

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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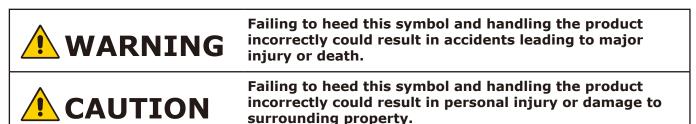
Important Information

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.

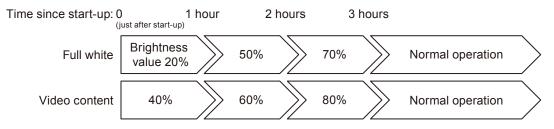
The LED lamps may absorb and hold moisture during the LED module installation or if not used for a long time. Therefore, in such cases, the brightness must be increased gradually during a break-in period before setting the normal brightness.

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.

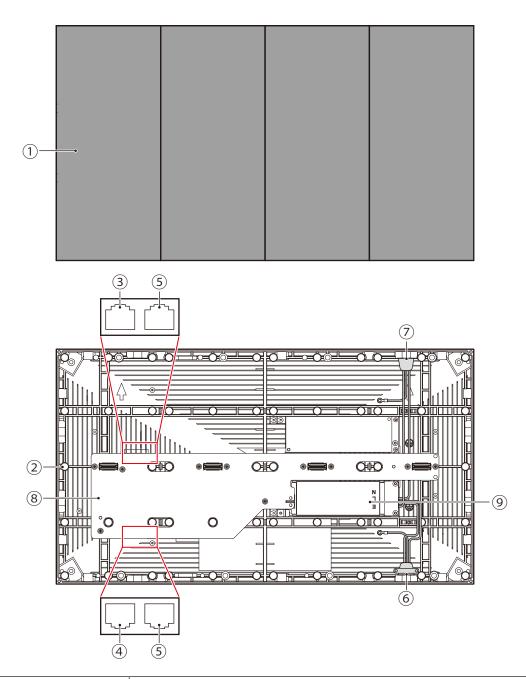


About the Pixel card



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	he chassis to which to install pixel cards.		
34	Signal input/output	o input the signal from the LED controller or the previous LED nodule.		
		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/right)		2	2	2	2	
3	Screw for power bar side cover	M3 (Type B)	9 (4+5*1)	9 (4+5*1)	9 (4+5*1)	9 (4+5*1)	
	Power bar position pin		9 (4+5*1)	9 (4+5*1)	11 (6+5*1)	13 (8+5*1)	
	Screw for power bar front cover	M6	5*1	5*1	5*1	5*1	
4	Power bar connecting part		-	-	-	1	
5	Power bar connecting screw	M3 (Type A)	-	-	-	9 (4+5*1)	
		M3 (Type B)	_	-	-	13 (8+5*1)	
6	Mounting bar		2	2	3	4	
	Bolt washer	20 mm	13 (8+5*1)	15 (10+5*1)	23 (18+5*1)	37 (32+5*1)	
	Alignment bar		2	2	2	2	
	Cabinet hanger pin	Head diameter 10 mm x 25 mm	21 (16+5*1)	25 (20+5*1)	41 (36+5*1)	69 (64+5*1)	

			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)	
7	Power bar screw	M6 x 16	11 (6+5*1)	11 (6+5*1)	14 (9+5*1)	1 (12+		
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		
	Cabinet	600 mm x 337.5 mm	16	25	36	6	4	
	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)	29 (24+5*1)		
	LED controller*2	Novastar MCTRL 660Pro Novastar MCTRL 4K	-	-	-	- 1	1	
	LAN cable for the	750 mm	-	-	-	-	4	
	LED modules	170 mm	12	20	30	48	56	
	LAN cable for the LED controller*2	20000 mm	4	5	6	16	8	
	Power cord for the LED controller*2		1	1	1	1		
	USB flash memory		1	1	1	1		
	Safety Manual		1	1	1	1		
	Power cord*3		*3	*3	*3	*	3	

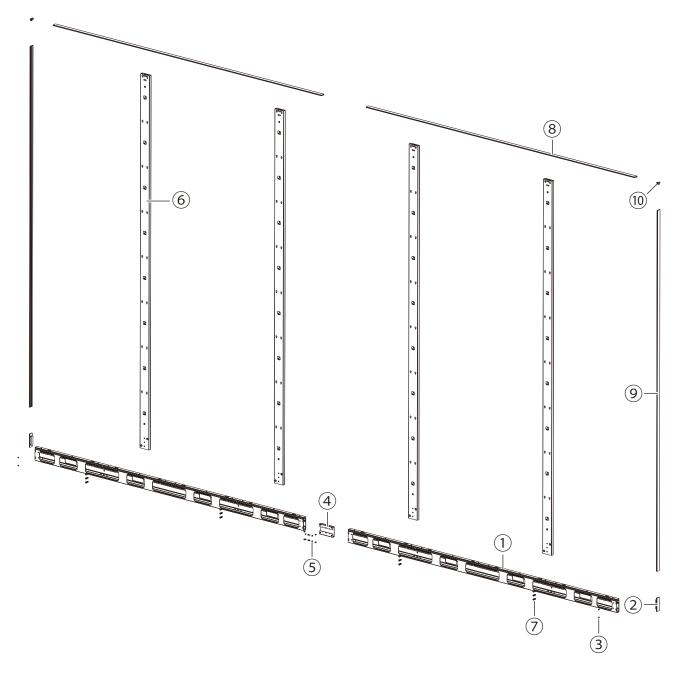
*1: Spare parts

*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.

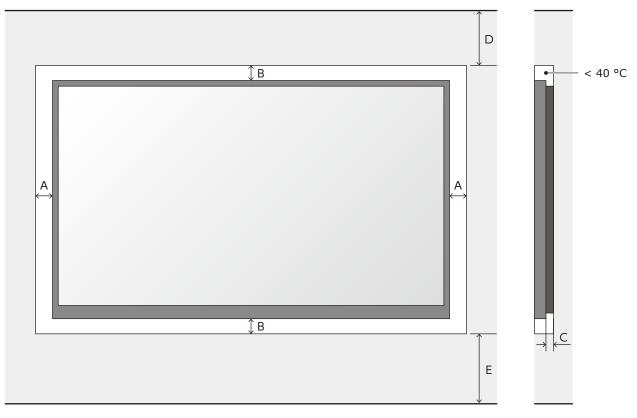
Make sure to use the product lower than the normal operating temperature.

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

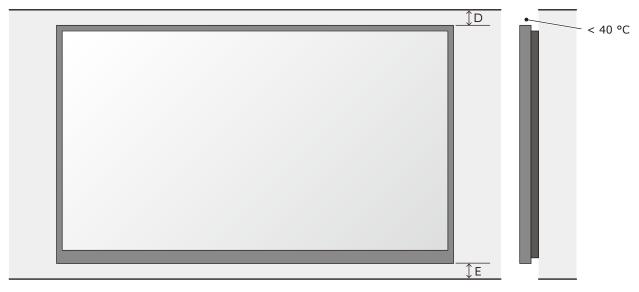


А	В	С
min. distance to sides	min. distance to top and bottom	min. distance between wall and system
60 mm 60 mm		20 mm

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*

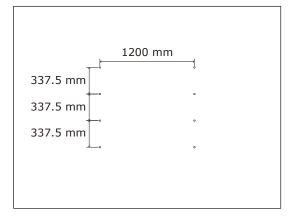
*: Depending on the temperature condition.

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.)

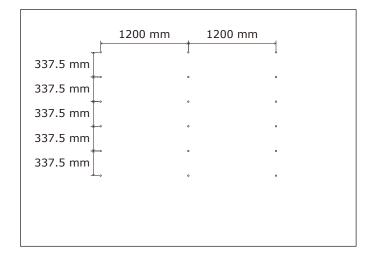
Anchor points positions: 4 x 4 frame set



Anchor points positions: 5 x 5 frame set

	1800 mm
337.5 mm	ļ
337.5 mm	٥
337.5 mm	٥
337.5 mm	٥
<u>ە بە</u>	٥

Anchor points positions: 6 x 6 frame set



Anchor points positions: 8 x 8 frame set

	1200 mm	1200 mm	1200 mm	→
337.5 mm	ļ	!		!
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)	2×4	2×5	3×5	4×8
Horizontal distance	1200 mm	1800 mm	1200 mm	1200 mm
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

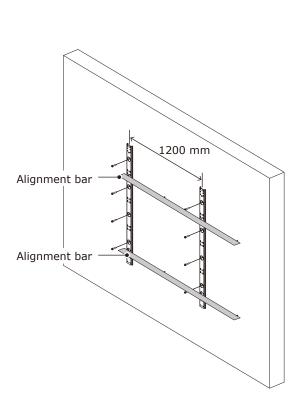
- Make holes at the anchor positions using a suitable tool.
- Use screw anchors/anchor plugs as required.
- Remove the dust or dirt, and wipe off any drilling chips and dust.

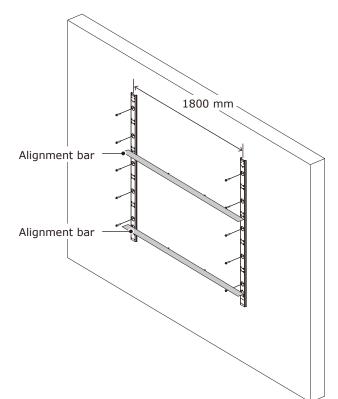
4. Install the mounting bars

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

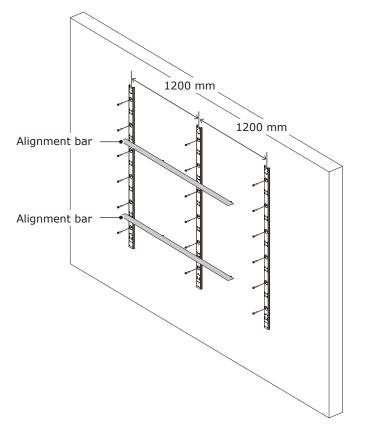
4 x 4 frame set

5 x 5 frame set



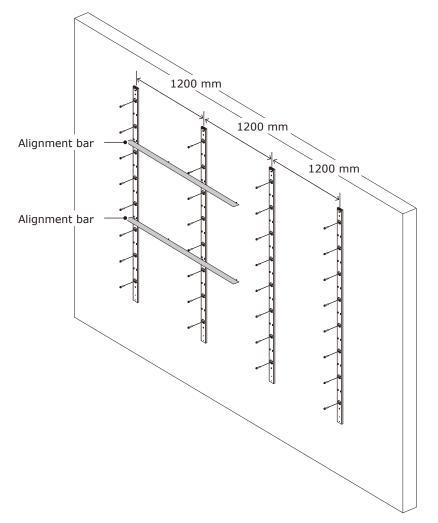


6 x 6 frame set



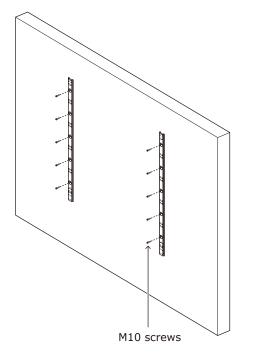
English - 14

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 (5 x 5 frame set)



5. Install the power bar

Remove the power bar cover and install the power bar using M6 screws.

How to remove the bottom cover

(1) Remove the screws securing the power bar cover.



(2) Raise the front of the power bar cover.



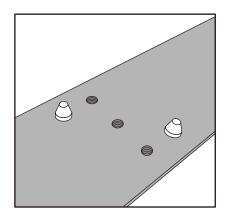
(3) Pull the power bar cover toward you to remove it.

