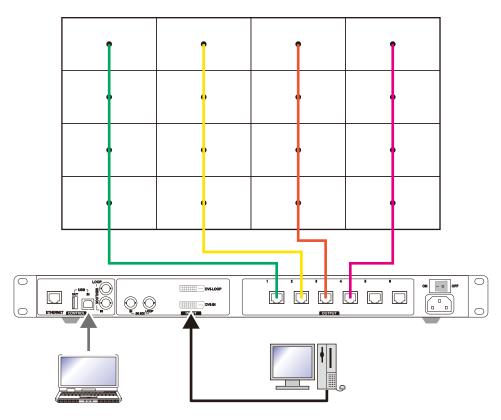
Enter the value in the table below under "Receiving Card Size" (e).

Product name	LED-E012i	LED-E015i	LED-E018i	LED-E025i
Pixel pitch	1.25 mm	1.56 mm	1.88 mm	2.50 mm
Number of displayed pixels (resolution/module)	Width 480 Height 270	Width 384 Height 216	Width 320 Height 180	Width 240 Height 135

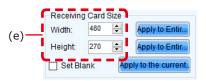
[Columns/Rows] Enter the number of installed screens under "Columns/Rows" (f) (the number of vertically installed screens in Columns, and the number of horizontally installed screens in Rows).

[Configuration example]

The setting values are given for the following example where 16 are installed in a 4 (columns) x 4 (rows) configuration connecting from bottom to top using multiple ports.



(1) With a pixel pitch of 1.25 mm, enter Width=480 and Height=270 under "Receiver Card Size" (e). Do not use the buttons located next to the values.



(2) Since the configuration is 4 (columns) x 4 (rows), enter Columns=4 and Rows=4. A 4 (columns) x 4 (rows) screen configuration is displayed.

ding Card Receiving Card Screen Connection									>
creen1						Quantity o 1	~	Configu	
Screen Type: Standard Screen	O Co	mplex Screen							
Sending Card Number	Coordinat		Y: 0 Virtu	al Mo 🗌 E	Enab	ol Screen Ar 12	8 X	128	
Ethernet Port No.	Columns	4 R0	ows 4	ResetAll	Hided Red	⊻ 🗧 ר ב			
1 2 3 4 ^		1	2	3	4				٦
5 6	▶ 1	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0				
Width: 480 Apply to Entir Height: 270 Apply to Entir Set Blank Apply to the current.	2	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0				
	3	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0				
일미되며	4	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0	Sending Card: Port: Receiving Card: Width:0				
	Zoom: <		~	1 Note: (Click or dra	g the left mou	se but	ton t.	
etect Communic Read the Number			Enab	le Mapping Loa	d from File	e to File Read from	HW Sr	end to HW	1
store Factor.		6	estore Syste Ba	ack Up Syste		ave System Co	Save	Clos	Ē

- (3) If multiple LED controllers are used, select the number of the connected LED controllers. Since only one controller is used in this example, it is not necessary to set "Sending Card Number" (c).
- (4) Configure the connection.

The system is connected to port 1 of the LED controller.

Select "1" (port 1) under "Ethernet Port No." (d).



Select the cabinet at the bottom left with the mouse, and then select the other cabinets up to the top cabinet.

Screen Configuration-USB@Port_#0003.Hub_#0002 × _ Sending Card Receiving Card Screen Connection ~ Configur Quantity o... 1 Screen1 Screen Type: Standard Screen O Complex Screen Basic Information Sending Card Number Virtual Mo... 🛛 E... 🎦 🗆 Enabl... Screen Ar... 128 x 128 1 Coordinate: X: 0 Y: 0 Ethernet Port No. ResetAll Hided ... Columns 4 Rows 4 Red 🗸 🛧 ᠫ ^ 1 2 3 4 1 3 4 5 6 Sending Card: Port: Receiving Card: Width:0 Sending Card:1 Sending Card: Port: ding Card Port:2 Port:1 Rediting Cald:4 Widtl:480 Red Ving Card:4 Width:480 Receiving Card: Width:0 • 1 ~ Receiving Card Size Sendin, Card: Pot:2 Sending Card: Port: Receiving Card: Width:0 Sendine Card:1 Width: 480 🜩 Sending Card: Port: Apply to Entir. Receiving Card: Width:0 Recei Card Width: Receiving Card:3 Width :480 Height: 270 🖨 iving d:3 :480 Apply to Entir... 2 Set Blank Apply to the curre Sendin Card:1 Sendin Card: 1 Po t:2 Sending Card: Port: Receiving Card: Width:0 Sending Card: Port: Quick Connection Receiving Card:2 Width:480 Receiving Card:2 Widtt :480 Receiving Card: Width:0 3] t 11 IT t Sendin, Card:1 Po<mark>t</mark>:2 Sending Card: Port: Receiving Card: Width:0 Sending Card:1 Pot1 Sending Card Port: 111 Receiving Card: Width:0 Recs ing Card:1 Width:480 Rec<mark>S</mark>/ing Card:1 Width:480 4 Zoom: < > 1 Note: Click or drag the left mouse button t... Detect Communic... Read the Number . Enable Mapping Load from File Save to File Read from HW Send to HW Restore Factor. Restore Syste... Back Up Syste... Save System Co... Save Close

Then select Port2 and select the cabinets from the bottom to the top as you did for Port1.

Follow the same procedure for Port3 and Port4.

creen Configuration-USB@Port_#0003.Hub_#00	02						-		×
ending Card Receiving Card Screen Connection									_
						Quantity o 1	~	Configu	IL
Screen1	-								
Screen Type: Standard Screen 		omplex Screen							
Sending Card Number	Basic Info								
1	Coordina	ite: X: 0	Y: 0 Virtu	al Mo 🗌 E	🎦 🗆 Ena	bl Screen Ar	128 X	128	
Ethernet Port No.	Columns	4 Ro	ws 4	ResetAll	Hided Red	· ∽ 🛠 ←	5		
5 6		1	2	3	4				
<u> </u>		Sending Card:1 Port:1	Port:2	Port3	Sending Card:1 Port:4				
~	▶ 1	Red Dring Card:4	Red <mark>E</mark> ying Cal <mark>d</mark> :4	Rec <mark>ib</mark> ying Catd:4	Rec <mark>it</mark>)ing Cald:4				
Receiving Card Size Width: 480 - Apply to Entir		Widtt :480 Sendine Card:1	Width:480 SendineCard:1	Width:480 Sendine Card:1	Widtt :480 Sendine Card:1				
Width: 480 - Apply to Entir Height: 270 - Apply to Entir	2	Pot1 Receiving	Polt2 Receiving	Pot:3 Receiving	Pot4 Receiving				
Set Blank Apply to the current.	2	Card:3	Card:3	Card:3	Card:3				
Set Blank		Widtt :480 Sending Card:1	Width:480 Sendin Card:1	Width:480 SendingCard:1	Widtt :480 Sendin Card:1				
Quick Connection	3	Pot1 Receiving	Po <mark>r</mark> t:2 Receiving	Pot:3 Receiving	Pot4 Receiving				
김미드미		Card:2 Width:480	Card:2 Width:480	Card:2 Width:480	Card:2 Widtt:480				
		Sending Card:1	Sendin Card:1	Sendine Card:1	Sendin Card:1				
드 띠 근 띠	4	Po <mark>t1</mark> Rec <mark>S</mark> /ing	Po <mark>l</mark> t:2 Rec <mark>S</mark> /ing	Po <mark>t</mark> :3 Rec <mark>S</mark> ring	Pot:4 Rec <mark>S</mark> /ing				
		Card:1 Width:480	Card:1 Width:480	Card:1 Width:480	Card:1 Width:480				
	Zoom: <		>	1 Note: (Click or dra	ag the left	mouse but	ton t	
Detect Communic Read the Number			Enab	le Mapping Loa	d from File	ve to File Read	from HW	end to H\	N
Restore Factor.		Re	store Syste Ba	ack Up Syste	6	ave System Co	Save	Clos	se

- (5) Save the settings.
 - (a) Click the "Send to HW" button (h). When the dialog box indicating that the process finished successfully is displayed, click OK.
 - (b) Check that the image is correctly displayed, and then click the "Save" button (i). When the screen indicating that the process finished successfully is displayed, click OK.

The setting of the screen configuration is complete. Click the "Close" button (j) to close the Screen Configuration screen.

Receiving card settings

(1) The Screen Configuration screen is displayed. Select the "Receiving Card" tab (a).

Chip:	ICND2055/I	Size:	60W×27H	Sca	anning Type	1/27 scan	
Direction:	Horizontal	Data Groups	1	<u>Adj</u>	ust RG		>>
Cabinet Informati	on						Set Rotation
🔿 Regular			() Irre	gular			
Width (Pixel)	1 🌲	<=256	Wi	ith: 240	Height:	135	
Height (Pixel)		<=128			-		
Module Case	From Right to			a struct Or	1. Com	Orbinst	
	Tronrught to			nstruct Ca	View	Cabinet	
Performance Set	tings						
Data Group E	More Setti	ings	🖌 Big 🕜		18	bit+	
- Data Clock							^
Data Clock		✓ MHz	Grayscale C GCLK Freq		18.75	MHz	
Data Phase		 • • 	Frequency			~	
Data Phase DCLK Duty		✓ (25~75) %			1.5	•	
DOLIVDUI	50	♥ (25~75) %	Row Blanki	-	23	€ (=3.45us)	
	e Parameters	Hz	Line Changi			€ (0~21)	
Refresh Ra Grayscale	ite.		Ghost Contro	I En		÷ (1~22)	
Refresh Ra		~	Ghost Elimi			(1 22)♦ (0~7)	
	8 8	~	Ghost Elimi			(01)	
Bright	71.88%				 Enable 		¥
Smart Settings		Load fro	m File Receiving	Sav	e to File	ead from Re	end to Recei
Current Receivin	g A5SPlus_	V4.6.6.90 Firmv	vare versio A5SI	lus		Re	estore Facto

- (2) Click "Load from File" (b).
- (3) Select the configuration file (rcfgx file) you want to load to the receiving card. A screen like the following appears when the loading process is complete.

	×
Loaded configuration file successfully!	
ОК	

- (4) Click "Send to Receiving Card" (c).
- (5) Click "Save" (d). Loading of the configuration file is complete.

Update the Calibration Data

- (1) Login as Advanced User.
- (2) Click the "Calibration" button (a). Start calibration menu.

