OWNER'S MANUAL

LG LED Signage

(LED SCREEN)

Please read the safety information carefully before using this product.
After reading this manual, keep it in an easily accessible location for future reference.

LCCM019-GN
PD-LCCMA

LCCM025-GN
PD-LCCMB

www.lg.com

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WARNING

- This equipment is compliant with Class B of CISPR 32. In a residential environment this equipment may cause radio interference.

SAFETY PRECAUTIONS

The Safety Precautions are intended to prevent unexpected danger or harm by helping the user to use the product safely and for its intended purpose.

⚠ WARNING

If you ignore the warning message, you may be seriously injured or there is a possibility of accident or death.

⚠ CAUTION

If you ignore the caution message, you may be slightly injured or the product may be damaged.

⚠ WARNING

This product cannot be installed outdoors. Only use the product indoors as installed by the installer.

Precautions for the AC Adapter and Power

⚠ WARNING

- Use only the power cord or AC adapter provided or approved by LG Electronics, Inc. If you use another power cord, make sure that it is certified by the national standards. If the power cable is faulty in any way, please contact the manufacturer or the nearest authorized service center for a replacement.
- Operate the display only from a power source (i.e. voltage) indicated in the product specification.
  - Otherwise the product can be damaged, fire can occur or you may be electrocuted. If you are not sure what type of power supply you have, consult a certified installation company.
- Make sure the power cord connect to a properly grounded outlet.
  - If you do not you may be electrocuted or injured or the product can be damaged.
- Insert the power plug or AC adapter firmly so it cannot come loose.
  - Poor connection may cause a fire or electric shock.
- In the presence of thunder and lightning, never touch the power cord and signal cable because it can be very dangerous.
  - It can cause electric shock.
- Be careful not to step or place heavy objects (electronic appliances, clothing, etc.) on the power cord or AC adapter. Additionally, do not bend or pull out the power cord or AC adapter with excessive force.
  - Damaged power cords may cause a fire or electric shock.
- Do not connect power cord or AC adapter damaged with sharp objects to power outlet.
  - You may be electrocuted.
- Do not insert a conductor (like a metal chopstick) into one end of the power cord while the other end is connected to the input terminal on the wall. Additionally, do not touch the power cord right after unplugged.
  - You may be electrocuted.
- Do not use with a multi-outlet connected by many electrical product and heating devices. Use an exclusive multi-outlet with a grounding terminal.
  - A fire can break out due to overheating.
- If water or any foreign substance goes inside the product, disconnect the power cord immediately and contact the service center.
- Otherwise, this may cause a fire or electric shock due to damage to the product.
- Keep the power cord or AC adapter away from any heating devices.
- The cord coating may melt and cause fire or electric shock.
- Never disassemble, repair or modify the power cord or AC adapter.
- This may cause a fire or electric shock.
- Please make sure the main power cutoff device is power cord and the product is installed near the wall outlet that is easily accessible.
- As long as this unit is connected to the AC wall outlet, it is not disconnected from the AC power source even if the unit is turned off.
- Power consumption will be ‘0’ only when the power plug is unplugged.
- Use an appliance coupler as a disconnect device.

⚠ CAUTION

- If the outlet, pins of the power plug, or AC adapter is covered with dust, be sure wipe and keep clean.
  - Overheating due to layers of dust may cause a fire or electric shock.
- If the outlet, pins of the power plug, or AC adapter is covered with water, be sure wipe and keep clean. Additionally, Do not touch the power plug or AC adapter with wet hands.
  - This may cause an electric shock.
- Do not turn the product on or off by plugging in or unplugging the power plug from the power outlet. It means do not use the power plug as a switch.
  - This may cause an electric shock or product malfunction.
- Do not unplug the power cord while the product is in use.
  - Electrical shock can damage the product.