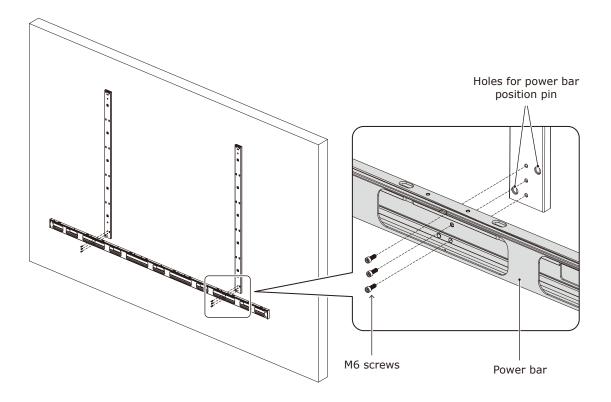


How to attach the power bar position pin

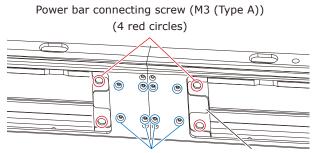
Attach the power bar position pin to the power bar.

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





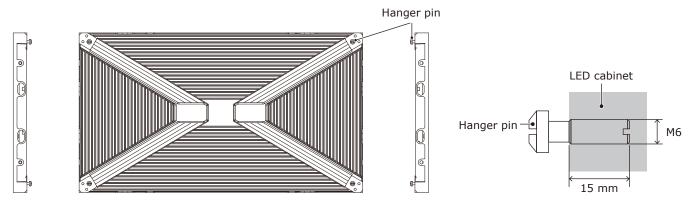
When using the 8×8 frame set, use the power bar connecting part to install the power bar.



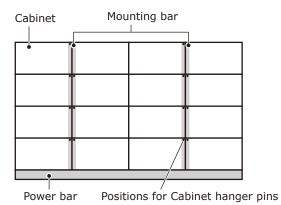
Power bar connecting screw (M3 (Type B)) Power bar connecting part (8 blue circles)

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

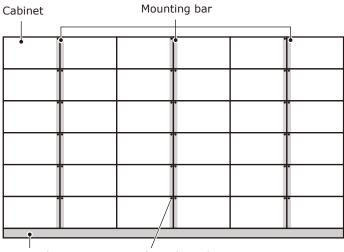
The following drawings indicate where Hangar pins are required. Insert the Hangar pins until the pitch of the screws is no longer visible.



Cabinet hanger pins installation position 4×4 frame set

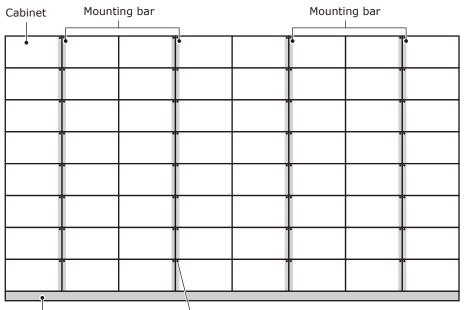


6 x 6 frame set



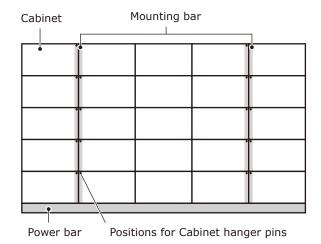






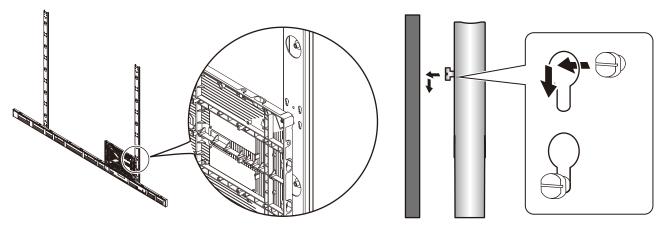




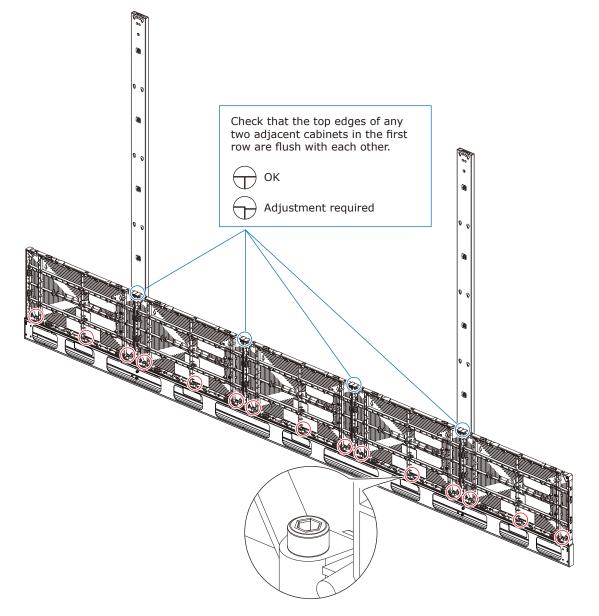


7. Install the cabinets

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

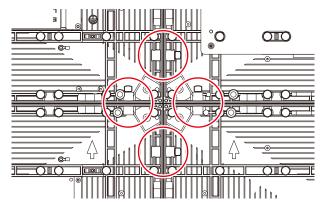


Fix temporarily the cabinets of the first row to the power bar.

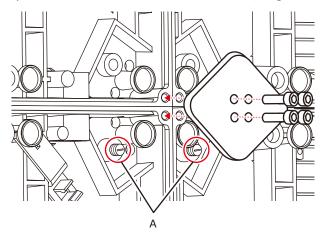


Hook the hanger pins of the cabinets of the second row to the mounting bars.

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.



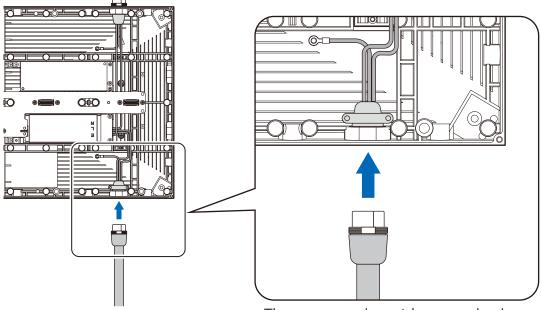
When the cabinets' surfaces are aligned, securely tighten the cabinets of the first row to the power bar, the cabinets of the first row together, as well as the cabinets of the first row with the cabinets of the second row. Remove the Adjustment plates after the screws have been tightened.

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.

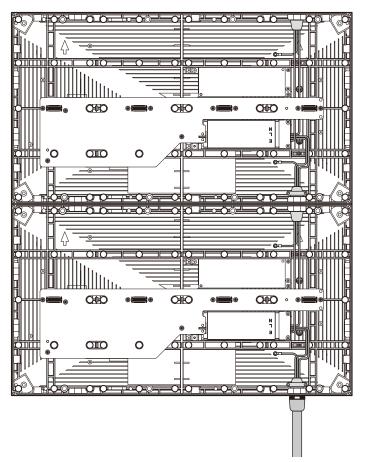
(1) Power cord connection

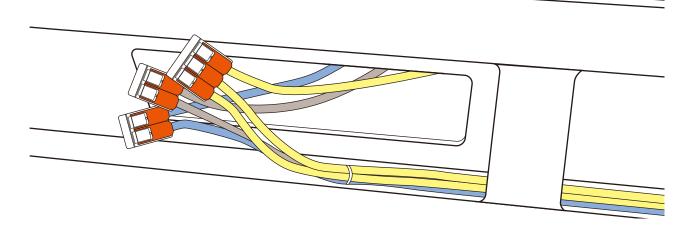
Connect the power cords to the LED modules on the first row.



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.

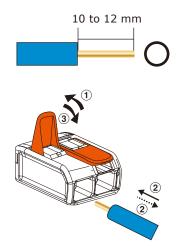
WARNING

- 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.

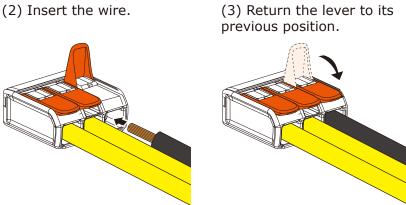
Newly peel off the sheath.

End of disconnected wire: More or less damaged.



How to connect the power cord

(1) Raise the lever.



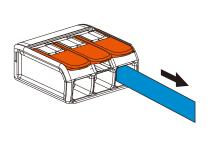
CAUTION

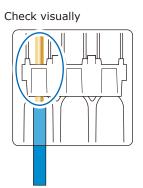
Insufficient insertion may cause poor electricity conduction and heat generation.

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.



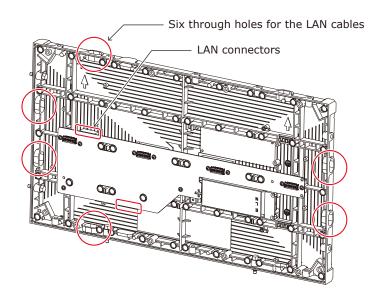


Pay attention to the wire colors of the power cord when connecting the cord. If the cables are not connected correctly, it may lead to a fire or an electrical shock.

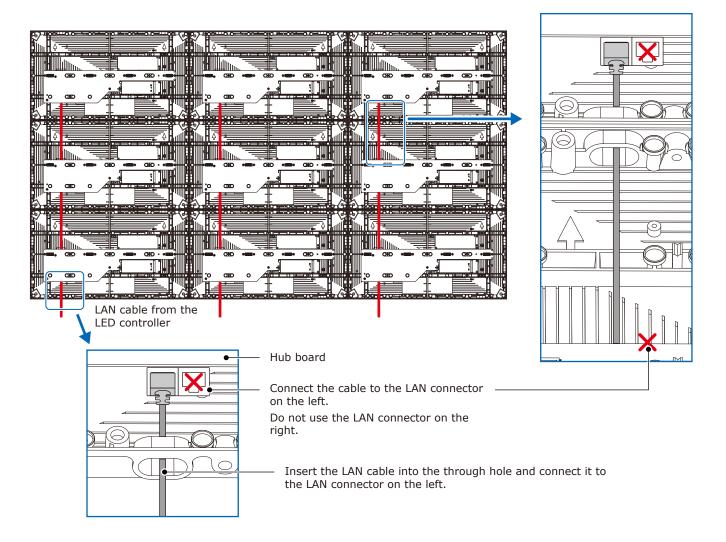
Blue (N) Brown (L) Yellow green (Ground)

(2) LAN cable connection

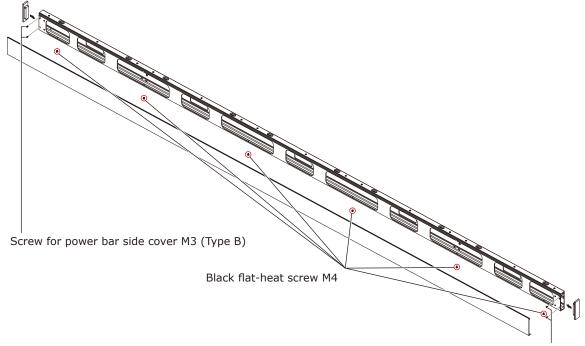
Connect the LAN cables for the signal between the LED modules. Use the through holes to pass the cables between the modules.