	💋 NovaLCT V5.2.0						_		\times
	System(S) Settings (C	C) Tools(T)	Plug-in (P)	User(U)	Language(L)	Help(H)			
(a) <mark>-</mark>		Brightness	Calibration	Screen Con	trol Monitoring	Multi-function Card	Test Tool		
	-Local System Information								
	Control System	1	Other Devic	e	0	View Details of Device			
	Monitor Information								
				<u>[</u>]					
	Service Status: Service ver	rsion:3.1							.::
	Screen Calibration							- 0	×
	Single-Screen Mode Combined-Sc · ·			ge Coefficients D	ouble Calibration Coefficient	s			
	Current Operation Communication Port 192.168.41.1:5200	Send by Address S							
	Current Screen	Screen:1 Sta	arting coordina	ateX≕O, Y≕O	Size1440 W ×810B	1			
	Screen1	Full	Select by pix O	Select by Topolo	gy Select open	rat			
	Settings of Displaying Image				Operate all	pixels.			
	Position to Display Image:				Operate all	pixels.			
					Operate all	pixels.			

(3) Select the "Screen1" radio button.

 100
 Image: mail of the second secon

Brightness Calibration
 Chroma Calibration

Save

(4) Click on the "Manage Coefficients" tab (b).

Flash Check

Single Screen Mode Combined-Sc 1	Online Calibration Offline Calibra on Manage Coefficients Do ble Calibration Coefficients	
Current Operation (192-168-41.15200 V Current Screen © Screen1	Select Operation	
Settings of Displaying Image Position to Display Image: Primary Display	Adjust coefficients (Color is uniform on screen) Erase or reload calibration coefficients Reset calibration coefficients Upload coefficients (for factory use)	
Extended Display Device Response Time: 100 Small Ms Use input source for display	Upioad coemones (for factory use)	
Enable/Disable Calibration O Disable Calibration O Brightness Calibration Chroma Calibration		

View Receiving Card Calibr... View Module Calibration C.... Save C

Auto Upload Module

Save to HW

(5) Click on "Module Flash". <u>Result:</u> The module flash options will appear.

Screen Calibration		-		х
Single-Screen Mode Combined-Sc · ·	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients			
Current Operation	Send by Address Send by Topology			
Communication Port 192.168.41.1:5200 ~ Current Screen	Screen:1 Starting coordinateX=0, Y=0 Size1440¥×810H			
Screen1	Full Select by pix Select by Topology Select operat			
Settings of Displaying Image Position to Display Image: Primary Display	Operate all pixels.			
 Extended Display 				
Device Response Time:				
100 🗘 ms				
Use input source for display				
Enable/Disable Calibration				
 Disable Calibration 				
 Brightness Calibration 	Flash Check View Receiving Card Calibr., View Module Calibration C.,, Save C	Calibratio	on Coeffi	cien
Chroma Calibration Save	Auto Upload Module Save to HW		Return	

Select whether you want the entire screen or individual modules.

Full screen: Select this option when installing.

Module Flash (Select by Topology or list): Select this option when replacing pixel cards, etc.

If "Line calibration" or "Adjusting the colors on a part of the screen" has been performed on the area set for Module Flash, please perform it again after Module Flash.

(6) Click the "View Module Calibration Coefficients" button. <u>Result:</u> Pop-up message opens.

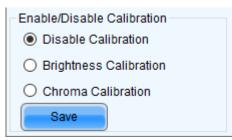
Screen Calibration	:	×
Single-Screen Mode Combined-Sc 4 >	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients	
Current Operation Communication Port COM99 ~	Send by Address Send by Topology Screen:1 Starting coordinateX=0, Y=0 Size384\VX384H	
- Current Screen	Sites in Stating Cooldinates 7, 1-0 Sites 047, 5040	
Screen1	Full Select by pix Select by Topology Select operat	
Settings of Displaying Image	Module calibration coefficients viewed successfully.	
Position to Display Image:	OK	
Primary Display		
 Extended Display 		
Device Response Time:		
100 🗘 ms		
Use input source for display		
Enable/Disable Calibration		
 Disable Calibration 		
 Brightness Calibration 	Flash Check View Receiving Card Calibr. View Module Calibration C Save Calibration Coefficie	n.,
Chroma Calibration Save	Auto Upload Module	

(7) Click "Save Calibration Coefficients to Receiving Card".

The pop-up message, that the data has been successfully stored to the Receiving cards, will appear. <u>Result:</u> The screen with the exchanged Pixel cards should look calibrated now.

Screen Calibration	-		×
Single-Screen Mode Combined-Sc · ·	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients		
Current Operation Communication Port	Send by Address Send by Topology		
COM99 \lor	Screen:1 Starting coordinateX=0, Y=0 Size384W×384H		
Current Screen			
Screen1	Full O Select by pix O Select by Topology Select operat		
Orithma of Disabatian Inner	Saved calibration coefficients to receiving card successfully.		
Settings of Displaying Image Position to Display Image: Primary Display	ОК		
 Extended Display 			
Device Response Time:			
100 🗘 ms			
Use input source for display			
Enable/Disable Calibration			
 Disable Calibration 			
 Brightness Calibration 	View Receiving Card Calibr., View Module Calibration C., Save Calibrati	on Coeffic	cien.
Chroma Calibration Save	Auto Upload Module	Return	

- (8) Click on "Save to HW" button and go back to main window by clicking "X" button.
- (9) Check the calibration-state in the bottom left corner of Screen Calibration window: Enable/Disable Calibration.



(10) If calibration-setting "Disable Calibration" is chosen, switch to "Chroma Calibration" (c) to enable calibration and click on the "Save" button (d). <u>Result:</u> While switching you will already see calibration effect.

	Enable/Disable Calibration
	 Disable Calibration
	O Brightness Calibration
(c) -	Chroma Calibration
	Save
	C/2
	(d)

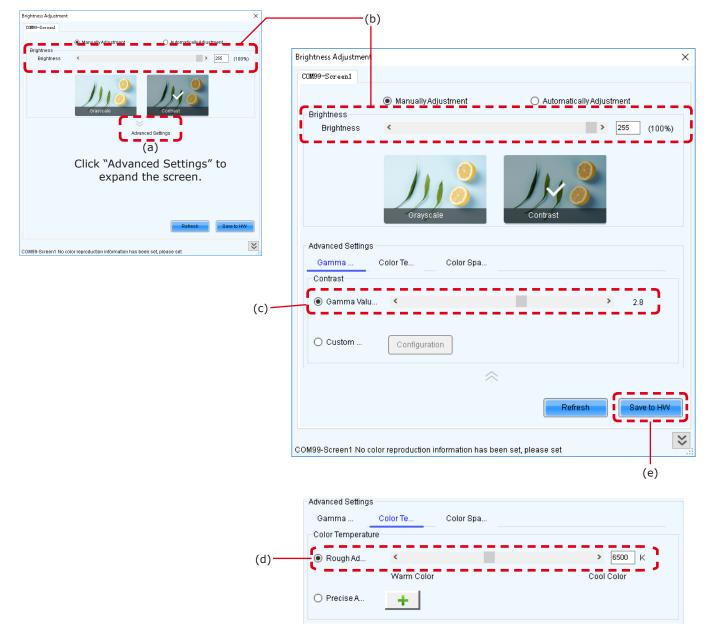
(11) Close Screen Calibration windows by clicking on the "X". <u>Result:</u> The Screen Calibration has been finished for both screens.

Image Setting

You can adjust the brightness, the gamma correction value, and the color temperature.

VovaLCT V5.1.0			_	×
System(S) Settings (C) Tools(T) Plug-	in (P) User(U) Langua	ge(L) Help(H)		
Brightness Screen Control Monitoring	Multi-function Card Test T	Cloud Monitoring		
Local System Information				
Control System 1 Othe	r Device 0	View Details of Device		
Monitor Information				_
	101			
PE III III III III III III III III III I	15[2]			
•		•		

Click "Brightness" on the top screen to display the following window.



Click "Advanced Settings" (\otimes) (a) to expand the setting screen.

(1) Brightness

Set the brightness of the screen using the slider (b). Increasing the value increases the brightness.

(2) Gamma correction

Set the gamma correction value using the slider (c). Increasing the value makes the dark parts of the screen darker.

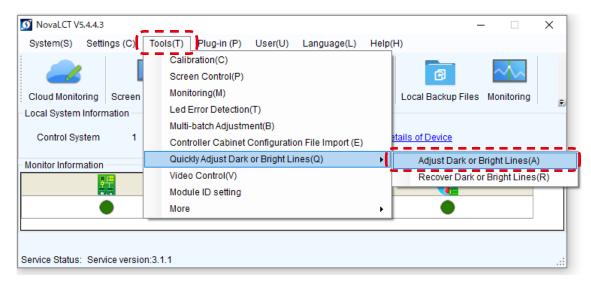
(3) Color temperature

Set the color temperature using the slider (d). Increasing the value makes the colors more bluish, while reducing the value makes the colors more reddish.

When the setting is complete, click the "Save to $\ensuremath{\mathsf{HW}}''$ button to save the settings.

Line calibration

- (1) Log in with the administrator privileges (English-40).
- (2) On the tabs at the top of the window, click Tools > Quickly Adjust Dark or Bright Lines > Adjust Dark or Bright Lines



(3) Click the "Quickly Adjust (New)" button on the right of the window that pops up.

Quickly Adjust Dark or Bright Lines	×
Common Version	Ax series, MRV308, MRV328, MRV316, MRV366,DF30, Axs V4.4.0.0 and later versions of Re
Quickly Adjust	Quickly Adjust (New)

(4) A screen like the figure below is displayed. Press the Shift + E keys. The gray window moves to the LED modules.

O Seam Brig	htness Adju	stment														-		×
Modu	Cabi	Row (A)	Row (S)	Column (D)	Clea (F1)	Deselect (F2)	, C lea (F12)	(====) Show (Z)	No. Show (X)	Calibration	O Show	Screen dis		Window Color (Alt+C)		Screen Brightn (- +)	ess	Ð
Screen1																		
																► Q (
SHIFT+F11	Show/Hi	ide prompts	-		_		_				-1							
SHIFT+E]:E	Extended	Mode/Copy I de windows	Mode															
jonir i trija	SHUW/HIC	ie windows									- 1							
											- 1							
											- 6	- 1						
											- 11							
											- 1							
											- 1							
											- 5	-						
											- 1							
												No Video S	Bource (The sending ca	ard does not r	need a video source)		
				_						_	_1					Save to F	ŧW	

(5) Click "Module Mode" on the top left of the screen.

O Seam Brightness Adjustment			- 🗆 X
HoduCabi		No O M Show Calibration Show Screen ((X)	
Screen1			
			▶ ♀ ♀ 1:1 ⊑
	1	2	
	1	2	
	3	4	
	Ŭ		
Selected Area Parameter Adjustment		Precision 0. 0. 0 5 F No Vie	deo Source (The sending card does not need a video source)
0.3	<u>1.000</u> 1.200		
			Save to HW

Enter the number of pixel cards inside one module on the screen that pops up, and then click "OK".