Precautions for Moving the Product

⚠ WARNING

- Contact the service center before moving the product.
  - It may cause electric shock and damage the product.
- Make sure the product is turned off, unplugged, and all cables have been removed before the product is moved.
  - You may be electrocuted or the product can be damaged.
- When moving the product, Do not shock the product and impact on the front panel of the product.
  - You may be electrocuted or the product can be damaged.
- Comply with the number of people according to weight of product. (Under 25 kg per person, use the equipment when exceed 100 kg)
  - If use the damaged product again, contact the service center because it can cause electric shock or fire.
- Do not hold it upside down while holding only the stand. (It is for stand supported models only.)
  - This may cause stand warping, panel damage and other types of product damage.

⚠ CAUTION

- Do not dispose the product-packing box. It may be used put the product in the box when carrying it.

Precautions for Installing the Product

⚠ WARNING

- Contact the service center before installing the product.
  - It can cause electric shock and damage the product.
- Do not drop an object on or impact on the product. Keep out of reach of children and do not place toys or objects near the product to prevent throwing things on the product screen.
  - It can cause injury to human, problem to product and damage the display.
- Do not put heavy objects on, or hang from, the product.
  - If the product collapses or is dropped, you may be injured.
- Do not touch the surface of product to overheat.
  - It can cause injury to human.
- Install the product firmly fixed on a floor, wall, etc. to prepare against external impact such as wind and earthquake.
  - You must refer to the manual provided.
- Prevent Children from climbing or hanging on the product.
  - If the product collapses or is dropped, you may be injured.
- Do not install it where there are heating devices such as electrical heaters or lighting equipment.
  - Fire, electrical shock, malfunction may occur.
- Do not install this product by yourself as you may injure yourself or cause damage to product. Please contact service engineer authorized by service center.
- Do not install this product on a wall if it could be exposed to oil or oil mist.
  - This may damage the product and cause it to fall.
- Do not leave the power or signal cable, etc. on the pathway.
  - This could cause a trip or fall, which can be caused electrical shock, fire, product breakdown, or injury.
- Do not let the product drop when connecting it to an external device connected with a short cable.
  - This may cause injury and damage to the product.
- If you dropped the product or the case is broken, turn off the product and unplug the power cord and contact the service center.
  - If you continue to use without taking proper measures, electrical shock or fire can occur.
- Install the product in a dry place where it is not near dust and water. Avoid high temperatures and humidity.
  - This may cause electrical shock, fire or product damage.
- Safely install the product in a place that can hold the weight of the product.
  - A lack of strength may cause the product to fall.
- Take a comfortable and natural position to relax the muscles when working with a product.
- Caution to prevent damage to the LED from static. Do not touch the product without anti-static gloves.

⚠ CAUTION

- Install the product where no Electromagnetic Interference occurs.
- If you install the product in a place that does not meet the recommended conditions, this may cause serious damage to the product's picture quality, life cycle, and appearance. Please check with service engineer before installing. Please do not install the product in places such as where there is an abundance of fine dust or oil mist, chemical substances are used, exposed to direct sunlight, the temperature is very high or low, the humidity is very high.
- Make sure the product is well ventilated by Installing at a distance (100 mm or more) from the wall.
  - If you install the product too close to the wall, it may be deformed or fire can break out due to internal heat buildup.
- Do not cover the product with tablecloth or curtain or other material (eg. plastic) while plugged in to block the ventilation hole of the product.
  - The product can be deformed or fire can break out due to overheating inside the product.
- Do not install the product in an area with poor ventilation (e.g. on a bookshelf, in a closet) or outside and avoid placing on cushions or carpets.
  - The product could catch fire due to overheating inside the product.
- Install the product on a flat and stable place that is large enough to support the product.
  - If the product is dropped, you may be injured or the product may be broken.
- When installing the product on a shelf or cabinet, make sure that the bottom end of the product is not protruding forward.
  - The product may fall due to unbalanced center of gravity, which may cause personal injury or damage to the product. Be sure to use cabinets or shelves that fit your product.