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

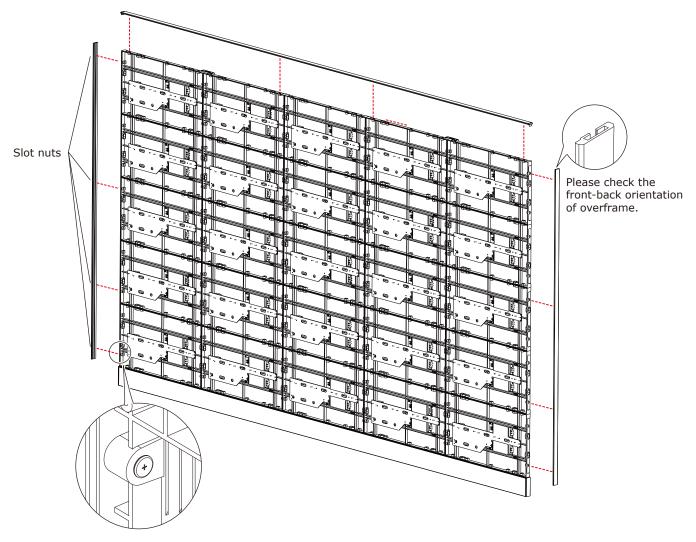


Install the power bar cover and power bar side covers using the screws when it was installed (on the front).



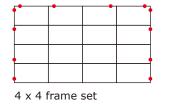
Screw for power bar side cover M3 (Type B)

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



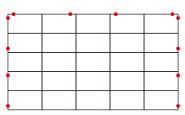
Install the corner parts to the over frame (top) and install it on the top of the cabinets.

Slot nut installation locations



•			•
•			





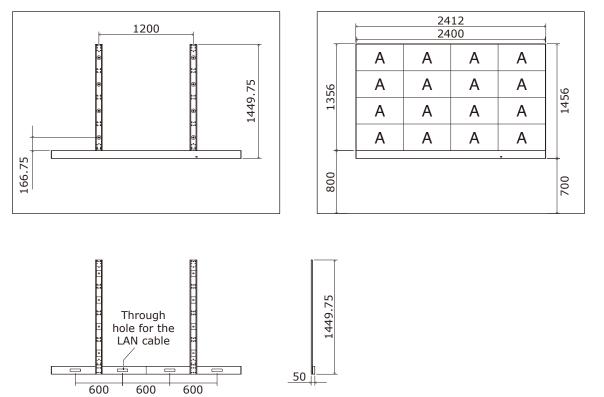
5 x 5 frame set

•	•	•	•	 	· · · · ·	•
-	-			 		
,						

8 x 8 frame set

8. Assembly diagrams

4 x 4 frame set



5 x 5 frame set

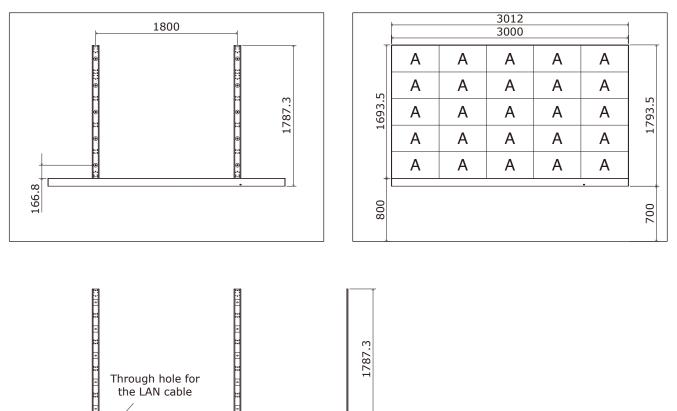
Through hole for the LAN cable

600

600

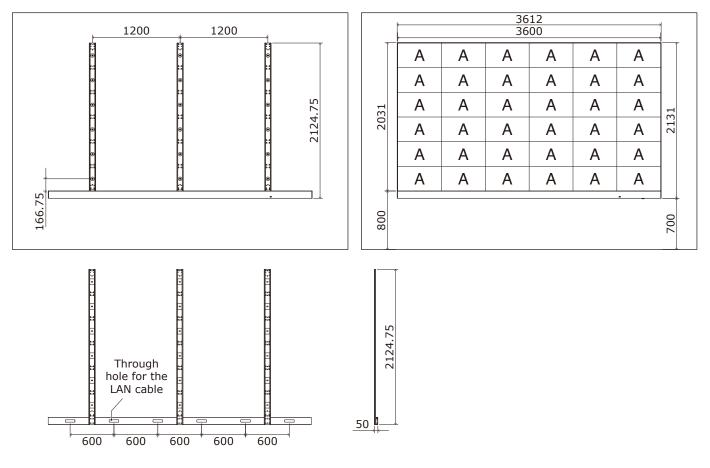
600

600



[∦] 50

6 x 6 frame set



8 x 8 frame set

Through hole for the LAN cable

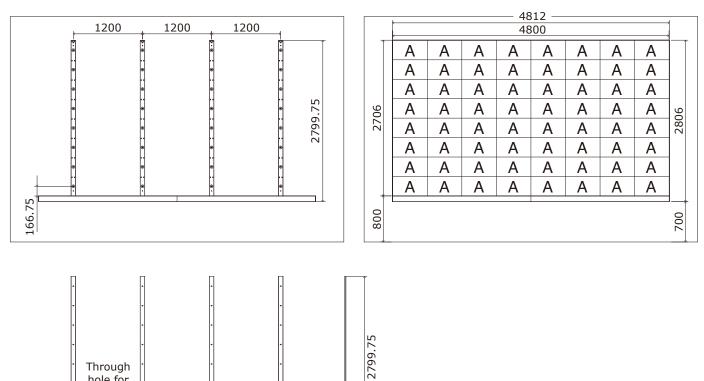
600

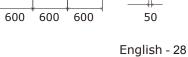
600

600

Г

600



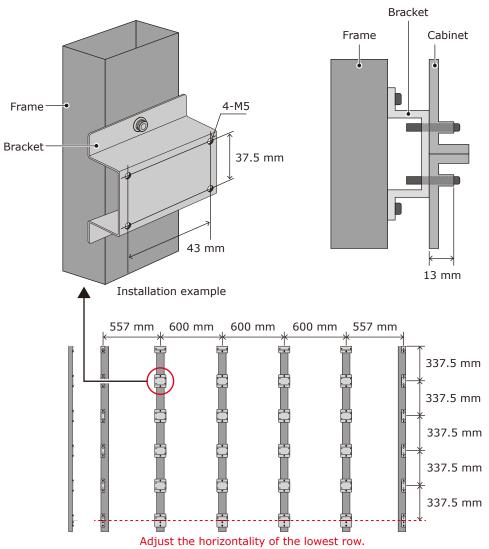


9. Installation without a frame set

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 "7. Install the cabinets".

10. 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

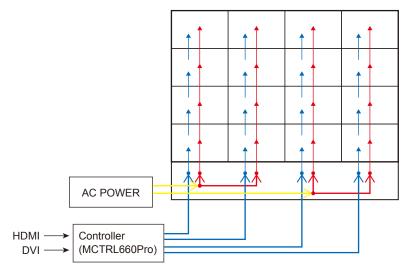
For Taiwan, Korea and India:

(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.

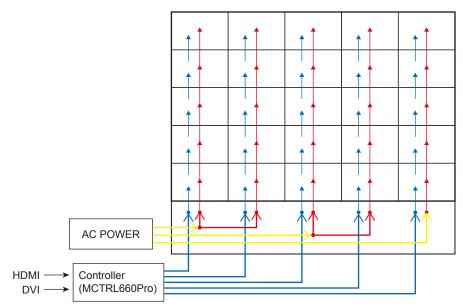
Please connect considering the capacity of the switchboard and the inrush current specification.

4 x 4 frame set



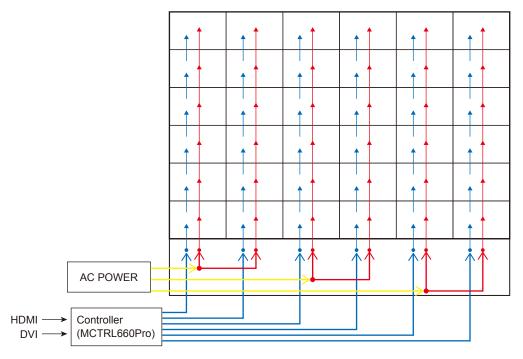
4×4 frame set		AC 100V	AC 200V
Number of power system		2	2
Current rating	Current rating per 1 module		0.8 A
per power system		12.0 A	6.4 A
	per frame set	24.0 A	12.8 A
Inrush current	per 1 module	30 A	60 A
25°C Cold start	per power system	240 A	480 A
Pulse width: 3ms	per frame set	480 A	960 A

5 x 5 frame set



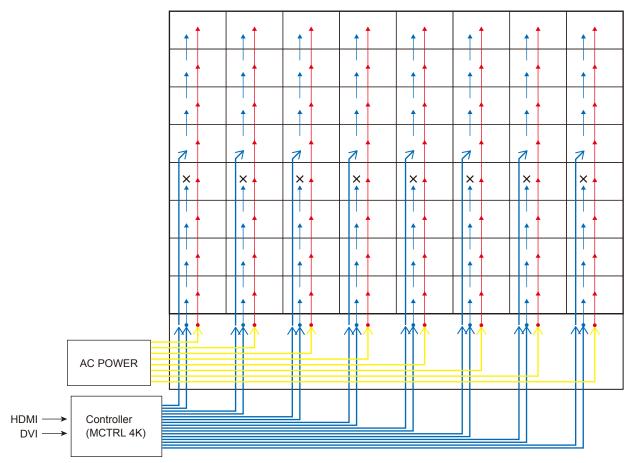
5 x 5 frame set		AC 100V	AC 200V
Number of power system		3	3
Current rating	per 1 module	1.5 A	0.8 A
	per power system	7.5 A (1 Systems)	4.0 A (1 Systems)
		15.0 A (2 Systems)	8.0 A (2 Systems)
	per frame set	37.5 A	20.0 A
Inrush current	per 1 module	30 A	60 A
25°C Cold start	per power system	150 A (1 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



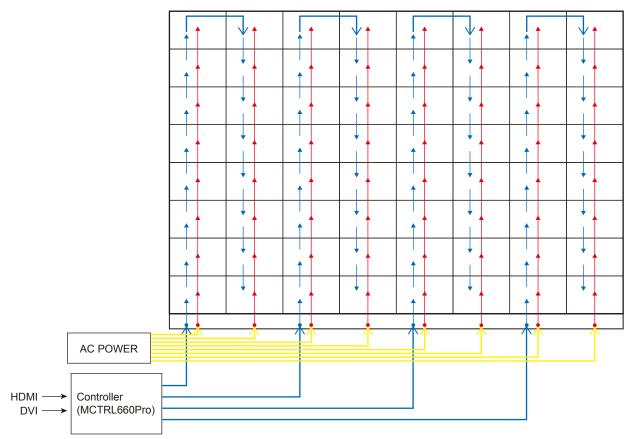
6 x 6 frame set		AC 100V	AC 200V
Number of power system		3	3
Current rating	per 1 module	1.5 A	0.8 A
	per power system	18.0	9.6 A
	per frame set	54.0 A	28.8 A
Inrush current	per 1 module	30 A	60 A
25°C Cold start	per power system	360 A	720 A
Pulse width: 3ms	per frame set	1080 A	2160 A

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)



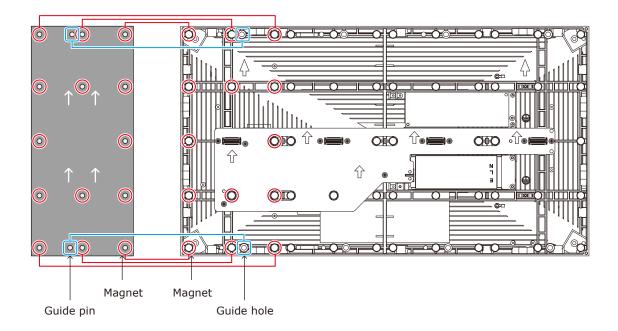
8 x 8 frame set (2.5 mm pitch)		AC 100V	AC 200V
Number of power system		8	8
Current rating	per 1 module	1.5 A	0.8 A
	per power system	12.0 A	6.4 A
	per frame set	96.0 A	51.2 A
Inrush current	per 1 module	30 A	60 A
25°C Cold start	per power system	240 A	480 A
Pulse width: 3ms	per frame set	1920 A	3840 A

11. 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-55)

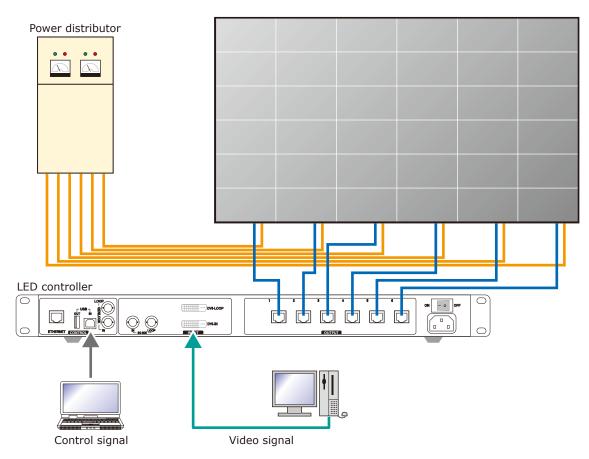
Install the pixel card to the cabinet paying attention that the arrows on the back of the pixel card and on the hub board are orientated toward the same direction, and that the two guide pins of the pixel card are aligned to the guide holes of the cabinet (two for each pixel card).