O Area Splitting	×
Row	1 🗄
Column	4
	OK Cancel

Lines separating each pixel card are displayed.

O Seam	Brightness Adj	ustment														-	
Modu.	Cabi	Row (A)	Row (S)	Column (D)	Clea (F1)	Dese	lect (Clea	Show (Z)	No. Show (X)	Calibration	O Show		lis Window C		Screen Brightne (- +)	200 🛨
Scree	in1															_	
								• •								►Q @	
Modu Cabi Row Row Clea Deselect Clea Show Show																	
					- 6					1							
						1 1	1 2	1.2	1.4		2.2	2.2	2.4				
						1-1	1-2	1-5	1-4	2-1	2-2	2-3	2-4				
					. i.					<u>i</u>							
					- I - I -												
						3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4				
						_				_							
	Selected Are	a Parameter Adju	stment =				_		1.000 🛨	Precision	0. 0. 0	5	□ No Vid	eo Source (The sendin	g card does not i	need a video source)	
			0	.3			<u>1.000</u>	1.200									
																Save to H	w

(6) Specify the border between the pixel cards for which you want to perform line calibration by clicking on it or specifying a range. You may also adjust multiple locations at the same time.

O Seam	Brightness	s Adjustm	ient													-	
Modu.		abi	Row (A)	Row (S)	Column (D)	Clea (F1)	Dese (F:	elect	Clea (F12)	Show (Z)	No. Show (X)	Calibration	O Show	1 Screen		Screen Brightner (- +)	200 ÷
Scree	n1																44 5-3
																►Q @	
							_	_	_	_	_						
							1-1	1 2	1-3	1-4	2-1	2-2	2-3	2.4			
							1-1	1-2	1-5	1-4	2-1	2-2	2-3	2-4			
							-		-	-	-						
							3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4			
							3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4			
								_									
	Selecter	d Area Pa	arameter Adju	istment				_		1 000 -	Precision	0.00	5	No Vic	deo Source (The sending card does not nee	d a video source)	
	Contract	di li cari c	and in other stage	0.3				<u>1.000</u>	1.200			0.010					
																Save to HV	N

< Tool icons used to select the adjustment range >



Clear effects: Resets the line calibration in the selected range.



Deselect: Deselects the range currently selected.



Clear all effects: Resets line calibration for all locations.

The selected adjustment range is also displayed on the LED modules.

[SHIFT+F1]:Show/Hide [SHIFT+E]:Extended M [SHIFT+H]:Show/Hide	ode/Copy Mode						
1-1	1-2	1-3	1-4	2-1	2-2	2-3	2-4
			C:	c 3:	= =	= = = =]
							-
3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4

(7) Click the upward and downward arrows next to the input box at the bottom of the window to adjust the brightness of the selected locations.

O Seam Brigh	htness Adjustmer	t																-		×
Modu	Cabi	Row (A)	Row (S)	Column (D)	Clea (F1	Des	elect	Clea (F12)	(<u></u>) Show (Z)	No. Show (X)	Calibration	Ø Show	1 Screen o		Window Cold (Alt+C)	or .	Scre	een Brightne (- +)	200 <u>-</u> ss	÷
Screen1																				
																		▶Q €		<u>()</u>
						1-1	1-2	1-3	1-4	2-1	2-2	2-3	2-4							
						3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4							
💷 Se	elected Area Para	meter Adjus	tment 0.3				<u>1.000</u>	1.200	1.005 🛨	brecision	0. 0 0	5	No Vid	eo Source	(The sending o	card does no	ot need a vid	eo source)		
																		Save to H	N	

Upward arrow: Increases the brightness (makes the dark lines less noticeable) Downward arrow: Decreases the brightness (makes the bright lines less noticeable)

(8) If you want to adjust other locations, click "Deselect" and specify again a range for the adjustment. When the adjustment is complete, click "Save to HW" at the bottom of the screen.

O Seam E	Brightness Adjus	stment															-	0 ×
Modu	. Cabi	Row (A)	Row (S)	Column (D)	Clea (F1)	Dese (F2		;;; Clea (F12)	Show (Z)	No. Show (X)	Calibration	Ø Show	1 Screen o			Screen Bri (-	ghtness	200 🛨
Screen	1							_		_		_	_				0	11 0
																► Q		1:1 🖂
							-		_									
						1-1	1-2	1-3	1-4	2-1	2-2	2-3	2-4					
						-		-	-	-			-					
						3-1	3-2	3-3	3-4	4-1	4-2	4-3	4-4					
	Selected Area	Parameter Adju							1.005 🛨	Precision	0. 0. 0	5	No Via	deo Source (The sendi	ng card does r	not need a video sou	rce)	
			0.3				1.000	1.200									_	
																Save	to HW	

Click "Yes" on the screen that pops up.

	Tip
?	Do you want to save to hardware?
	Yes No

(9) The adjustment is complete when the following screen is displayed. Click "Close" to finish.



Cleaning

The screen brightness may decrease if dust or another foreign material is adhering to the surface of the pixel card.

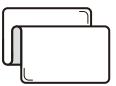
The magnet used to install the pixel cards also attracts magnetic metal particles, such as iron powder.

Therefore, magnetic metal particles may adhere to areas near the magnet of the pixel card and the brightness homogeneity of the screen may decrease.

Cleaning should be performed regularly depending on the installation environment.

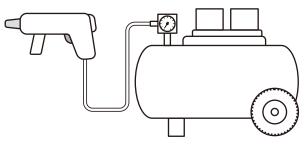
Required tools (example).





Soft brush (animal hair brush to prevent static electricity) (that

Soft cloth (that does not generate static electricity)



Air blower (compressor)

Cleaning method

- a) Turn the LED displays off.
- b) Use the soft brush to remove any dirt on the LED lamps and the masks. If these parts are very dirty, use the air blower to remove the dirt.
- c) Use the soft cloth to remove the dirt on the screen surface.
- d) Repeat the steps (b) and (c) to remove all the dirt.

- Do not use water or any other liquid.
- Do not use a stiff brush.
- Pay attention not to damage the LED lamps when using the soft brush, the air blower, or the soft cloth.

Maintenance

CAUTION

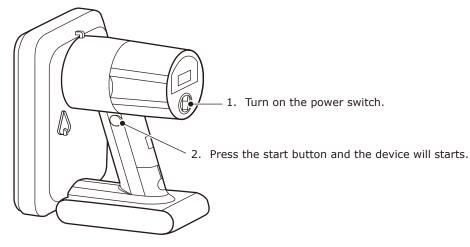
- Disconnect the power supply to the LED modules when performing the maintenance.
- Before installing or removing pixel cards, please ensure the wall has been powered off for 1 or 2 hours. Otherwise the thermal expansion of pixel cards increases the risk of damaging them during removal or insertion.
- Use the correct screwdriver for the shape of the screws when removing (loosening) or setting (tightening) the screws.

Pay attention not to drop the screws and the other parts you have removed.

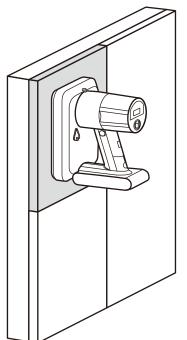
Pay attention not to lose the removed screws since they will be reused.

Removing a pixel card

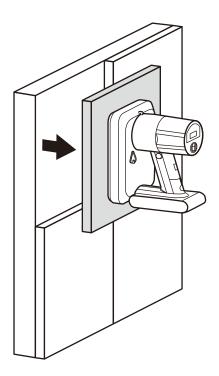
Remove the pixel card using the maintenance tool.



3. Put the maintenance tool flat onto the surface of the pixel card which you want to take off, make sure the device is tightly sucked with the pixel card.



4. Pull out the maintenance tool and pixel card vertically.



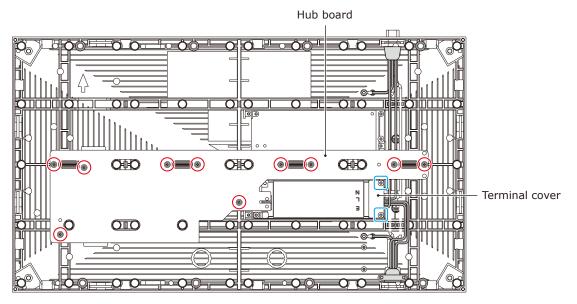


- Check that the battery of the maintenance tool is fully charged before starting the work. Pixel card falls if the battery runs out. Hold the pixel card with your hand to support in case it falls.
- Do not turn the maintenance tool off until you hold the pixel card. Otherwise, the pixel card may fall and break.

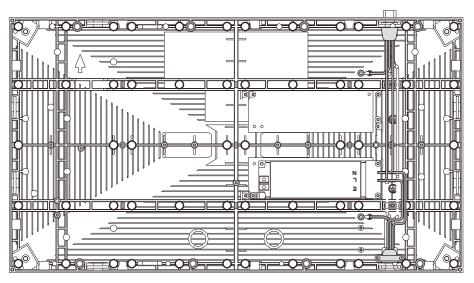
Removing the power supply

Disconnect the LAN cable connected to the hub board.

Remove the 10 screws securing the hub board, and then remove the hub board. Then, remove the two screws securing the terminal cover.



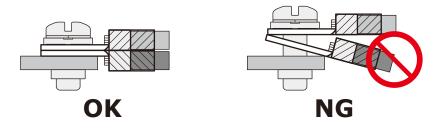
Disconnect the power cables connected to the power supply and remove the two screws securing the power supply, and then remove the power supply.



The power supply installation is done by following the same procedure in the reverser order. Apply some thermal paste on the back of the power unit you will install before installing it. Ask your retailer for more details on the types of thermal paste.

CAUTION:

When attaching two cables with one screw, place the ring terminals of the cables back to back.

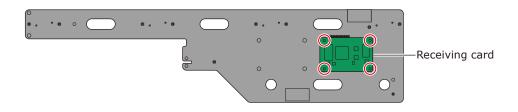


English - 60

Removing the receiving card

Remove the receiving card from the hub board.

Remove the four screws securing the receiving card, and then remove the receiving card from the hub board.