Precautions for Cleaning the Product

⚠ WARNING

- Keep the product clean at all times.
  - If you don’t clean the unit for a long time and it becomes covered in dust, it can cause fire or product damage.
- When you need to clean the inside of the product, you must contact the service center.
  - Otherwise, cleaning without support may cause a fire, electric shock, or damage to the product.
- When cleaning the product, unplug the power cord and wipe gently with a soft cloth to prevent scratching.
  - An electric shock may occur or damage to the screen as get a scratch.
- When you want to clean the front frame, spray water onto a soft cloth 2 to 4 times and wipe in one direction only.
  - Too much moisture may cause staining.
- Do not physically come in contact with the screen of the LED Package.
  - This may cause damage to the product.
- To clean the product, use an air gun to lightly remove dust from the front frame and the screen.
  - If there are foreign substances in between the LEDs on the screen, it may cause a defect in the screen.

⚠ CAUTION

- When cleaning the product or the screen, unplug the power cord and wipe it gently with a soft cloth. Do not spray water or other liquids directly on the product. Especially, do not clean your product with chemicals including glass cleaner, any type of air freshener, insecticide, lubricants, wax (car, industrial), abrasive, thinner, benzene, alcohol, etc., which can damage the product or its panel.
  - This may result in fire, electric shock or product damage (deformation, corrosion or breakage).

Precautions for Using the Product

⚠ WARNING

- Do not use the product in any environment with excessively high temperatures or humidity.
- If you use the product for a long period of time, take a rest from time to time to protect your vision.
  - Extended viewing could result in impaired vision.
- Listening at high volume or using for a long time can cause damage to your hearing.
- In the event that liquid or a foreign object falls into the product, please switch it off and unplug it from the wall outlet and contact the service center.
  - Otherwise, the product may cause fire or electric shock.
- In the event that no image appears on the screen or no sound is heard, stop using the product. Switch it off immediately, unplug it from the power outlet and contact the service center.
  - Otherwise, the product may cause fire or electric shock.
- Do not drop an object or impact on the product or screen.
  - It can cause injury to human, problem to product and damage the screen.
- If you can smell smoke or other odors or hear a strange sound, unplug the power cord and contact the service center.
  - If you continue to use the product without taking proper measures, it may cause electrical shock or fire.
- Do not attempt to disassemble, repair or modify the product yourself. Please contact service center if you need to repair it.
  - Fire or electric shock can occur.
- Do not place objects filled with liquids, such as vases, cups, etc. on over of the product to prevent liquid from entering the product.
  - Failure to do so may result in fire, electric shock, malfunction or deformation.
- Do not push hard on or scratch the product's surface with your hands or sharp objects, such as nails, pencils or pens. Do not shock or scratch the front and sides of the screen with metallic objects.
  - This may damage the products and cause it to malfunction.
- Do not touch the product if it has been exposed to sunlight or an intense light because it could be hot.
- Do not use high voltage electrical goods near the product (e.g., a bug zapper).
- This may result in product malfunction if it receives an electrical shock.
- If there is a gas leak, do not touch the outlet, and open the windows for ventilation.
- Otherwise, the product may cause fire or electric shock.
- If you dropped the product or the case is broken, turn off the product and unplug the power cord.
- If you continue to use without taking proper measures, electrical shock or fire can occur. Contact the service center.
- Keep small accessories out of the reach of children.
- If a child swallows it, consult a doctor immediately.
- Keep out of reach of children from the product. Also, do not throw toys or objects to the product or screen.
- It can cause injury to human, problem to product and damage the screen.
- All the power sources must be disconnected by removing the power cables to remove all power from the unit.

⚠ CAUTION

- This panel is an advanced product that contains millions of pixels. You may occasionally see pixel spots when viewing the screen. Since these deactivated pixels are not a defect, the performance and reliability of the product is not affected.
- Do not put or store inflammable substances near the product.
  - There is a danger of explosion or fire.
- Keep the proper distance from the product.
  - It can cause damage to your vision if you look at the product too closely.
- Set the appropriate resolution and frequency by products.
  - It can cause damage to your vision.
- Take a regular break when working with the product for a long time.