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
	Local System Information
	Control System 1 Other Device 0 <u>View Details of Device</u>
	Monitor Information
	Service Status: Service version:3.1.1

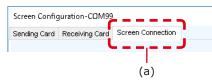
(2) Check the port in "Select Communication Port", and then click the "Next" button (b).

Screen Configuration		×
– Select Communicatior	Port	
Current Operatio	COM5 ~	
Configure Screen		
O 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).

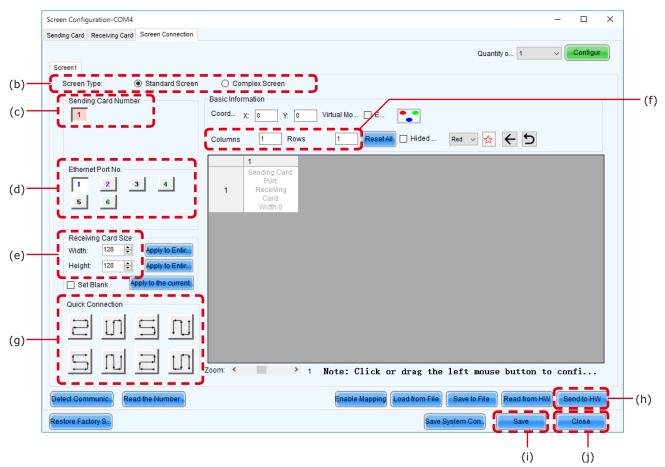


CAUTION

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.



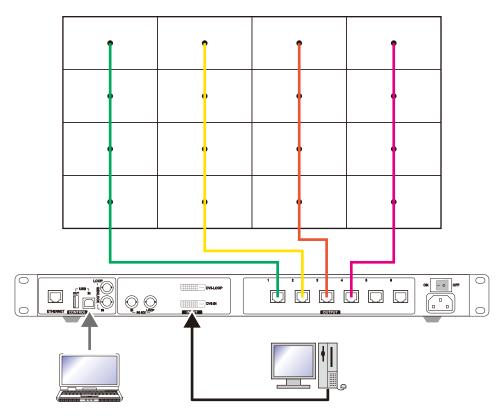
Enter the value in the table below under "Receiving Card Size" (e).

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

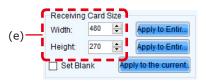
[Columns/Rows] Enter the number of installed screens under "Columns/Rows" (f) (the number of vertically installed screens in Columns, and the number of horizontally installed screens in Rows).

[Configuration example]

The setting values are given for the following example where 16 are installed in a 4 (columns) \times 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	~	Configur	
Screen Type: Standard Screen Sending Card Number	O Co	mplex Screen							
	Coordinat	te: X: 0	Y: 0 Virtu	al Mo 🗌 E	Enab	ol Screen Ar 12	8 X	128	
Ethernet Port No.	Columns	4 R	ows 4	ResetAll	Hided Red	× ★ ← ⊅			
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				
马山名山	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 Se	end to HW	/
store Factor.		6	estore Syste Ba	ack Up Syste		ave System Co	Save	Close	

- (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 4 3 1 3 4 5 6 Sending Card: Port: Receiving Card: Width:0 Sending Card:1 Sending Card: Port: Port 1 Red ing Cald:4 Width :480 Port:2 Receiving Card: Width:0 Red Ding Card:4 • 1 ~ Width:480 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 cu 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. £ Sendin, Card: Po<mark>t</mark>:2 Sending Card: Port: Receiving Card: Width:0 Sending Card:1 Pot1 Sending Card Port: 111 Recs ing Card:1 Width:480 Rec<mark>S</mark>/ing Card:1 Width:480 Receiving Card: Width:0 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_#0002							-		×
Sending Card Receiving Card Screen Connection									
Screen1						Quantity o 1	~	Configur	
Screen Type: Standard Screen	○ Co	mplex Screen							
Sending Card Number	Basic Info	rmation							
1	Coordina	te: X: 0	Y: Virtu	al Mo 🗌 E	🎦 🗆 Ena	bl Screen Ar 13	28 x	128	
Ethernet Port No.	Columns	4 R0	ws 4	ResetAll	Hided Red	י א ל כ]		
5 6		1 Sending Card:1	2 Sending Card:1	3 Sending Card:1	4 Sending Card:1				
		Port1	Port:2	Port3	Port4				
v	▶ 1	Recting Card:4	Red <mark>D</mark> ving Card:4	Red Ding Cald:4	Red Ding Cald:4				
Receiving Card Size Width: 480 - Apply to Entir		Width:480 Sending Card:1	Width:480 Sendin Card:1	Width:480 SendineCard:1	Widtt :480 Sendin Card:1				L
Height: 270 🜩 Apply to Entir	2	Pot1 Receiving	Polt2 Receiving	Pot3 Receiving	Pot4 Receiving				
Set Blank Apply to the current.		Card:3 Width:480	Card:3 Width:480	Card:3 Width:480	Caid:3 Widtt:480				
Quick Connection		Sending Card:1 Port:1	Sendin Card:1 Port:2	Sendine Card:1 Port:3	Sendin Card:1 Po t:4				L
	3	Receiving Cald:2	Receiving Card:2	Receiving Card:2	Receiving Card:2				L
길미드미		Widtl :480	Widt <mark>r</mark> :480	Width:480	Widtt:480				L
		Sending Card:1 Port1	Sendin <mark>e</mark> Card:1 Po <mark>t</mark> :2	Sendin <mark>e</mark> Card:1 Po t :3	Sendine Card:1 Pot:4				
드 띠 근 ഥ	4	Rec <mark>S</mark> /ing Card:1	Rec <mark>S</mark> ving Card:1	Rec <mark>S</mark> ring Card:1	Rec <mark>S</mark> /ing Card:1				
	_	Width:480	Width:480	Width:480	Width:480				
	Zoom: <		>	1 Note: (lick om der	ag the left mou			
	200111. <		2	note: (TICK OF OF:	ag the rert mot	ise but	ton t.	• •
Detect Communic Read the Number			Enab	le Mapping Loa	d from File	ve to File Read from	HW	end to HW	
Restore Factor.		Re	store Syste Ba	ack Up Syste	S	Save System Co	Save	Close	,

- (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.

(a) System (S) Settings (C) Tools (T) Plug-in (P) User(U) Language(L) Help(H) (a) Screen Configuration Brightness Calibration Screen Control Monitoring Multi-function Card Test Tool Local System Information Control System 1 Other Device 0 View Details of Device Monitor Information	
Screen Configuration Brightness Calibration Screen Control Monitoring Multi-function Card Test Tool Local System Information Control System 1 Other Device 0 View Details of Device Monitor Information Control System 1 Other Device 0 View Details of Device	
Control System 1 Other Device 0 <u>View Details of Device</u> Monitor Information	
	i I
Service Status: Service version:3.1	
	×
Single-Screen Mode Combined-Sc 4 Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients Current Operation Send by Address Send by Topology	
Communication Port 192.188.41.15200 Screen:1 Starting coordinateX=0, Y=0 Size1440W×810H	
Current Screen Select by pix O Select by Topology Select operat	
Settings of Displaying Image Operate all pixels.	
Position to Display Image:	

(3) Select the "Screen1" radio button.

Use input source for display Enable/Disable Calibration Disable Calibration

Brightness Calibration
 Chroma Calibration

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

Flash Check

Single Earson Made Combined-Sc 1	Online Calibration Office Calibration Manage Coefficients Do ble Calibration Coefficients	
Current Operation Communication Port 192.168.41.1:5200 V	Select Operation	
Current Screen	Upload coefficients	
Screen1	Save calibration coefficients to database	
	Set coefficients for a new receiving card	
	IIII Set coefficients for a new module	
	Adjust coefficients (Color is uniform on screen)	
	Erase or reload calibration coefficients	
Settings of Displaying Image Position to Display Image: Primary Display	C Reset calibration coefficients	
O Extended Display	Upload coefficinets (for factory use)	
Device Response Time:	📥 Module Flash	
Use input source for display		
Enable/Disable Calibration		
 Disable Calibration 		
 Brightness Calibration 		
Chroma Calibration		

iew Receiving Card Calibr... View Module Calibr

Save to HV

Auto Upload Module

(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.

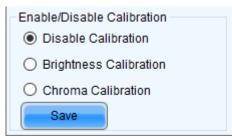
Screen Calibration	- 🗆 X
Single-Screen Mode Combined-Sc + +	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients
Current Operation Communication Port COM99 V	Send by Address Send by Topology Screen:1 Starting coordinateX=0, Y=0 Size384#×384H
© Screen1	Full O Select by Topology Select operat
Settings of Displaying Image Position to Display Image: © Primary Display © Extended Display Device Response Time: 100 © ms	Module calibration coefficients viewed successfully.
Use input source for display	
Disable Calibration Brightness Calibration	Flash Check View Receiving Card Calibr. View Module Calibration C Save Calibration Coefficien.
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	-		\times
Single-Screen Mode Combined-Sc · ·	Online Calibration Offine Calibration Manage Coefficients Double Calibration Coefficients		
Current Operation Communication Port	Send by Address Send by Topology		
COM99 ~	Screen:1 Starting coordinateX=0, Y=0 Size384W×384H		
Current Screen			
Screen1	Full Select by pix Select by Topology Select operat		
	Saved calibration coefficients to receiving card successfully.		
Settings of Displaying 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 Calibra. View Module Calibration C Save Calibra	ition Coeff	icien.
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
	(d)

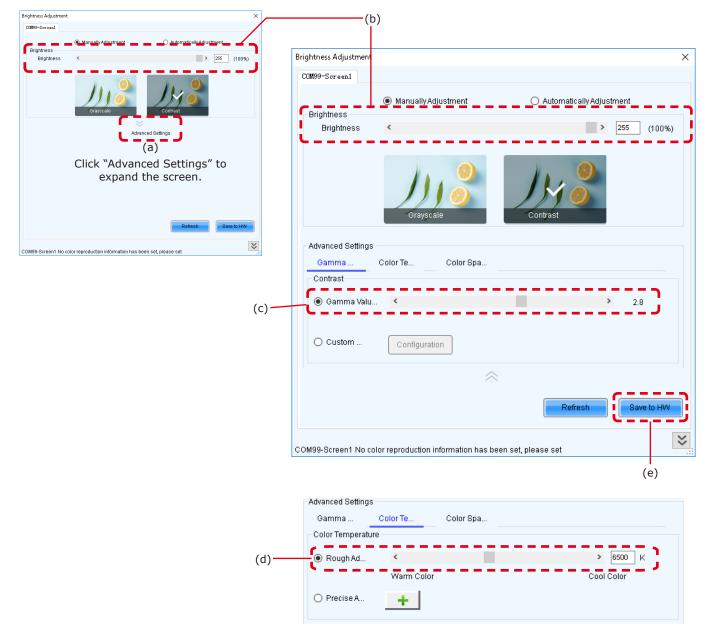
(11) Close Screen Calibration windows by clicking on the "X". <u>Result:</u> The Screen Calibration has been finished for both screens.