Troubleshooting

1. Display problems

Problem	Solution
Nothing is displayed on	Check that power is being supplied to the LED modules.
all the LED modules.	Check that the LED controller is turned on.
	Check that a video signal is being input to the LED controller.
	Check that a LAN cable is correctly connected between the LED controller and the LED module.
	Check that the brightness is not set to 0% (= not lit).
Nothing is displayed on one LED module.	Check that a LAN cable is correctly connected between the LED controller and the LED module.
	The receiving card inside the LED module may be broken.
	→ Check the status of the LED module by following the procedure in the next section "2 State monitoring using the software".
	The power unit inside the LED module may be broken.
	→ Check the status of the LED module by following the procedure in the next section "2 State monitoring using the software".
No image is displayed on one pixel card.	Check that the contacts of the pixel card are correct (contacts of the hub board).
	The pixel card may be broken. Replace it with a spare pixel card.
Control (communication) is not possible.	Check that the communication cable is correctly connected between the computer and the LED controller.
	Check that the LED controller is turned on.
	If the communication cable is a USB cable, check that the device driver runs correctly.
The colors differ on one pixel card.	Perform the "Adjusting the colors on a part of the screen" procedure. Select the adjustment range using "Select by Pixel Area" described in (5)-2.
I want to adjust the color tone of the entire screen.	Perform the "Adjusting the colors on a part of the screen" procedure. Select the adjustment range using "Screen" described in (5)-1.
Bright lines or dark lines are visible between the pixel cards or between the modules.	Perform the "Line calibration" procedure.

2. Adjusting the colors on a part of the screen

- (1) Log in with the administrator privileges (English-47).
- (2) Click "Calibration" (a). Start calibration menu.

	💋 NovaLCT V5.2.0						_		×
	System(S) Settings (C) Tools(T)	Plug-in (P)	User(U)	Language(L)	Help(H)			
(a) -		<u>.</u>			~~		~~~		
	Screen Configuration	Brightness 🚺	Calibration 🚦 S	Screen Cont	trol Monitoring	Multi-function Card	Test Tool		
	Local System Informatio	n							
	Control System	1	Other Device	e i	0	View Details of Device			
	Monitor Information								
								_	
	—								
	Oracian Obstanti Oraciana								
	Service Status: Service v	ersion:3.1							:
	Screen Calibration							- 0	×
	Single-Screen Mode Combined-Sc + +	Online Calibration Off	line Calibration Manage	Coefficients Dou	ble Calibration Coefficients				~
	Current Operation	Send by Address Se							
	192.168.41.1:5200 ~	Screen:1 Sta	rting coordinat	eX=0, Y=0	Size1440W×810H				
	Current Screen	Full 0 \$	alact hu pix	alect by Tapalace	Select oper	at			
	Screen1		Select by pix O Si	elect by Topology					
	Settings of Displaying Image				Operate all	oixels.			
	Position to Display Image: Primary Display								
	 Extended Display 								
	Device Response Time:								
	100 🗘 ms								
	Use input source for display								
	Enable/Disable Calibration								
	O Disable Calibration	Flas	h Check		View Receiving C	ard Calibr View Module Calibrati	on C Save Cali	bration Coe	fficien
	Brightness Calibration Chroma Calibration				(
	Cirroma Calibration				Auto I	Inload Module	ave to HW	Return	

(3) Check that "Chroma Calibration" (b) is selected and click the "Manage Coefficients" tab (c).

🗌 Auto Upload Module

(-)	Screen Calibration		×
(c)—	Current Operation Communication Port 192:184:11:3200 V - Current Screen	Chine Categorie Online Categorie Select Operation Select Operation Image: Select Operation Image: Select Operation Image: Select Operation coefficients Image: Select Operation coefficients Image: Select Operation coefficients for a new receiving card Image: Select Operation for a new module Image: Adjust coefficients for a new module Image: Adjust coefficients (Color is uniform on screen) Image: Erase or reload calibration coefficients Select Operation	
	Settings of Displaying Image Position to Display Image: Primary Display Extended Display		
	Device Response Time: 100 🔅 ms Use input source for display	📩 Module Flash	
(b)	Enable/Disable Calibration O Isable Calibration Brightnass Galibration © Chroma Calibration		

(4) Set "Extended Display" (d) under "Setting of Displaying Image", and then click "Adjust coefficients" (e).

	Screen Calibration	-	-	\times
	Single-Screen Mode Combined-Sc · ·	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients		
(e)—	Current Operation Communication Port Communication Port Current Screen	Select Operation		
(d)—	Settings of Displaying Image Position to Display Image: Primary Display © Extended Display Device Response Time: 100 ms Use input source for display	C Frase of reload Calibration Coefficients Reset Calibration coefficients Upload coefficients (for factory use) Module Flash		
	Enable/Disable Calibration O Disable Brightnes Chroma Full-Graysc Dark or Save			

(5) Select the range specification method from the three available methods depending on the calibration range. After setting the range, click "Next" to display the "Adjust Coefficients" screen.

Screen Calibration	-		\times
Single-Screen Mode Combined-Sc · · Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients			
Coursel Operation Communication Port Communication Port Costs Cost			_
Current Screen Current Screen Starting coordinateX=1920, Y=0 Size480W×270H			
Screen Screen Select by Pix Select by Topology Select Area			
Settings of Displaying Image Position to Display Image: Primary Display Primary Display Select to Operate All Screen Pixels © Extended Display			
Device Response Time:			
100 The second s			
Disable Calibration Disable Brightnes Ctroma			
O Full-Graysc ⊘ Dark or Save Coef Type: Normal Coef ✓		Retu	Jrn

(5)-1

Screen: Adjust the entire frame set.

The calibration settings reading starts after "Next" is clicked. A fair amount of time is required to read the data.

The "Adjust Coefficients" screen is displayed when the data has been read.

(5)-2 **Select by Pixel Area**: Adjust by pixels.

Column Number	480
Row Number of	540
Width	120
Height	135

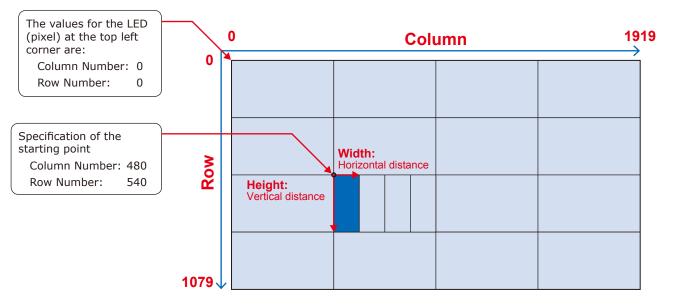
The screen used to specify the adjustment range is displayed.

Column Number:The position (pixel) on the horizontal axis of the starting point (top left) of the
selection rangeRow Number:The position (pixel) on the vertical axis of the starting point (top left) of the
selection range

Width:The horizontal distance from the points specified with "Column Number" and "Row
Number"

Height: The vertical distance from the points specified with "Column Number" and "Row Number"

For reference: When specifying one pixel card



Product name	LED-E012i	LED-E015i	LED-E018i	LED-E025i
Pixel pitch	1.25 mm	1.56 mm	1.88 mm	2.50 mm
Number of displayed pixels	Width 480	Width 384	Width 320	Width 240
(resolution/module)	Height 270	Height 216	Height 180	Height 135
Number of displayed pixels	Width 120	Width 96	Width 80	Width 60
(resolution/pixel card)	Height 270	Height 216	Height 180	Height 135

Check that "Adjust Its Own Effect" is selected and click "Next" to start the calibration settings reading process.

The "Adjust Coefficients" screen is displayed when the data has been read.

Single-Screen Mode Combined-Sc + +	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients		
Current Operation Communication Port			
Current Screen	Adjust Its Own Effect Adjust to the Same Effect as Oth		
Screen1			
Settings of Displaying Image Position to Display Image: Primary Display	Adjust its own display effect		
Extended Display Device Response Time: 100 ms Use input source for display			
Enable/Disable Calibration			
O Disable			
O Disable O Brightnes			
Disable Calibration Disable Brightnes Chroma Full-Graysc			

(5)-3

Select by Topology or List: Adjust multiple modules

A screen with the display configuration is displayed. Specify the range of the modules you want to adjust.

rd Operation									
munication Port @Port_#0004.mub_#0001 V	Select coefficient region to be operated								
nt Screen	Current Screen Starting coordinateX=0,	(=0 Sixe1920♥×1080H							
Screen1	⊖ Soreen ⊖ Selectly Plu.								
					Zooma				
	0.9	6. 0	0.3	0.4					
					•				
					0.7				
	(2.1)	(2.3)	63	2.4					
	0.1)	0.0	0.0	0.4					
of Displaying Image									
on to Display Image; imary Display									
ended Display									
Response Time;									
e input source for display	(61)	(42)	(63)	(6.4)					
Disable Calibration									
htnes									
oma -Grassic									
orSave	Coaf Type: Normal Coaf ~				Rot				

The calibration settings reading starts after "Next" is clicked.

The "Adjust Coefficients" screen is displayed when the data has been read.

(6) Adjust Coefficients screen Click "Advanced Adjustment".

Screen Calibration						-		×
Single-Screen Mode Combined-Sc · ·	Online Calibration	Offline Calibration	Manage Coefficients	Double Calibration Coefficients				
Current Operation Communication Port COM8 ~	Adjust Coefficie Simple Adjust	ment						
Screen1		¢				>	71.1	۲
	Red							Enter
	Green	<				, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	72.5	•
	Blue	<				>	76.4	÷
Settings of Displaying Image Position to Display Image:								
 Primary Display Extended Display 								
Device Response Time: 100 ms Vuse input source for display								
Enable/Disable Calibration								
O Brightnes Chroma Full-Graysc	Advance	d Adjus Hide	color wind					
Dark or Save					Back	Next	Re	turn

(7) Adjust the "Color adjustment of red, green and blue" parameters, and then adjust the "Color matching of red, green and blue" parameters.

Screen Calibration					-	
Single-Screen Mode Combined-Sc · ·	Online Calibration	Offline Calibration Manage Coeff	icients Double Calibration Coefficients			
Current Operation Communication Port COM8 ~	Adjust Coefficient Advanced Adjust					
Current Screen	0 m Al (
Screen1	- Color adjustme	nt of red, green and blue				
		Red	⊖ Green		O Blue	
	Brightness	<			>	71.1 🜩
	Saturation	<			>	99.1
	Hue	<			, ,	50.0
	Color matching	of red, green and blue (Color	Temperature Adjustment)			
Settings of Displaying Image		O Yellow	🔘 Cyan	🔘 Magenta	O White	
Position to Display Image: Primary Display	Red	٤			>	71.1 🜲
 Extended Display Device Response Time; 	Green	<			>	72.5
100 ms	Blue	<			>	76.4 🛓
Use input source for display	Note: Display d	ifferent colors for observing the	e effect			
Enable/Disable Calibration			5 0110 Q			
O Brightnes						
Chroma	Simple Adj	ustm Hide color wind				
O Full-Graysc				(
Dark or Save					Back Next	Return

Click "Next" after you have finished the adjustment.