Precautions for Using the Remote control

⚠ WARNING

- Avoid places with high humidity.
  - It may cause electrical shock or damage the product.
- Do not expose batteries to excessive heat, such as direct sunlight, open fireplace, and electric heaters.
  - It may cause fire and you may be injured.
- Make sure that children do not swallow the remote control batteries when you replace them. Keep batteries out of reach of children.
  - If a child swallows a battery, consult a doctor immediately.
- Do not dispose of batteries in a fire.
  - Please dispose batteries at a local recycling center or a retail store that handles batteries.
- Used batteries, which include rechargeable batteries, should be recycled separately from waste.
  - Please dispose used batteries and rechargeable batteries at a local recycling center or a retail store that handles batteries.

⚠ CAUTION

- Do not short circuit and disassemble of batteries.
  - It may cause electrical shock or fire.
- The remote control may not function properly in sunlight or under a strong lamp. Move the product if it is being used in these conditions.
- Check if there is any obstacle between the product and the remote control.
- Do not mix new batteries with old batteries.
  - Overheating or leaking batteries may cause fire or electric shock.
- Only use the specified type of battery. Do not insert batteries that are not rechargeable into the charger.
  - Overheating or leaking batteries may cause fire or electric shock.

Precautions for Experiencing Image Retention

- Displaying a still image for a prolonged period of time may cause damage to the screen, resulting in image retention. Most third-party products have the same issue. The resulting damage is not covered by the product warranty.
  - Use a screen saver when using the monitor for a prolonged period of time.