Image Setting

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

NovaLCT V5.1.0		- 🗆 X
System(S) Settings (C) T	"ools(T) Plug-in (P) User(U) Language(L) H	Help(H)
Brightness Screen Control	Monitoring Multi-function Card Test Tool Clo	ud Monitoring
Local System Information		
Control System 1	Other Device 0 <u>Vie</u>	w Details of Device
Monitor Information		
	-	
•		

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



Click "Advanced Settings" (\bigotimes) (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.

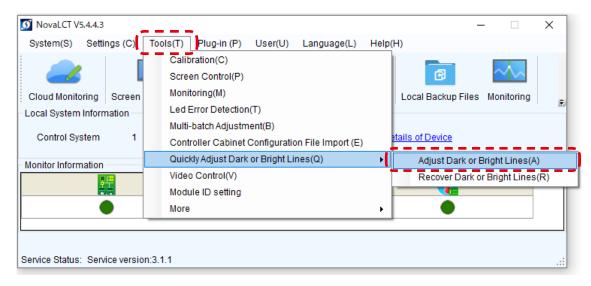
(3) Color temperature

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)	Clea (F12)	Show (Z)	No. Show (X)	Calibration	O Show	Screen dis		Window Color (Alt+C)		Sav	een Brightne (- +)	200 : ss	÷
Screen1																			
																	• Q @		
SHIFT+F11	Show/Hi	ide prompts		_	_						-1								
SHIFT+E]:E	Extended	Mode/Copy I de windows	Mode								1								
or in 1 miles	5110111110	ie mildows									1								
											- i								
											1	-1							
											- i								
											1								
											- i								
											- it								
											- 1								
											1								
												No Video S	Source (The sending ca	ird does no	t need a vid	deo source)		
																	Save to H	~	
						-		-	-	-	-						Oave to H		

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

O Seam Brightness Adjustment														-		×
Modu Cabi (A)	Row Column Cl	ea Deselect	, Clea (F12)	Show (Z)	No. Show (X)	Calibration	O Show	Screen dis		Window Cold (Alt+C)	or		Screen Bri (-	ghtnes	200 <u>-</u> s	÷
Screen1																
													► Q			
				_	_											
			1			2		- 1								
			1			2		- 1								
								- 1								
			3			4		- 1								
			Ŭ					- 1								
		_	_		-	_	-	_								
Selected Area Parameter Adjustr				1.000 🛨	Precision	0. 0 0	5	No Video	Source (The sending o	card does	s not need	a video sou	irce)		
	0.3	<u>1.000</u>	1.200													
													Save	to HV	/	

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 (F2	lect (; Clea (F12)	Show (Z)	No. Show (X)	Calibration	O Show	Screen d			Screen Brightne (- +)	200 🛨
Scree	in1															_	
								• •								►Q @	
					4 pi	kei o	aras	s in 1	l mod	lule							
					- 6					1							
						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				
					. 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:	= =:	= =	= = = =]
							-
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	nt																-		×
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 🗌	Sa	reen Brightne (- +)	200 ; ss	÷
Screen1																		_		
																		►Q @		2
						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							
E Se	elected Area Para	ımeter Adjus	tment 0.3				<u>1.000</u>	1.200	1.005 🛨	recision	0. 0 0	5	No Vid	eo Source	(The sending o	ard does no	ot need a vi	deo 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 B	Brightness Adju	stment				_										-		×
Modu	. Cabi	Row (A)	Row (S)	Column (D)	Clea (F1)			; Clea (F12)	(T) Show (Z)	No. Show (X)	Calibration	Ø Show	1 Screen o		r –	Screen Brightn (- +)	ess	÷
Screer	11					_											~ 44	
																►Q (ହ 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	a Parameter Ad	ustment —				-		1.005 🛟	Precision	0. 0. 0	5		deo Source (The sending o	ard does not n	eed a video source)	,	
			0.3				1.000	1.200										
																Save to H	łW	

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.

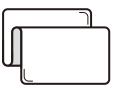
The magnet used to install the pixel cards also attracts magnetic metal particles, such as iron powder.

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.

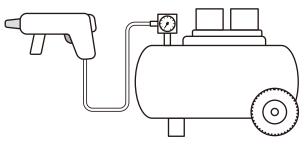
Required tools (example).





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

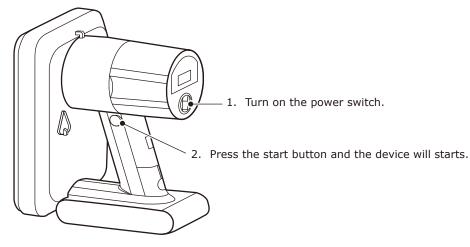
- Disconnect the power supply to the LED modules when performing the maintenance.
- Before installing or removing pixel cards, please ensure the wall has been powered off for 1 or 2 hours. Otherwise the thermal expansion of pixel cards increases the risk of damaging them during removal or insertion.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

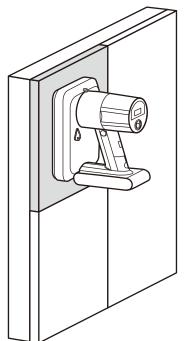
Pay attention not to lose the removed screws since they will be reused.

Removing a pixel card

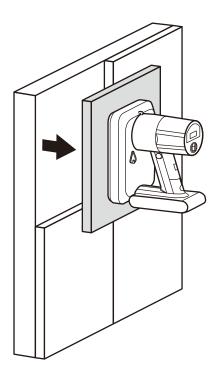
Remove the pixel card using the maintenance tool.



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.



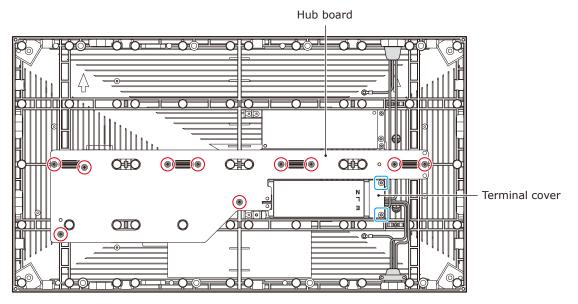


- Check that the battery of the maintenance tool is fully charged before starting the work. Pixel card falls if the battery runs out. Hold the pixel card with your hand to support in case it falls.
- Do not turn the maintenance tool off until you hold the pixel card. Otherwise, the pixel card may fall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

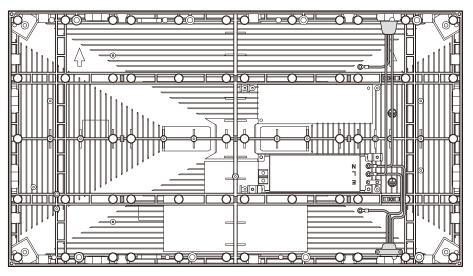
Removing the power supply

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.



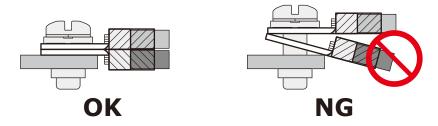
Disconnect the power cables connected to the power supply and remove the two screws securing the power supply, and then remove the power supply.



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:

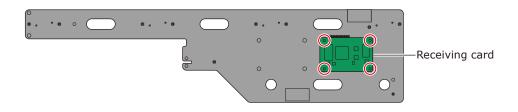
When attaching two cables with one screw, place the ring terminals of the cables back to back.



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 all the LED modules.	Check that power is being supplied to 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-44).
- (2) Click "Calibration" (a). Start calibration menu.

Chroma Calibration

🗾 NovaLCT V5.2.0										_		×
System(S) Settin	gs (C	C) Tools(T) Plug-in	(P) User	U) L	anguage(L)	Help	(H)				
						~^\~				~~~		
Screen Configuratio	n	Brightness	Calibration	n 📕 Screen (Control	Monitorin	g Mul	lti-function C	ard 1	Fest Tool		
-Local System Inform	ation											
Control System		1	Other D	evice	0		<u>View E</u>	Details of Dev	<u>/ice</u>			
Monitor Information												
				In								
				1	4							
Service Status: Service	ce ve	rsion:3.1										
Screen Calibration											- 0	×
Single-Screen Mode Combined-Sc	• •	Online Calibration	Offline Calibration	Manage Coefficients	Double Ca	alibration Coefficients	5					
Current Operation		Send by Address										
Communication Port 192.168.41.1:5200	\sim	Screen:1 St	tarting coor	dinateX=0, Y	=0 Siz	e1440¥×810H						
Current Screen												
Screen1		Full) Select by pix	 Select by To 	oology	Select oper	at					
					~							
Settings of Displaying Image					0	perate all	pixels.					
Position to Display Image: Primary Display												
 Extended Display Device Response Time: 												
100 ms												
Use input source for display	v											
	,											
Enable/Disable Calibration Disable Calibration												
Brightness Calibration		F	lash Check			View Receiving C	Card Calibr.	. View Module Ca	libration C	Save Cal	ibration Co	efficien

(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	Reset calibration coefficients Upload coefficients Upload coefficients	
	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 COMB V Current Screen © Screen1	Select Operation Upload coefficients Save calibration coefficients to database Save calibration coefficients for a new receiving card Set coefficients for a new module Adjust coefficients (Color is not uniform on screen) Calibration coefficients Erase or reload calibration coefficients		
(d)—	Settings of Displaying Image Position to Display Image: Primarc Plastay © Extended Display Device Response Time; 100 © ms Use input source for display Enable/Disable Calibration	Erase of reload Calibration Coefficients Reset calibration coefficients Upload coefficients (for factory use) Module Flash		
	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

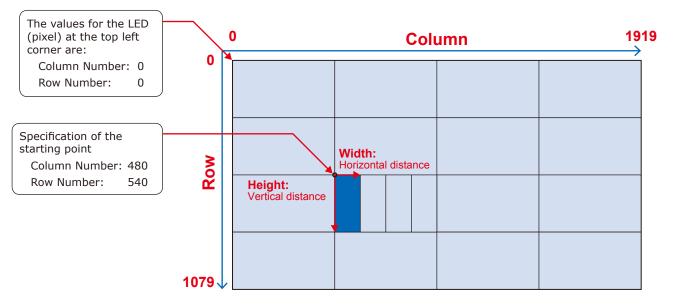
The screen used to specify the adjustment range is displayed.