- (8) Click "Save" to save the calibration settings you have adjusted.
- (9) Click "Finish" to complete the procedure.

Screen Calibration		-		\times
Single-Screen Mode Combined-Sc · ·	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients			
Current Operation Communication Port COM8	Apply and save calibration coefficients		Save	1
Screen1	Apply the adjustment effect to other areas			
Settings of Displaying Image				
Position to Display Image:				
O Primary Display				
Extended Display				
Device Response Time:				
100 🗘 ms				
🗹 Use input source for display				
Enable/Disable Calibration				
O Brightnes				
Chroma				
O Full-Graysc			-	_
Dark or Save	Back	Finish	Retu	m

Note

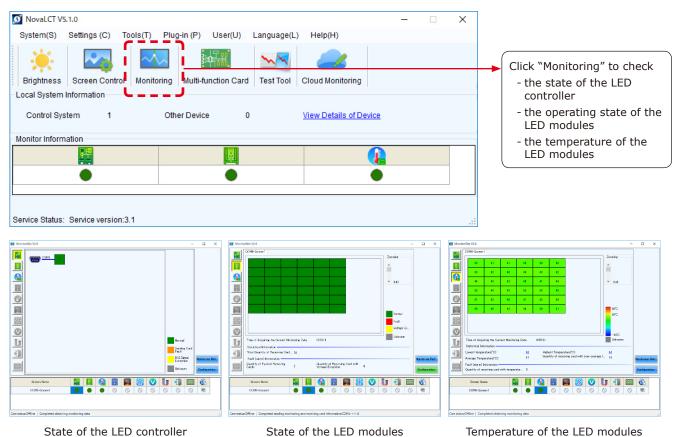
To return the calibration adjustment values to their default setting, perform the "Update the Calibration Data" procedure (English-47).

3. State monitoring using the software

In case of a problem, you will be able to determine the location where it occurred by monitoring the state of the system.

3-1 Display under normal conditions

The display is green under normal conditions.

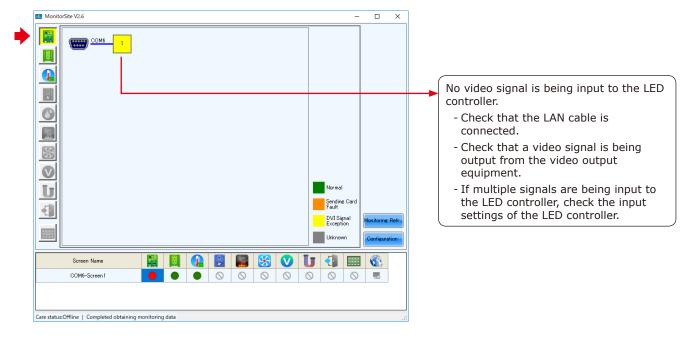


3-2 Display under abnormal conditions

(1) Problem with the input signal to the LED controller

NovaLCT V5.1.0	-	×	
System(S) Settings (C) Tools(T) Plug-in (P) User(U) Language(L) Help(H) Image: Brightness Screen Control Monitoring Image: Brightness Image: Brightn			
Local System Information Control System 1 Other Device 0 <u>View Details of Device</u> Monitor Information			
			When the display is red,
Service Status: Service version:3.1		:	 there is a problem with the LED controller.

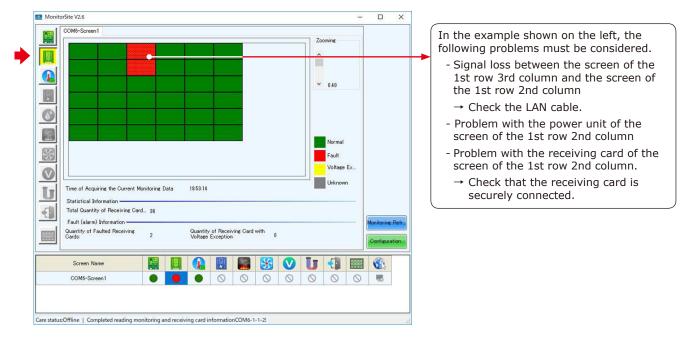
To display more details, click "Monitoring", and then click "Sending card" on the screen that is displayed.



(2) Problem with the LED modules

🗴 NovaLCT V5.1.0 —	×	
System(S) Settings (C) Tools(T) Plug-in (P) User(U) Language(L) Help(H)		
Image: Screen Control Image: Screen Control Multi-function Card Test Tool Cloud Monitoring		
Local System Information	_	
Control System 1 Other Device 0 <u>View Details of Device</u>		
Monitor Information		
		When the display is r
Service Status: Service version:3.1		there is a problem wi LED module operation

To display more details, click "Monitoring", and then click "Receiving card" on the screen that is displayed.



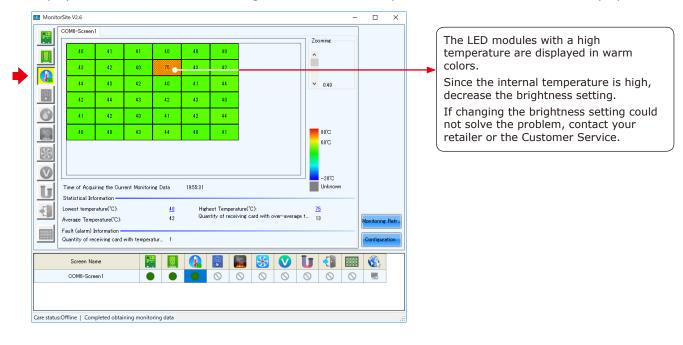


With the connection shown in the figure below.

(3) Problem with the internal temperature of the LED modules

🖸 NovaLCT V5.1.0 —	×	
	0	
System(S) Settings (C) Tools(T) Plug-in (P) User(U) Language(L) Help(H)		
🔆 🕰 🐜 🐭 🥔		
Brightness Screen Control Monitoring Multi-function Card Test Tool Cloud Monitoring		
Local System Information		
Control System 1 Other Device 0 View Details of Device		
Monitor Information		
	(The	re is a problem v
	the	LED module ope
Service Status: Service version:3.1		000

To display more details, click "Monitoring", and then click "Temperature" on the screen that is displayed.



(4) Communication problem

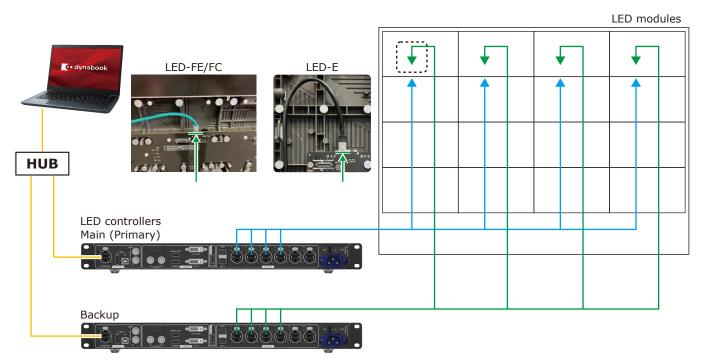
Nevel (T)/5 1 (Ne Handware)			
VovaLCT V5.1.0(No Hardware)		-	
System(S) Settings (C) Tools(T)	Plug-in (P) User(U) Language(L)) Help(H)	
Brightness Screen Control Moni	toring Multi-function Card Test Tool	Cloud Monitoring	
Local System Information	toning Multi-function Card Test root	Cloud Monitoring	
Elocal System mormation			
Control System 0	Other Device 0	View Details of Device	
Monitor Information			
	BoB		
Service Status: Service version:3.1			
			When the display is grey, t
	!		communication is not estal
			→ Check that the USB cab connected.

4. Redundancy setting method

4.1 Configuring the settings with two LED controllers connected to the PC using LAN cables

Connect the LED controllers and the LED modules with LAN cables.

Terminate the Backup system connection at the RJ-45 connector located top left on the last module in the daisy chain connection.



* For the MCTRL 4K LED controller, the way to make connections is similar to this example.

Start the control software NovaLCT and log in with the administrator privileges.

Display the login screen as follows: User(U) -> Advanced Synchronous System UserLogin(A). Enter the password ("admin") to log in with the administrator privileges.

Click "Screen Configuration".



31
N_2
7010000
D01000

Check the port in "Select Communication Port", select the Main (Primary) and Backup system LED controllers by their IP address, and then click "Next".

Configure the settings for the Main (Primary) controller and Backup controller separately.

Screen Configuration			×	
-Select Communication	Port			
Current Operatio		~		
Configure Screen	172.1.0.10:5200 172.1.0.11:5200			
O Load Config			Browse	
L		Next	Close	

Main (Primary)

Backup

Screen Configuration X	Screen Configuration X
Select Communication Port	- Select Communication Port
Current Operatio 172.1.0.10:5200	Current Operatio 172.1.0.11:5200
Configure Screen	Configure Screen
O Load Config Browse	O Load Config Browse
	Next Close

On the Main (Primary) side

Click the "Restore Factory Settings" button for initialization.

After initialization, configure the settings for "Select Input Source" and "Source Configuration".

If the factory setting is correctly configured and the device connection is the same as when the factory setting was configured, check the settings without performing initialization.

Screen Config	guration-172.1.0.	0:5200			\times
Sending Card	Receiving Card	Screen Connection			
Display Moo Current Dis Sending		1080(1080P) Graphics Output R 2560 x 1600 Curre	Refree	sh	
Select Inpu Video In Au		HDMI V Send 3D Function	gs		
Source Con	nfiguration				
Resolutio	n: 1920 :	 ✓ 1080 px ✓ Custom 1920 ♀ x 1080 	\$		
Refresh F	Rate T 60	V Hz Input Source Bit De 8 Bit	Set		
Redundanc		Set as Primary Set as Backup			
	Prin	ary Backup			
	erial Number of rimary Sending Card		al Number of ackup Port	f	
Refres	ih Se	nd Add Edit	Dele	te	
Restore Fac	tor.	Export Screen M Save System Co	Save	Clos	e

Main (Primary)

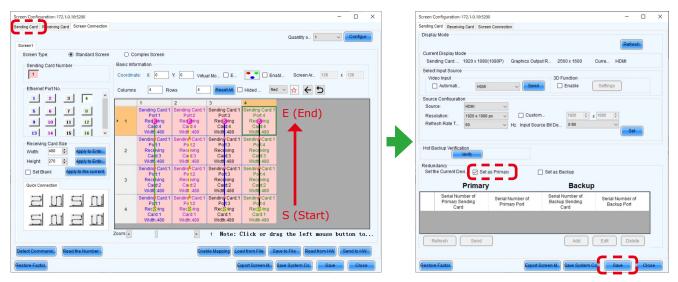
Select the Screen Connection tab.