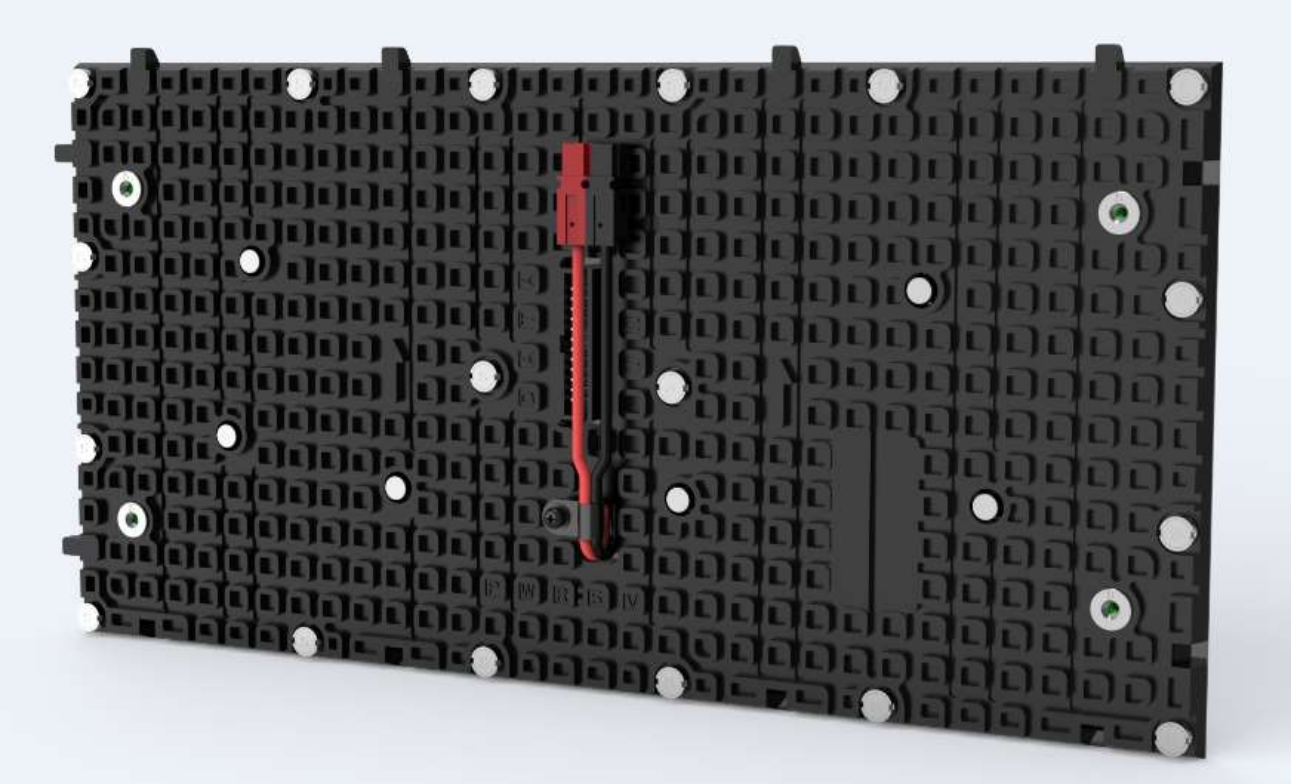
Product Disposal

- Do not dispose of this product with general household waste.
- Disposal of this product must be carried out in accordance to the regulations of your local authority.

1. Product Overview

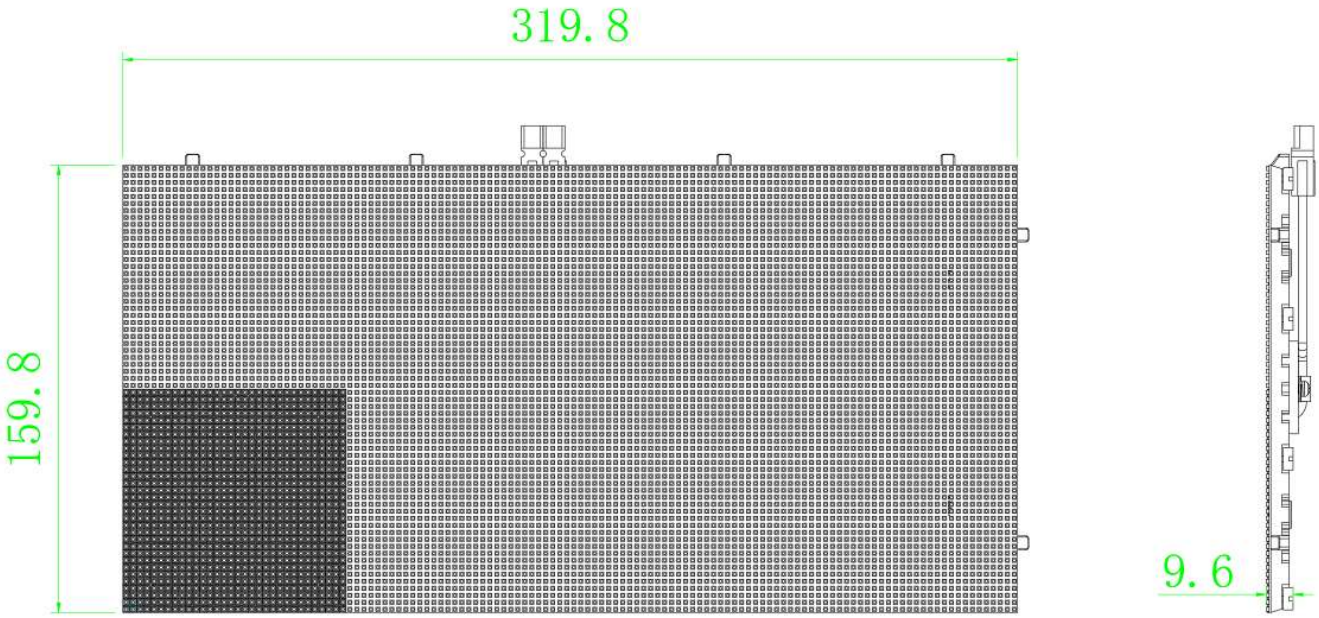
1.1 Features

LCCM Series are the smart solutions for creative applications.
LGE LCCM series features with special soft but durable PCBs, which are highly flexible and allow you to create convex and concave curved displays.
LCCM panels are super lightweight and quite easy to assemble with no tools required, and the advanced magnetic system enables easy front accessibility and maintenance.
Stacking and hanging system optional, it is a perfect solution to adapt to different structures and environments.