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	لولاد المعادية وحدوا والمع		
Current Screen	Adjust Its Own Effect Adjust to the Same Effect as Oth		
Screen1			
Settings of Displaying Image			
	Adjust its own display effect		
Settings of Displaying Image Position to Display Image: O Primary Display	Adjust its own display effect		
Position to Display Image: Primary Display	Adjust its own display effect		
Position to Display Image: Primary Display Extended Display	Adjust its own display effect		
Position to Display Image: Primary Display Extended Display Device Response Time:	Adjust its own display effect		
Position to Display Image: Primary Display Extended Display Device Response Time: 100 ms	Adjust its own display effect		
Position to Display Image: Primary Display Extended Display Device Response Time:	Adjust its own display effect		
Position to Display Image: Primary Display Extended Display Device Response Time: 00000 ms Use input source for display Enable/Disable Calibration	Adjust its own display effect		
Position to Display Image: Primary Display © Extended Display Device Response Time; 100 © ms Use input Source for display Enable/Disable Calibration © Disable	Adjust its own display effect		
Position to Display Image: Primary Display Extended Display Device Response Time: 100	Adjust its own display effect		
Position to Display Image: Primary Display © Extended Display Device Response Time; 100 © ms Use input source for display Enable/Disable Calibration © Disable	Adjust its own display effect		

(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.

nt Operation	Online Calibration Offline Calibration Manage Coefficients Doubl	Calibration Coefficients			
Tunication Port	Select coefficient region to be operated				
t Screen	Current Screen Starting coordinateX=0, N	=0 Sixe1920#×1080H			
Screen1	○ Screen ○ Select by Pix ⑧ Select by Topology	Select Area			
					Zooma
	en a	c.a	0.8	0.0	
					0.7
	(2.1)	(2.3)	(2.3)	(2.4)	
	a.1	0.0	0.0	0.0	
of Displaying Image on to Display Image;					
nary Display					
ended Display Response Time;					
0 ma					
input source for display	(6.1)	(42)	(6)	(6.4)	
isable Calibration					
thes					
ma					-
Graysc or Save	Coal Type: Normal Coal ~				Next
2 H 💽 🖥	🖷 🛱 🖸 🛷 💷 🎾 🖬	9			29/C 小雨 へ 9 6 4× 1 2022/07/05

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	Red	٤				>	71.1	÷
	Red							
	Green	<				· · · · ·	72.5	÷
	Blue	<				>	76.4	÷
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								
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.

Single-Screen Mode Contine Calibration Offline Calibration Double Calibration Coefficients Current Operation Port Communication Port Communication Port Control Operation Adjust Coefficients Current Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient Screen Image: Coefficient	K
Communication Port Colors Current Bcreen	
Screen1 Color adjustment of red, green and blue	
Red Green Blue Brightness 71.1 (a) Saturation 98.1 (a) Hue 50.0 (a)	
Brightness 71.1 (2) Saturation 99.1 (2) Hue 50.0 (2)	
Highmess Saturation Hue Saturation Saturation Saturatio Saturation Saturation Saturati	
Highmess Saturation Hue Saturation Saturation Saturatio Saturation Saturation Saturati	
Hue Saturation Hue Sol E	
Hue Solution Solution Solution	
Settings of Displaying Image O Yellow O Cyan O Magenta O White	
Position to Display Image:	
O Primary Display	
Extended Display Green T2.5	
Device Response Time:	
100 Image: mail of the second seco	
Enable/Disable Calibration	
O Disable	
O Brightnes	
Chroma Simple Adjustm Hide color wind Full-Graysc	
Dark or Save	

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		-		×
Single-Screen Mode Combined-Sc 4	Online Calibration Offline Calibration Manage Coefficients Double Calibration Coefficients			
Current Operation Communication Port COM8	Apply and save calibration coefficients			-
Current Screen			Save	Ш
Screen1	Apply the adjustment effect to other areas			1
Settings of Displaying Image Position to Display Image: 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	Return	

Note

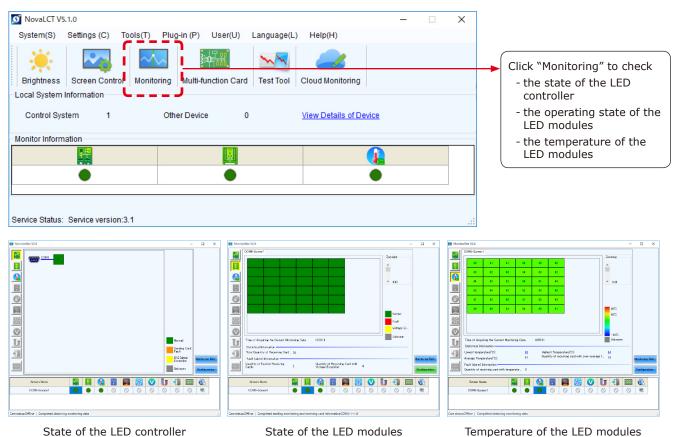
To return the calibration adjustment values to their default setting, perform the "Update the Calibration Data" procedure (English-44).

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.

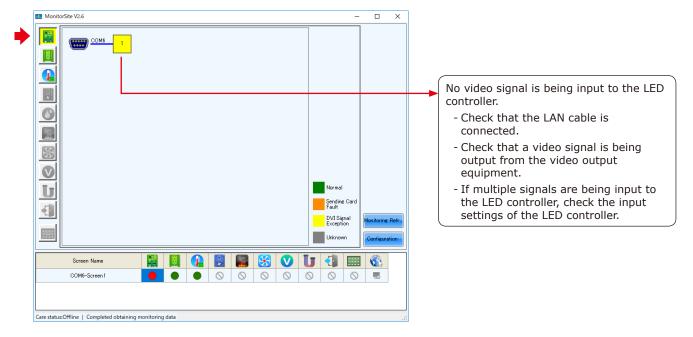


3-2 Display under abnormal conditions

(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.

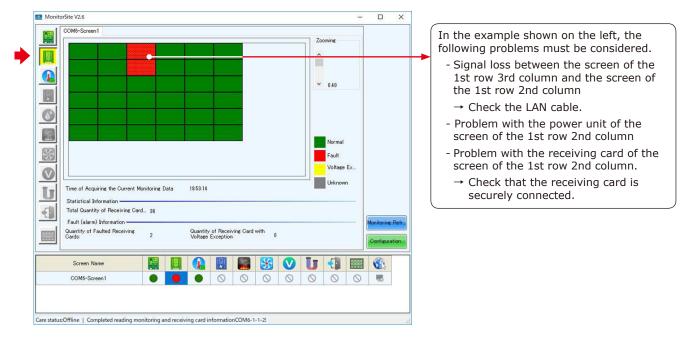
To display more details, click "Monitoring", and then click "Sending card" on the screen that is displayed.

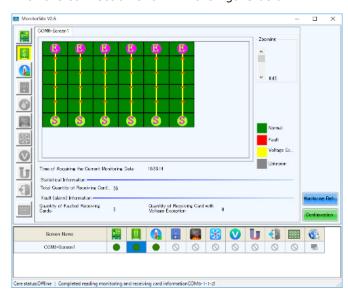


(2) Problem with the LED modules

S 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 Monitoring Multi-function Card Test Tool Cloud Monitoring			
Local System Information			
Control System 1 Other Device 0 View Details of Device	2		
Monitor Information			
			(
		_	When the display is r
Service Status: Service version:3.1			there is a problem wind the problem w

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



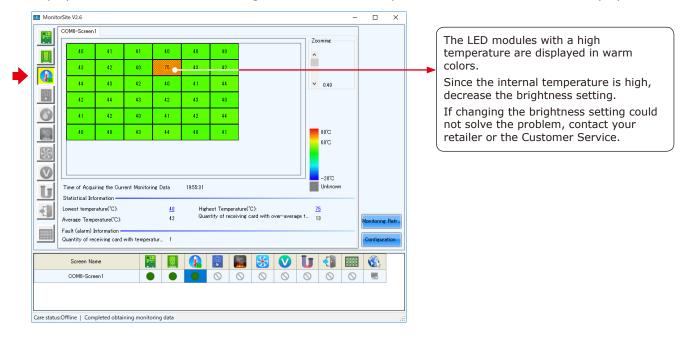


With the connection shown in the figure below.

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

NovaLCT V5.1.0	□ ×]
Image: Screen Control Image: Screen Control		
Local System Information Control System 1 Other Device 0 <u>View Details of Device</u>		
Monitor Information		
		There is a problem wi
		the LED module opera
Service Status: Service version:3.1		

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



(4) Communication problem

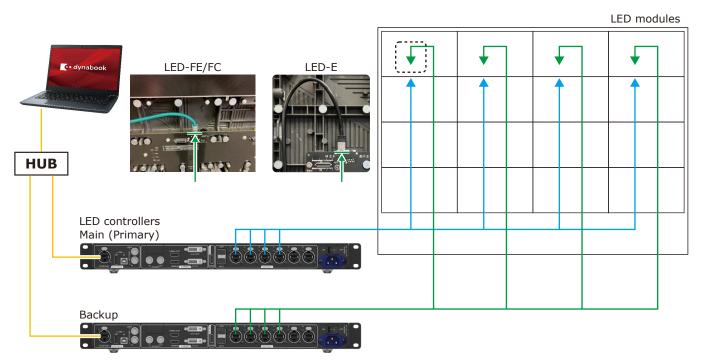
Nevel (T)/5 1 (Ne Handware)			
VovaLCT V5.1.0(No Hardware)		-	
System(S) Settings (C) Tools(T)	Plug-in (P) User(U) Language(L)	Help(H)	
Brightness Screen Control Moni	toring Multi-function Card Test Tool	Cloud Monitoring	
Local System Information	toning Multi-function Card Test root	Cloud Monitoring	
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 estab
			communication is not estat
			→ Check that the USB cabl 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".



Communication Port	Device Type	Number of Devices	SN
172.1.0.10:5200	MCTRL4K	1	002CF7010000
172.1.0.11:5200	MCTRL4K	1	002CFD01000

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.

creen Config	guration - 172.1.0.	10:5200		
ending Card	Receiving Card	Screen Connection		
	de splay Mode Card 1920 x	(1080(1080P) Graphics Ou	itout R. 2560 x 1600	Refresh Curre HDMI
Select Inpu Video In		HDMI V Ser	3D Function	Settings
Source Co Source:	nfiguration	~		
Resolutio Refresh F		x 1080 px ~ Cust		x 1080 🗘
Kenesin	Rate T 60	✓ Hz Input So	ource Bit De 8 Bit	Set
	p Verification Verify			
Set the Cu		Set as Primary	Set as Backup	
	Prin	nary	Backup)
	erial Number of rimary Sending Card	Serial Number of Primary Port	Serial Number of Backup Sending Card	Serial Number of Backup Port
Refres	sh Se	end	Add	Edit Delete

Main (Primary)

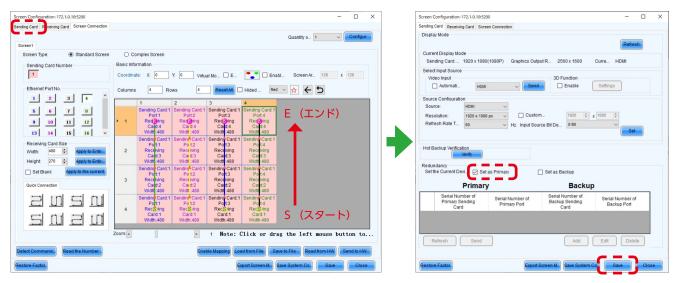
Select the Screen Connection tab.