Select/enter the value for "Screen Type", "Receiving Card Size", "Columns" and "Rows", and use "Ethernet Port No." and the screen configuration section to configure the connection.

* For details of the configuration procedure, refer to the User's Manual.

Next, select the Sending Card tab.

Go to "Redundancy", select the checkbox for "Set as Primary" and click "Save".



On the Backup side

Click the "Restore Factory Settings" button for initialization.

After initialization, configure the settings for "Select Input Source" and "Source Configuration".

If the factory setting is correctly configured and the device connection is the same as when the factory setting was configured, check the settings without performing initialization.

Screen Config	juration-172.1.0.11:52	200		- 🗆
Sending Card	Receiving Card Scr	een Connection		
Display Moo		0(1080P) Graphics Outp	ut R 2560 x 1600	Refresh Curre HDMI
Select Inpu Video Inj Aut		I V Send	3D Function	Settings
Redundanc	HDMI n: 1920 x 108 Rate T 60 b Verification Verify Sy	0 px Custon VHz Input Sou		(1080 ¢ Set
	Primar	у	Backup	
	erial Number of rimary Sending Card	Serial Number of Primary Port	Serial Number of Backup Sending Card	Serial Number of Backup Port
Refres	h Send		Add	Edit Delete
Restore Fac	tor.	Export S	Screen M Save System C	Save Close

Backup

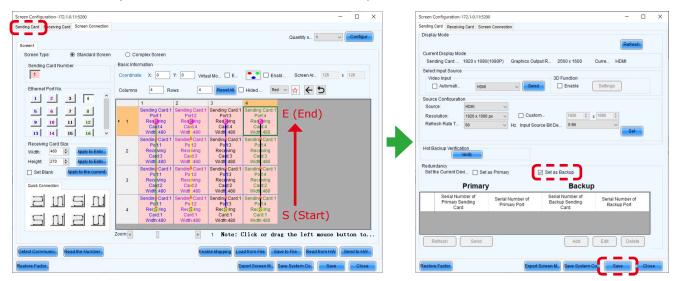
Select the Screen Connection tab.

Configure the connection in the same way as for Main (Primary).

* The direction of connection is the same as for Main (Primary).

Next, select the Sending Card tab.

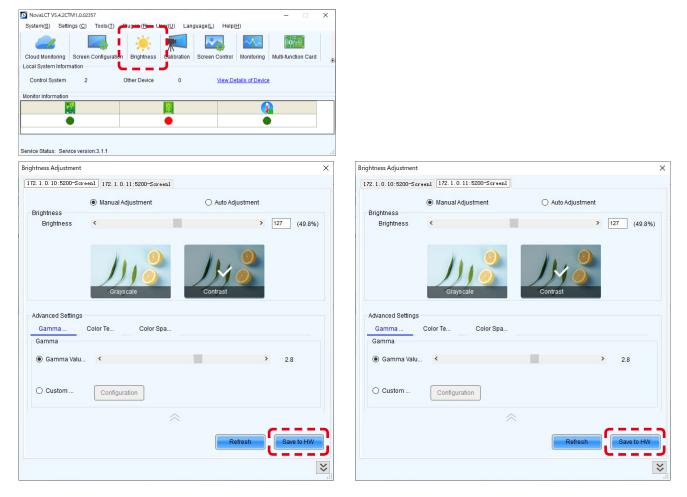
Go to "Redundancy", select the checkbox for "Set as Backup" and click "Save".



Check the current brightness setting.

Click the "Brightness" button.

In the Brightness Adjustment screen, set the desired brightness value and click the "Save to HW" button.



The monitoring screens appear like below.



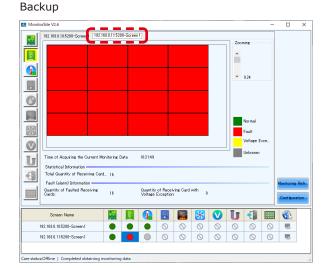
Care status:Online | Completed obtaining monitoring data

Note: On the monitoring screen, the LED modules configured as "Backup" are displayed in red color (this is not an indication of a fault).

If a fault occurs on modules configured as "Main (Primary)", "Backup" modules are displayed in green color, which is an indication of normal state.

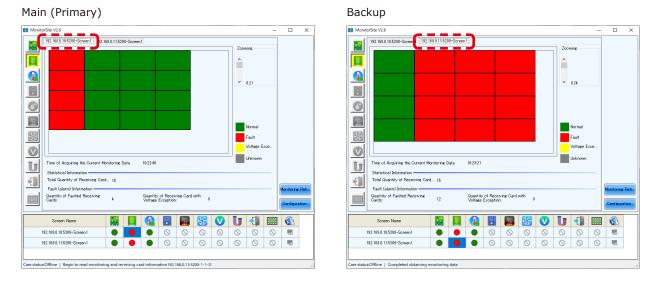
Monite											
	(192.168.0.165200-Spreen 1)	2.168.0.11-52	00-Screer						0.21 Normal		
0 U	Time of Acquiring the Curre Statistical Information Total Quantity of Receiving Earth (eleven) Information		Data	10:21:17					Fault Voltage E Unknown	 Manitorio	Dofe
	Statistical Information	Card 16	Data		of Receiv	ving Card	with 0		Voltage E	 Monitorin	
0 U	Statistical Information Total Quantity of Receiving Fault (alarm) Information Quantity of Faulted Beceiving	Card 16	Data		of Receiv Exception	ving Card	with 0		Voltage E		
	Statistical Information Total Quantity of Receiving Fault (alarm) Information Quantity of Faulted Receivin Cards:	Card 16	Data	Quantity Voltage		ving Card	_	▼	Voltage E Unknown	 Configur	

"Main (Primary)" modules are operating normally





Modules connected to port 1 are operating as "Backup".



In the start-up screen of NovaLCT, the status indicator circle for "Monitor Information" receiving card becomes red in color.



In the case of MCTRL 4K, the display of the LED controllers is as follows.

(This example display is for the case of connection using four Ethernet cables.)

Upper: Backup

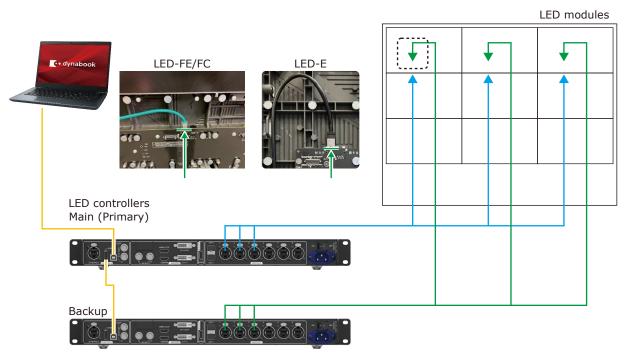
Lower: Main (Primary)



4.2 Configuring the settings with two LED controllers connected to the PC using USB cables

Connect the LED controllers and the LED modules with LAN cables.

Terminate the Backup system connection at the RJ-45 connector located top left on the last module in the daisy chain connection.



* For the MCTRL 4K LED controller, the way to make connections is similar to this example.

Start the control software NovaLCT and log in with the administrator privileges.

Display the login screen as follows: User(U) -> Advanced Synchronous System UserLogin(A). Enter the password ("admin") to log in with the administrator privileges.

Click "Screen Configuration".

0 NovaLCT V5.4.2CTM1.0.02357							×
System(<u>S)</u> Settin <u>as (C)</u> Tools(T) Plug-in (<u>P</u>) Us	ser(<u>U)</u> Lang	uage(<u>L)</u> Help(<u>I</u>	<u>H</u>)			
Cloud Monitoring Screen Configu	ration Brightness	Calibration	Screen Control	Monitoring	Multi-funct	ion Card	Ŧ
- Local System Information							
Control System 1	Other Device	0	View De	tails of Device			
Monitor Information							
		[9]					
		•)		
Service Status: Service version:3.1.1							

Select the port in "Select Communication Port", and then click "Next".

Current Operatio		~
ounon operation	d	
	USB@Port_#0003.Hub_#0001	;
Configure Screen		
-	中国节点	~
Cloud Restore		
 Cloud Restore Local Restore 	·	

In the Screen Configuration screen that is displayed, select the "Sending Card" tab.

	Screen Configuration-USB@Port_#0003.Hub_#0001					
Sending Card		Screen Connection				

Click the "Restore Factory Settings" button for initialization.

After initialization, configure the settings for "Select Input Source" and "Source Configuration".

If the factory setting is correctly configured and the device connection is the same as when the factory setting was configured, check the settings without performing initialization.

	leceiving Card Scre	en Connection		
Display Mode				Refresh
Current Displ Sending Ca	lay Mode ard 1920 x 1080	0(1080P) Graphics C	Dutput R 2560 x 1600	Curre HDMI
Select Input S			3D Function	
Autor	mati HDMI		end Enable	Settings
Source Confi	guration			
Source:	HDMI	~		
Resolution:	1920 x 108	0 px 🗸 🗌 Cus	stom 2560 🌲	x 1600 🗘
Refresh Rat	te T 60	V Hz Input	Source Bit De 8 Bit	×
				Set
Hot Backup V	/erification			
Redundancy		t as Primary	Set as Backup	
Redundancy	Verify		Set as Backup Backup	p
Redundancy Set the Curr Seri	ent Devi Set			p Serial Number of Backup Port
Redundancy Set the Curr Seri	Verify ent Devi Set Primar al Number of nary Sending	y Serial Number of	Backup Serial Number of Backup Sending	Serial Number of
Seri	Verify ent Devi Set Primar al Number of nary Sending	y Serial Number of	Backup Serial Number of Backup Sending	Serial Number of
Redundancy Set the Curr Seri	Verify ent Devi Set Primar al Number of nary Sending	y Serial Number of	Backup Serial Number of Backup Sending	Serial Number of

Select the Screen Connection tab.

Select/enter the value for "Screen Type", "Receiving Card Size", "Columns" and "Rows", and use "Ethernet Port No." and the screen configuration section to configure the connection.

 \ast For details of the configuration procedure, refer to the User's Manual.