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 Configuration-172.1.0.11:52	00		<u>1775</u>	
Sending Card Receiving Card Scree	en Connection			
Display Mode			Refres	sh
Current Display Mode Sending Card 1920 x 1080	0(1080P) Graphics Out	out R 2560 x 1600	Curre HDMI	
Select Input Source				
Video Input		3D Function		
Automati HDMI	~ Send	Enable	Settings	
Source Configuration				
Source: HDMI	~			
Resolution: 1920 x 108	D px v Custo	m 1920 🌩 🤉	(1080 🗘	
Refresh Rate T 60	 Hz Input Sou 	Irce Bit De 8 Bit	Set	
Hot Backup Verification				
Redundancy				
Set the Current Devi Set	as Primary	Set as Backup		
Primar	y	Backup)	
Serial Number of Primary Sending Card	Serial Number of Primary Port	Serial Number of Backup Sending Card	Serial Number of Backup Port	f
Refresh		Add	Edit	te
Restore Factor	Export	Screen M Save System C	Save	Close

Backup

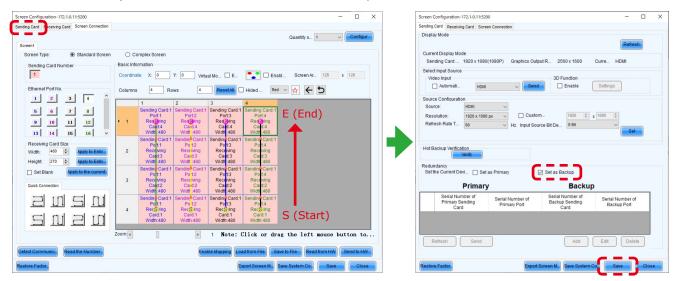
Select the Screen Connection tab.

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.

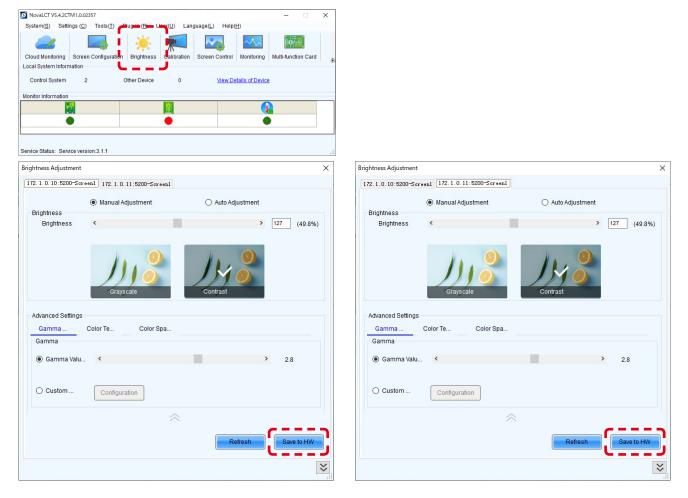
Go to "Redundancy", select the checkbox for "Set as Backup" and click "Save".



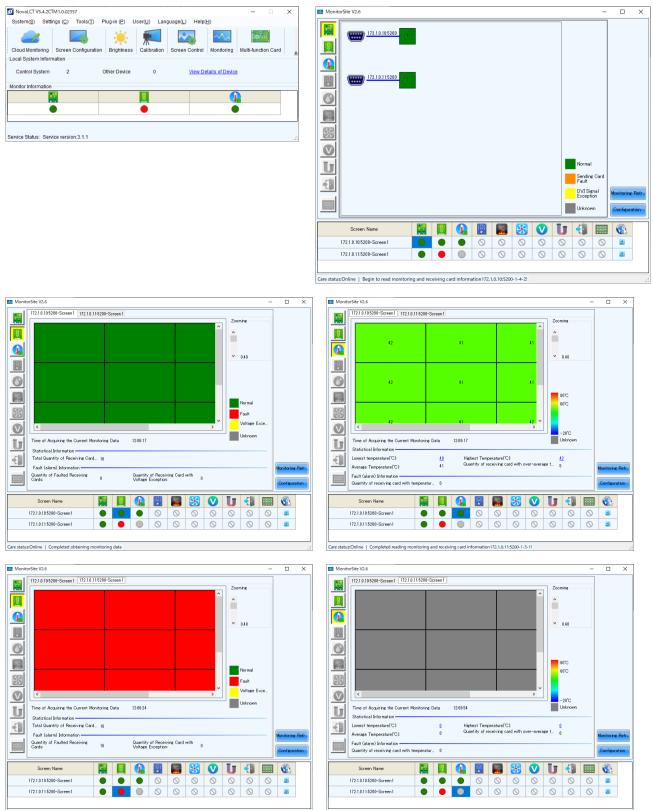
Check the current brightness setting.

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

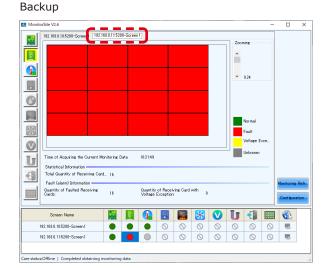
Care status:Online | Completed obtaining monitoring data

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.

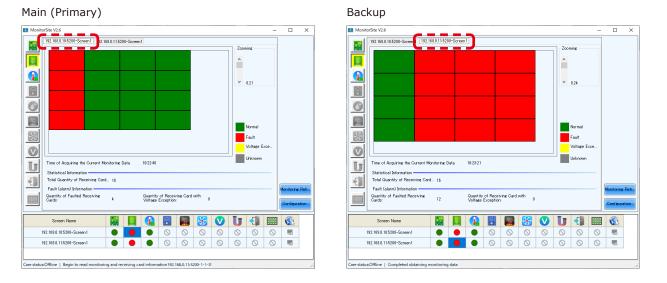
Monite											
	(192.168.0.165200-Spreen 1)	2.168.0.11-52	00-Screer						0.21 Normal		
0 U	Time of Acquiring the Curre Statistical Information Total Quantity of Receiving Earth (eleven) Information		Data	10:21:17					Fault Voltage E Unknown	 Manitorio	Dofe
	Statistical Information	Card 16	Data		of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

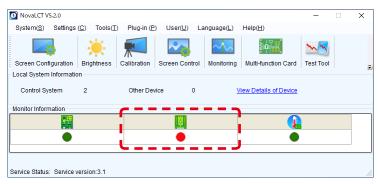




Modules connected to port 1 are operating as "Backup".



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

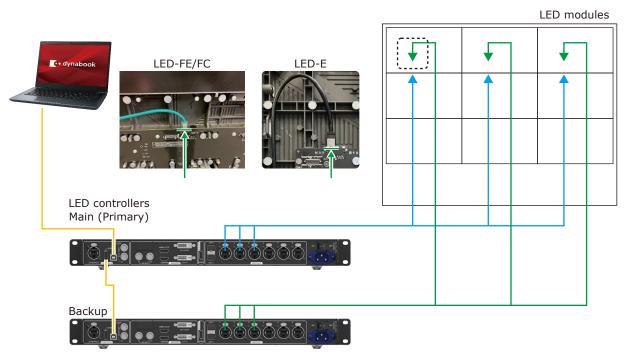
Lower: Main (Primary)



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.

g ouro	Deceiving Card	Screen	Connection							
Display Mo		Jureen	Connection							
								Refres	sh	
Current Di	splay Mode									
	Card 1920	x 1080(1	080P) G	raphics Outp	ut R 250	60 x 1600	Curre H	DMI		
Select Inpu	It Source									
Video In					3D F	unction				
🗌 Au	tomati	HDMI		✓ Send		Enable	Settings			
Source Co	nfiguration									
Source:	HDM	I	~							
Resolutio	on: 1920	x 1080 p	x v	Custor	n	2560 🗘	x 1600 🗘			
Refresh F	Rate T 60		~ H	z Input Sou	rce Bit De	8 Bit	~	_		
								Set		
	Verify									
	(Set as	Primary	[Set as Ba	ackup				
	cy urrent Devi	Set as	s Primary	[Set as Ba	Backup	0			
Set the C	cy urrent Devi	nary	Serial Nur Primary		Serial N Backup		Serial Nu	umber of	r	
Set the C	cy urrent Devi Prii erial Number o trimary Sending	nary	Serial Nur		Serial N Backup	Backup lumber of Sending	Serial Nu		f	
Set the C	cy urrent Devi Prii erial Number o trimary Sending	nary	Serial Nur		Serial N Backup	Backup lumber of Sending	Serial Nu		f	
Set the Ci	cy urrent Devi [Prii erial Number of rimary Sending Card	mary	Serial Nur		Serial N Backup	Backup lumber of Sending ard	Serial Nu Backu	ip Port		
S	cy urrent Devi [Prii erial Number of rimary Sending Card	nary	Serial Nur		Serial N Backup	Backup lumber of Sending	Serial Nu			
Set the Ci	cy urrent Devi [Prii erial Number of rimary Sending Card	mary	Serial Nur		Serial N Backup	Backup lumber of Sending ard	Serial Nu Backu	ip 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.

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

Screen Configuration-USB@Port_#0009.Hub_#0001		- [x c
Sending Card Receiving Card Screen Connection			
Screen1	Quantity o.		nfigur
Screen Type: Standard Screen	O Complex Screen		
Sending Card Number	Basic Information		^
	Coordinate: X: 0 Y: 0 Virtual Mo E Enabl Screen Ar 256	0 x 160	D
	Columns 3 Rows 3 ResetAll Hided Red V 👷 🧲 5		
Ethernet Port No.	1 2 3		
	Sending Card:1 Sending Card:1 Sending Card:1 Port:2 Port:3		
5 6 7 8	1 RedBing RedBing RedBing Cald3 Cald3 Cald3		
9 10 11 12	Widtl:480 Widtl:480 Sending Card:1 Sending Card:1		
13 14 15 16 ¥	Pott1 Pot2 Pot3 2 Receiving Receiving Receiving		
Receiving Card Size Width: 480 Apply to Entir	Cald:2 Cald:2 Cald:2 Widtl:480 Widtl:480 Widtl:480		
Height: 270 🖨 Apply to Entir	Sending Card:1 Sending Card:1 Sending Card:1 Polt:3		
Set Blank Apply to the current.	3 Rec <mark>S ing RecS ing RecS ing Card:1 Card:1 Card:1</mark>		
Quick Connection	Width:480 Width:480 Width:480		
길미드미			
티미리미			
الخط لمصف المخف المصد			~
Detect Communic Read the Number	Enable Mapping Load from File Save to File Read from I	HW Send	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".

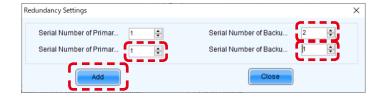
The Redundancy Settings screen is displayed.

Screen Configuration-USB@Port_#0009.Hub_#0001	-		×]					
Sending Card Receiving Card Screen Connection									
Display Mode	Refresh								
Current Display Mode									
Sending Card 1920 x 1080(1080P) Graphics Output R 2560 x 1600 Curre HE	IMC								
Select Input Source									
Video Input 3D Function									
Automati HDMI Send Enable Settings)								
Source Configuration									
Source: HDMI V									
Resolution: 1920 x 1080 px V Custom 2560 + x 1600 +				L I	edundancy Settings		· · · · · · · · · · · · · · · · · · ·		×
Refresh Rate T 60 V Hz Input Source Bit De 8 Bit V									_
	Set				Serial Number of Primar	1 韋	Serial Number of Backu	1 🜲	
					0				
Hot Backup Verification					Serial Number of Primar	1 븆	Serial Number of Backu	2	
Verify					Add		Close		
Redundancy					Add		Cluse		
Set the Current Devi Set as Primary Set as Backup				L L					
Primary Backup									
Serial Number of Serial Number of Serial Number of Backup Sending Backup Sending Backup Sending Backup									
Card Filmary Fort Card Backup									
Refresh Send Edit	Delete								
	Delete								
Restore Factor. Export Screen M. Save System Co. Save	e	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.

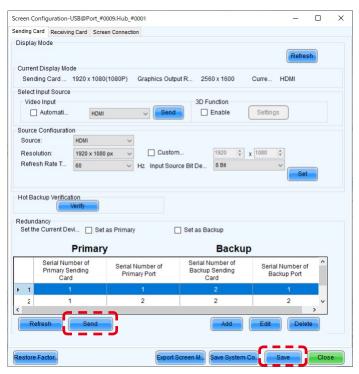
In the LED configuration example (English-71), the settings are as follows.

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.

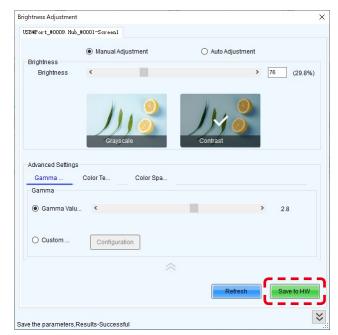


Check the current brightness setting.

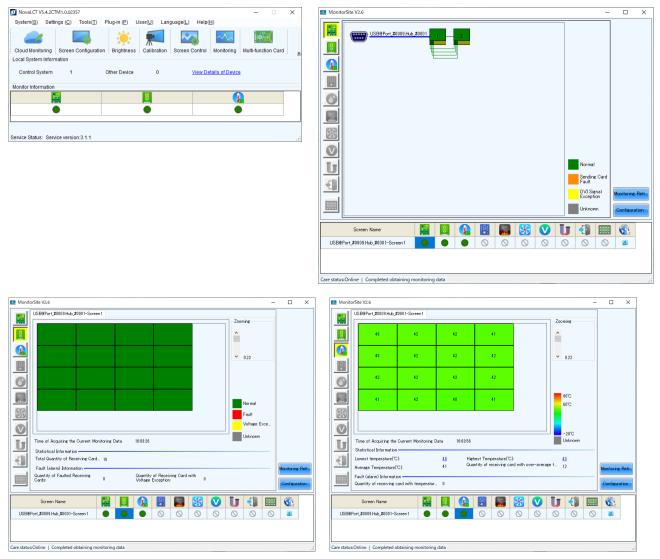
Click the "Brightness" button.

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





The monitoring screens appear like below.



English - 82

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

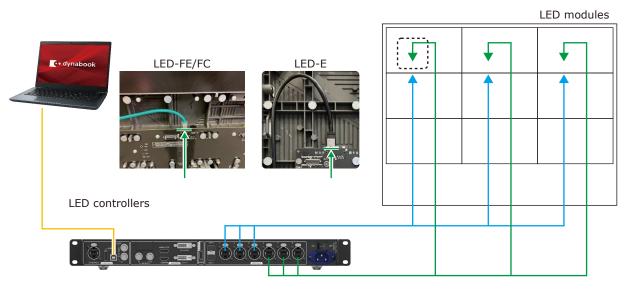
Lower: Main (Primary)



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> Settin <u>gs (C)</u> To <u>ol</u> s(T)	Plug-in (<u>P)</u> User(<u>U)</u> Lan	guage(<u>L)</u> Help(<u>H</u>)		
Cloud Monitoring Screen Configura		Screen Control Monitoring	Multi-function	Card 🗸
Local System Information	J			
Control System 1	Other Device 0	View Details of Devic	<u>;e</u>	
Monitor Information				
	<u>[9]</u>			
		I		
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".

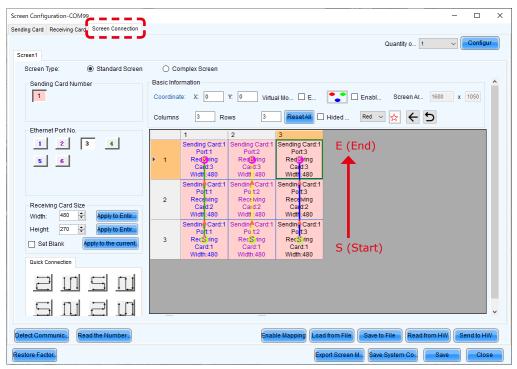
If the factory setting is correctly configured and the device connection is the same as when the factory setting was configured, check the settings without performing initialization.

		#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	80 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.

 \ast 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	_		×		
Sending Card Receiving Card Screen Connection					
Display Mode					
Current Display Mode Sending Card 1920 x 1080(1080P) Graphics Output R 2560 x 1600 Curre Select Input Source Video Input Automati HDM Send Enable Settin Source Configuration	Refresh . HDMI				
Source: HDMI Resolution: 1920 x 1080 px Custom 2560 x 1600	*				
	· ·			Redundancy Settings	×
Refresh Rate T 60 V Hz Input Source Bit De 8 Bit	Set			Serial Number of Primar 1	Serial Number of Backu 1
		-		Serial Number of Primar 1	Serial Number of Backu 2
Hot Backup Verification					
Verify				Add	Close
Redundancy Set the Current Devi Set as Primary Set as Backup					
Set the Current Devi Set as Primary Set as Backup					
Primary Backup					
	ial Number of Backup Port				
Refresh Send	Delete				
Restore Factor. Save System Co.	Save	Close			

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

In the LED configuration example (English-84), 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 Image: Serial Number of Backu Serial Number of Primar Image: Serial Number of Backu 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 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.

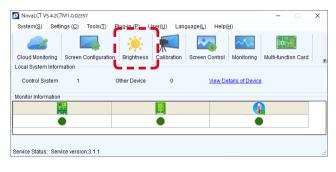
Click the "Save" button.

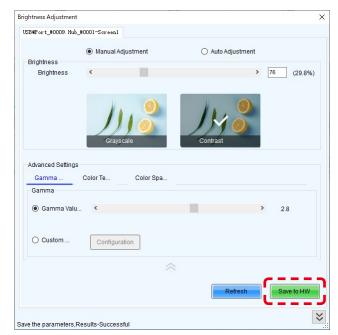
Screen Config	uration - 192. 168. 0. 10:	5200		- 🗆	×
Sending Card	Receiving Card Scre	en Connection			
- Display Mo				Refresh	
- Current Dis Sending	splay Mode Card 1920 x 1080	0(1080P) Graphics Out	put R 2560 x 1600	Curre HDMI	
Select Inpu Video In			3D Function		
🗌 Au	tomati	Send	Enable	Settings	
Source Co	nfiguration				
Source:	HDMI	~			
Resolutio Refresh F				(1080 🗘	
Reliestin	(ate I 60	 Hz Input Sol 	urce Bit De 8 Bit	Set	
Hot Backuj	Verification Verify				
Redundance					
Set the Ci	irrent Devi 🔲 Set	as Primary	Set as Backup		
	Primar	y	Backup)	
	erial Number of rimary Sending Card	Serial Number of Primary Port	Serial Number of Backup Sending Card	Serial Number of Backup Port	
► 1	1	1	1	5	
2	1	2	1	6 4	
Refres	h Send)	Add	Edit Delete	
Restore Fac	tor.	Export	Screen M Save System C	co. Save Close	

Check the current brightness setting.

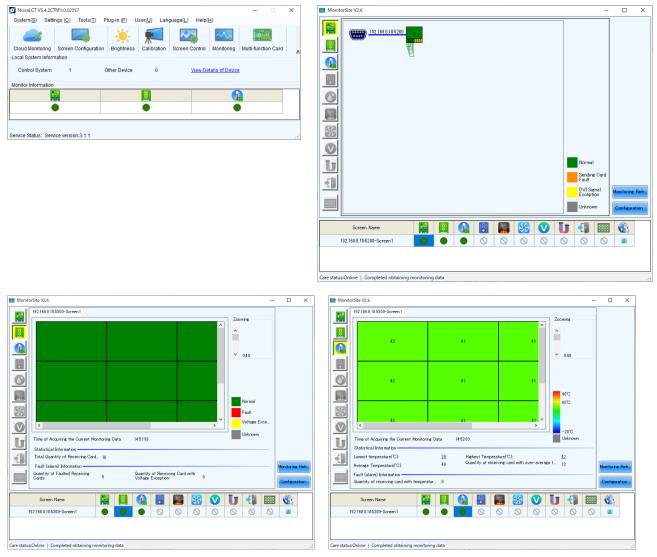
Click the "Brightness" button.

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





The monitoring screens appear like below.



English - 88

Specifications

Models for indoor use

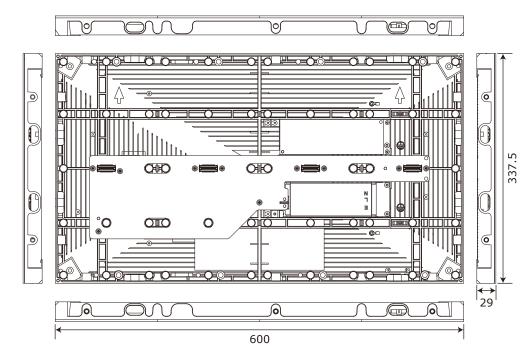
		LED-E012i	LED-E015i	LED-E018i	LED-E025i		
LED configuration		3-in-1 SMD					
Pixel pitch		1.25 mm	1.56 mm	1.88 mm	2.50 mm		
Number of display (resolution/modu		480 × 270	384 × 216	320 × 180	240 × 135		
Brightness		600 cd/m ²	600 cd/m ²	800 cd/m ²	1000 cd/m ²		
Contrast ratio		5000:1	4000:1	5000:1	7000:1		
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 than 5000 m				
Storage	Temperature		-20 to	9 45°C			
environment	Humidity		10% to 85% (with	out condensation)			

Specifications are subject to change without notice.

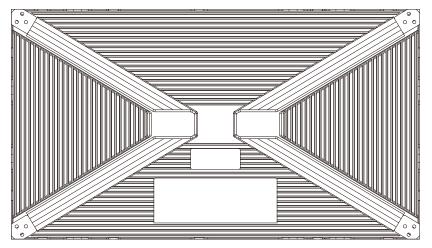
Models for indoor use

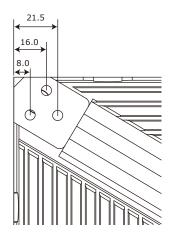
		LED-E012i-108/ LED-E012i-10N	LED-E015i-135/ LED-E015i-13N	LED-E018i-162/ LED-E018i-16N	LED-E025i-217/ LED-E025i-21N	LED-E012i-217/ LED-E012i-21N		
Module		LED-E012i 4x4	LED-E015i 5x5	LED-E018i 6x6	LED-E025i 8x8	LED-E012i 8x8		
LED configuration	n 3-in-1 SMD							
Pixel pitch		1.25 mm 1.56 mm 1.88 mm 2.50 mm 1.25 mr						
Number of displayed (resolution/module)	pixels	1920 × 1080 1920 × 1080 1920 × 1080 1920 × 1080 3840 × 210						
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 adjustme	nt range		0 to 1	100% (256 increm	ents)			
Gamma correction			1.0 to -	4.0 (default setting	g: 2.8)			
Color temperature			3000 K to 95	500 K (default setti	ng: 6500 K)			
Viewing angle		Up 80°, Down 80°, Up 70°, Down 70°, Up 70°, Down 70°, Up 70°, Down 70°, Up 80°, Down Left 85°, Right 85° Left 70°, Right 70° Left 70°, Right 70° Left 70°, Right 70° Left 85°, Right						
Signal interface S	ignal input	1 × RJ-45						
S	ignal output	1 × RJ-45						
Power supply		100 V AC to 240 V AC, 50 Hz/60 Hz						
Power consumption (all white, 100% bright	ghtness)	2000 W	3125 W	4500 W	8000 W	8000 W		
Ingress protection		Front IP 20 / Back IP 20						
Maintenance				Front				
Dimensions						4812 × 2806 × 50 mm		
Weight		91.2 kg	136.5 kg	196.2 kg	342.8 kg	342.8 kg		
	emperature	-20 to 40°C						
environment H	umidity		10% to 8	0% (without conde	ensation)			
A	ltitude		No	more than 5000	m			
	emperature			-20 to 45°C				
environment		10% to 85% (without condensation)						

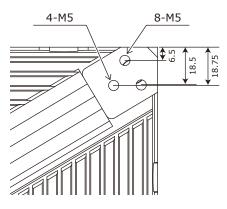
Diagram



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









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