Screen Configuration-USB@Port_#0009.Hub_#0001		<u> </u>	
Sending Card Receiving Card Screen Connection			
Screen1	Quantity o.		onfigur
Screen Type: Standard Screen	O Complex Screen		
Sending Card Number	Basic Information		^
1 2	Coordinate: X: 0 Y. 0 Virtual Mo E Enabl Screen Ar 256	X 16	00
	Columns 3 Rows 3 ResetAll Hided Red V 🛧 🧲 ᠫ		
Ethernet Port No.	1 2 3		
	Sending Card:1 Sending Card:1 Sending Card:1 Port:2 Port:3		
5 6 7 8	1 RedDing RedDing RedDing Cald/3 Cald/3 Cald/3 Cald/3		
9 10 11 12	Widtl:480 Widtl:480 Sending Card:1 Sending Card:1		
13 14 15 16 ¥	Port1 Port2 Port3 2 Receiving Receiving Receiving		
Receiving Card Size Width: 480 Apply to Entir	Card:2 Card:2 Card:2 Widtl:480 Widtl:480 Widtl:480		
Height: 270 🖨 Apply to Entir	Sending Card:1 Sending Card:1 Sending Card:1 Polt:1 Polt:2 Polt:3		
Set Blank Apply to the current.	3 RecS ing RecS ing Card:1 Card:1 Card:1		
Quick Connection	Width:480 Width:480 Width:480		
길미드미			
의 띠 김 미			
الخفط لمصط المحتد المصد	·····		~
Detect Communic Read the Number	Enable Mapping Load from File Save to File Read from H	HW Send	i to HW
Restore Factor	Export Screen M Save System Co	ave	Close

Notes on the setting operation:

Perform these setting procedures prior to the redundancy settings configuration.

Make sure that the value of "Quantity of Screens" is 1.

(To change a different value to 1, click the Configur" button.)

It is not necessary to configure the settings for Sending Card 2.

When the settings configuration is complete, click the "Send to HW" button.

Select the Sending Card tab and click "Add".

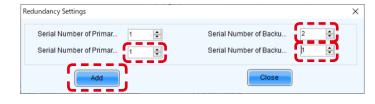
The Redundancy Settings screen is displayed.

Screen Configuration-USB@Port_#0009.Hub_#0001	_		×]				
Sending Card Receiving Card Screen Connection								
Display Mode	Refres	h						
Current Display Mode								
Sending Card 1920 x 1080(1080P) Graphics Output R 2560 x 1600 Curre	e HDMI							
Select Input Source								
Video Input 3D Function								
Automati HDMI Send Enable Set	ttings							
Source Configuration								
Source: HDMI V								
Resolution: 1920 x 1080 px V Custom 2560 🗘 x 1600	0			[Redundancy Settings	· · · - ·		X
Refresh Rate T 60 V Hz Input Source Bit De 8 Bit	~				······			~
	Set				Serial Number of Primar	÷	Serial Number of Backu	1 🗢
	<u> </u>						0	
Hot Backup Verification					Serial Number of Primar 1	1 *	Serial Number of Backu	2
Verity					Add		Close	
Redundancy							01030	
Set the Current Devi Set as Primary Set as Backup				L				
Primary Backup								
	erial Number of Backup Port							
Refresh	dit Delete	•						
Restore Factor. Export Screen M. Save System Co.	Save	Clos	e					

In the Redundancy Settings screen, set the Port number of the Backup side LED controller (Sending Card) that matches the Port number of the Primary side LED controller (Sending Card). After entering the value, click the "Add" button.

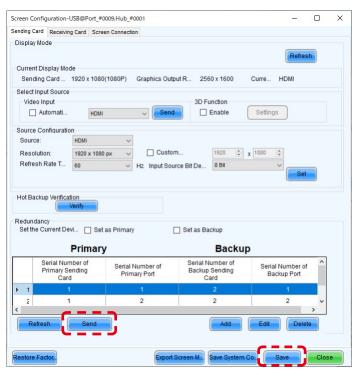
In the LED configuration example (English-74), the settings are as follows.

Serial Number of Primary Sending Card : 1
Serial Number of Primary Port : 1
Serial Number of Backup Sending Card : 2
Serial Number of Backup Port : 1
Serial Number of Primary Sending Card : 1
Serial Number of Primary Port : 2
Serial Number of Backup Sending Card : 2
Serial Number of Backup Port : 2
Serial Number of Primary Sending Card : 1
Serial Number of Primary Port : 3
Serial Number of Backup Sending Card : 2
Serial Number of Backup Port : 3



When the settings configuration is complete, the Sending Card tab appears like below. Click the "Send" button.

Click the "Save" button.

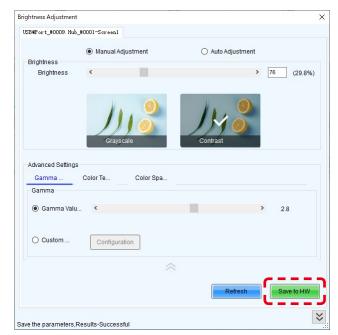


Check the current brightness setting.

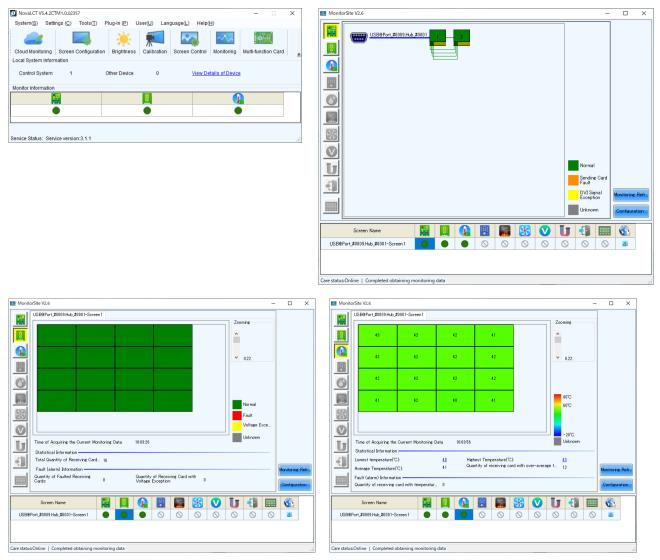
Click the "Brightness" button.

In the Brightness Adjustment screen, set the desired brightness value and click the "Save to HW" button.





The monitoring screens appear like below.



English - 85

In the case of MCTRL 4K, the display of the LED controllers is as follows.

(This example display is for the case of connection using four Ethernet cables.)

Upper: Backup

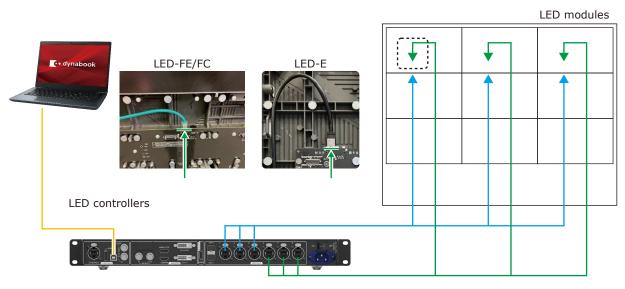
Lower: Main (Primary)



4.3 Configuring the settings with one LED controller connected to the PC using a USB cable

Connect the LED controllers and the LED modules with LAN cables.

Terminate the Backup system connection at the RJ-45 connector located top left on the last module in the daisy chain connection.



* For the MCTRL 4K LED controller, the way to make connections is similar to this example.

Start the control software NovaLCT and log in with the administrator privileges.

Display the login screen as follows: User(U) -> Advanced Synchronous System UserLogin(A). Enter the password ("admin") to log in with the administrator privileges.

Click "Screen Configuration".

0 NovaLCT V5.4.2CTM	1.0.02357					-		×
System(<u>S</u>) Settings	s.(<u>C)</u> To <u>ol</u> s(T) P	lug-in (<u>P</u>) U	ser(<u>U)</u> Lang	juage(<u>L)</u> Help(<u>H</u>)			
· · · · · ·	creen Configuration	Frightness	Calibration	Screen Control	Monitoring	Multi-funct	tion Card	Ţ
–Local System Info <mark>rmati</mark>	ion	J						
Control System	1 0	Other Device	0	View De	etails of Device	L .		
Monitor Information								
2E			[<u>9</u>]					
			•					
Service Status: Service	version:3.1.1							.::

Select the port in "Select Communication Port", and then click "Next".

creen Configuration	- Ded	×
Select Communicatio	nPort	
Current Operatio	~	
	USB@Port_#0003.Hub_#0001	l
Configure Screer	1	
O Cloud Restore	中国节点 ~	
		Browse
O Local Restore		

Click the "Restore Factory Settings" button for initialization.

After initialization, configure the settings for "Select Input Source" and "Source Configuration".

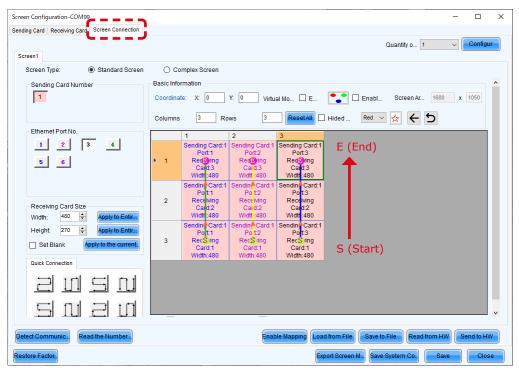
If the factory setting is correctly configured and the device connection is the same as when the factory setting was configured, check the settings without performing initialization.

		#0009.Hub_#00					-		
ending Card Recei	ving Card Sc	reen Connection							
Display Mode							Refres	sh	
Current Display N Sending Card		80(1080P) (Graphics Out	put R 25	50 x 1600	Curre	HDMI		
Select Input Sour	ce			3D F	unction				
Automati.	HDI	MI	~ Send		Enable	Settings			
Source Configura	tion								
Source:	HDMI	~							
Resolution:	1920 x 10	180 px 🗸 🗸	Custo	m	2560 🌲	x 1600			
Refresh Rate T.	60	~ H	Hz Input So	urce Bit De	8 Bit	~			
							Set		
Hot Backup Verifi									
	Verify	et as Primary		Set as Ba	ackup				
Redundancy	Verify			□ Set as Ba	ackup Backu	p			
Redundancy Set the Current I Serial N Primary	Verify			Serial N Backup		Serial N	lumber of	f	
Redundancy Set the Current I Serial N Primary	Verify Devi S Prima umber of Sending	ry Serial Nu		Serial N Backup	Backu lumber of Sending	Serial N		1	
Redundancy Set the Current I Serial N Primary	Verify Devi S Prima umber of Sending	ry Serial Nu		Serial N Backup	Backu lumber of Sending	Serial N		f	
Redundancy Set the Current I Primary Ci	Verify Devi S Prima umber of Sending ard	ry Serial Nu		Serial N Backup	Backu lumber of Sending ard	Serial N Back	up Port		
Redundancy Set the Current [Serial N Primary	Verify Devi S Prima umber of Sending	ry Serial Nu		Serial N Backup	Backu lumber of Sending	Serial N			
Serial N Primary Ca	Verify Devi S Prima umber of Sending ard	ry Serial Nu		Serial N Backup	Backu lumber of Sending ard	Serial N Back	up Port		

Select the Screen Connection tab.

Select/enter the value for "Screen Type", "Receiving Card Size", "Columns" and "Rows", and use "Ethernet Port No." and the screen configuration section to configure the connection.

st For details of the configuration procedure, refer to the User's Manual.



Notes on the setting operation:

Perform these setting procedures prior to the redundancy settings configuration.

Make sure that the value of "Quantity of Screens" is 1.

(To change a different value to 1, click the Configur" button.)

It is not necessary to configure the settings for Sending Card 2.

When the settings configuration is complete, click the "Send to HW" button.

Select the Sending Card tab and click "Add".

The Redundancy Settings screen is displayed.

Screen Configuration-USB@Port_#0009.Hub_#0001	_	o x				
Sending Card Receiving Card Screen Connection						
Select Input Sele	1					
Source: HDM Resolution: 1920 x 1080 px Refresh Rate T 60 Hz Input Source Bit De 8 Bit			Redundancy Settings Serial Number o Serial Number o		Serial Number of Backu	X
Hot Backup Verification			Senai Number 0	Add	Close	
Redundancy Set the Current Devi Set as Primary Set as Backup						
	ickup					
Serial Number of Primary Sending Card Serial Number of Primary Port Card Serial Number of Backup Send Card						
Refresh	id Edit Delete					
Restore Factor. Save S	System Co Save	Close				

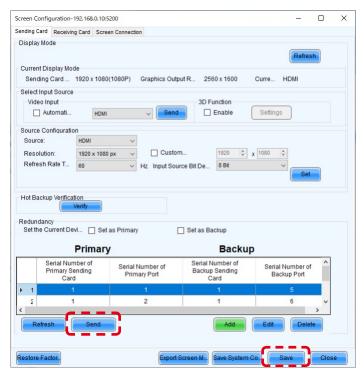
In the Redundancy Settings screen, set the Port to use on the LED controller.

In the LED configuration example (English-87), the settings are as follows. After entering the value, click the "Add" button.

Serial Number of Primary Sending Card : 1 Serial Number of Primary Port : 1 Serial Number of Backup Sending Card : 1 Serial Number of Backup Port : 4	Redundancy Settings X Serial Number of Primar 1 Serial Number of Primar 1 Add Close
Serial Number of Primary Sending Card : 1 Serial Number of Primary Port : 2 Serial Number of Backup Sending Card : 1 Serial Number of Backup Port : 5	Redundancy Settings X Serial Number of Primar 1 Serial Number of Primar 2 Serial Number of Backu 5 Add Close
Serial Number of Primary Sending Card : 1 Serial Number of Primary Port : 3 Serial Number of Backup Sending Card : 1 Serial Number of Backup Port : 6	Redundancy Settings X Serial Number of Primar 1 Serial Number of Primar 3 Serial Number of Backu 6 Add Close

When the settings configuration is complete, the Sending Card tab appears like below. Click the "Send" button.

Click the "Save" button.

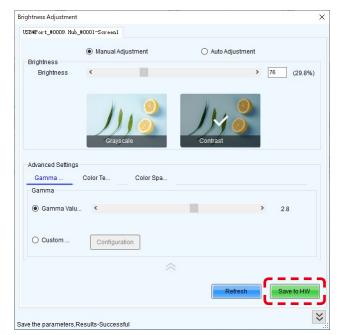


Check the current brightness setting.

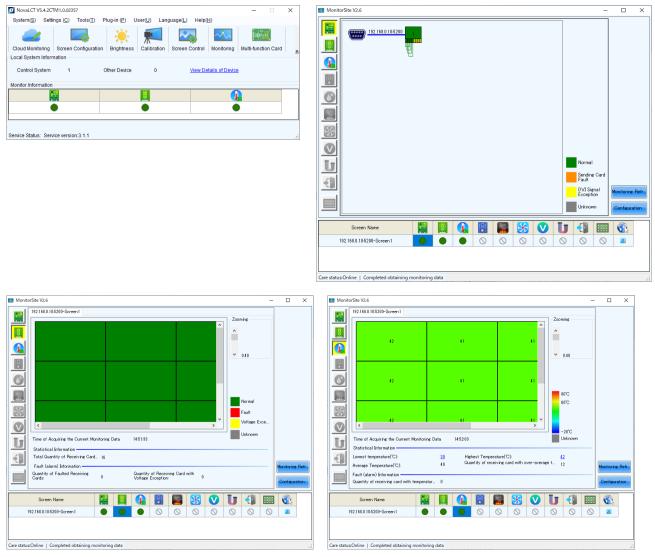
Click the "Brightness" button.

In the Brightness Adjustment screen, set the desired brightness value and click the "Save to HW" button.





The monitoring screens appear like below.



English - 91

Specifications

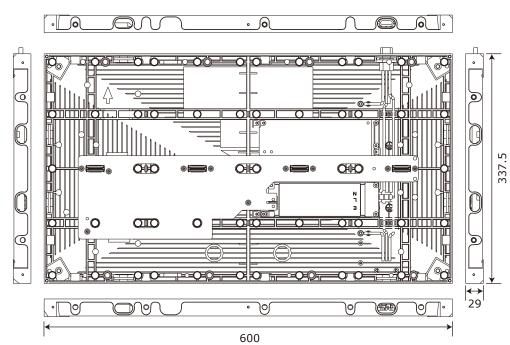
Models for indoor use

		LED-E012i	LED-E015i	LED-E018i	LED-E025i		
LED configuration	1	3-in-1 SMD					
Pixel pitch		1.25 mm	1.56 mm	1.88 mm	2.50 mm		
Number of display (resolution/modu		480 × 270	384 × 216	320 × 180	240 × 135		
Brightness		600 cd/m ²	600 cd/m ²	800 cd/m ²	1000 cd/m ²		
Contrast ratio		5000:1	4000:1	5000:1	7000:1		
Brightness adjust	ment range		0 to 100% (25	56 increments)			
Gamma correctio	n		1.0 to 4.0 (defa	ult setting: 2.8)			
Color temperature	e		3000 K to 9500 K (de	fault setting: 6500 K)			
Viewing angle		Up 80°, Down 80°, Left 85°, Right 85°	Up 70°, Down 70°, Left 70°, Right 70°	Up 70°, Down 70°, Left 70°, Right 70°	Up 70°, Down 70°, Left 70°, Right 70°		
Signal interface	Signal input	1 × RJ-45					
	Signal output	1 × RJ-45					
Power supply		100 V AC to 240 V AC, 50 Hz/60 Hz					
Power consumption (all white, 100%)			125	5 W			
Ingress protection	n		Front IP 20	/ Back IP 20			
Maintenance			Fro	ont			
Dimensions			600 × 337.	5 × 29 mm			
Weight		4.7 kg					
Operating	Temperature	-20 to 40°C					
environment	Humidity		10% to 80% (with	out condensation)			
	Altitude		No more th	ian 5000 m			
Storage	Temperature		-20 to	o 45°C			
environment	Humidity		10% to 85% (with	out condensation)			

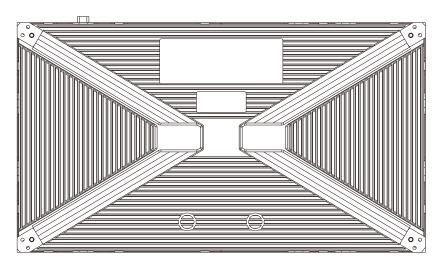
Specifications are subject to change without notice.

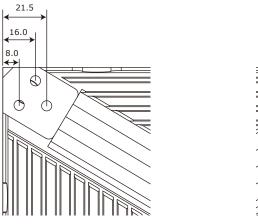
Models for indoor use

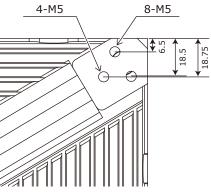
LED-E012i-108/ LED-E015i-135/ LED-E018i-162/ LED-E025i-217/ LED-E012i-10N LED-E015i-13N LED-E018i-16N LED-E025i-21N	LED-E012i-217/							
	LED-E012i-21N							
Module LED-E012i LED-E015i LED-E018i LED-E025i 4x4 5x5 6x6 8x8	LED-E012i 8x8							
LED configuration 3-in-1 SMD	3-in-1 SMD							
Pixel pitch 1.25 mm 1.56 mm 1.88 mm 2.50 mm	1.25 mm							
Number of displayed pixels (resolution/module) 1920 × 1080 1920 × 1080 1920 × 1080 1920 × 1080	3840 × 2160							
Brightness 600 cd/m ² 600 cd/m ² 800 cd/m ² 1000 cd/m ²	600 cd/m ²							
Contrast ratio 5000:1 4000:1 5000:1 7000:1	5000:1							
Brightness adjustment range 0 to 100% (256 increments)								
Gamma correction 1.0 to 4.0 (default setting: 2.8)								
Color temperature 3000 K to 9500 K (default setting: 6500 K)	3000 K to 9500 K (default setting: 6500 K)							
Viewing angleUp 80°, Down 80°, Left 85°, Right 85°Up 70°, Down 70°, Left 70°, Right 70°Up 70°, Down 70°, Left 70°, Right 70°Up 70°, Down 70°, Left 70°, Right 70°								
Signal interface Signal input 1 × RJ-45	1 × RJ-45							
Signal output 1 × RJ-45	1 × RJ-45							
Power supply 100 V AC to 240 V AC, 50 Hz/60 Hz	100 V AC to 240 V AC, 50 Hz/60 Hz							
Power consumption (all white, 100% brightness)2000 W3125 W4500 W8000 W	8000 W							
Ingress protection Front IP 20 / Back IP 20	Front IP 20 / Back IP 20							
Maintenance Front								
Dimensions 2412 × 1456 × 50 mm 3012 × 1793.5 × 50 mm 3612 × 2131 × 50 mm 4812 × 2806 × 50 mm	4812 × 2806 × 50 mm							
Weight 92.5 kg 142 kg 202 kg 350 kg	350 kg							
Operating Temperature -20 to 40°C								
environment Humidity 10% to 80% (without condensation)								
Altitude No more than 5000 m								
Storage Temperature -20 to 45°C								
environment Humidity 10% to 85% (without condensation)								



LED-E012i / LED-E015i / LED-E018i / LED-E025i









LED-E012i / LED-E015i / LED-E018i / LED-E025i Adjustment plate