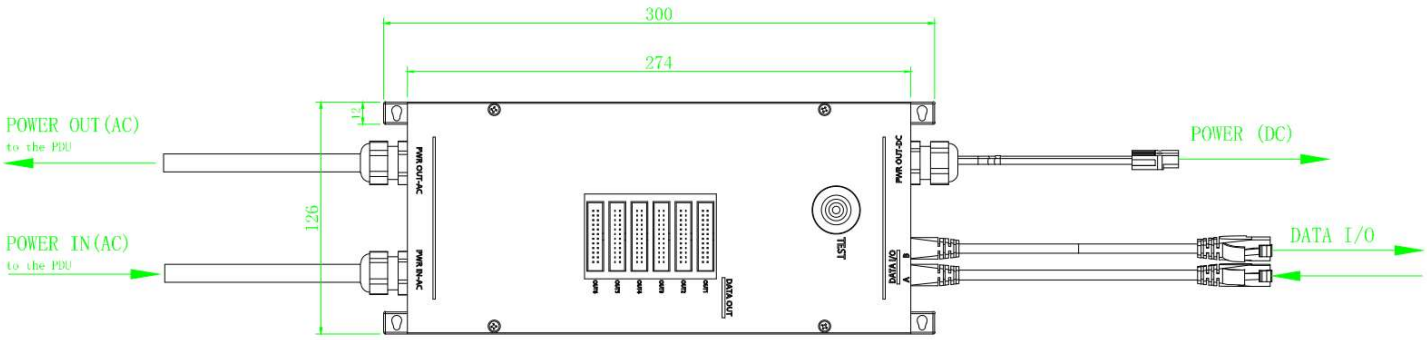


1.2 Dimensions

A. LCCM019-GN / LCCM025-GN



B. PD-LCCMA / PD-LCCMB



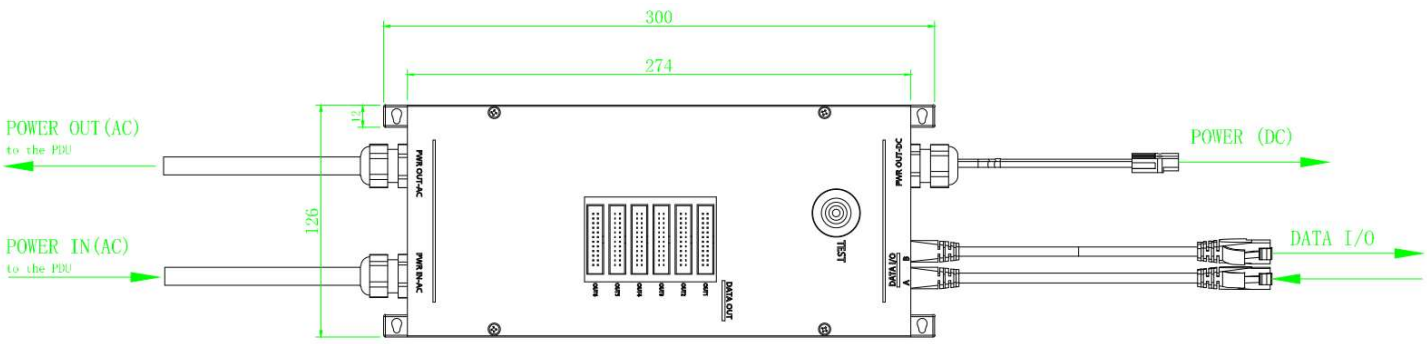
(All dimensions are in millimetres)

1.3 PDU Specification (PD-LCCMA / PD-LCCMB)

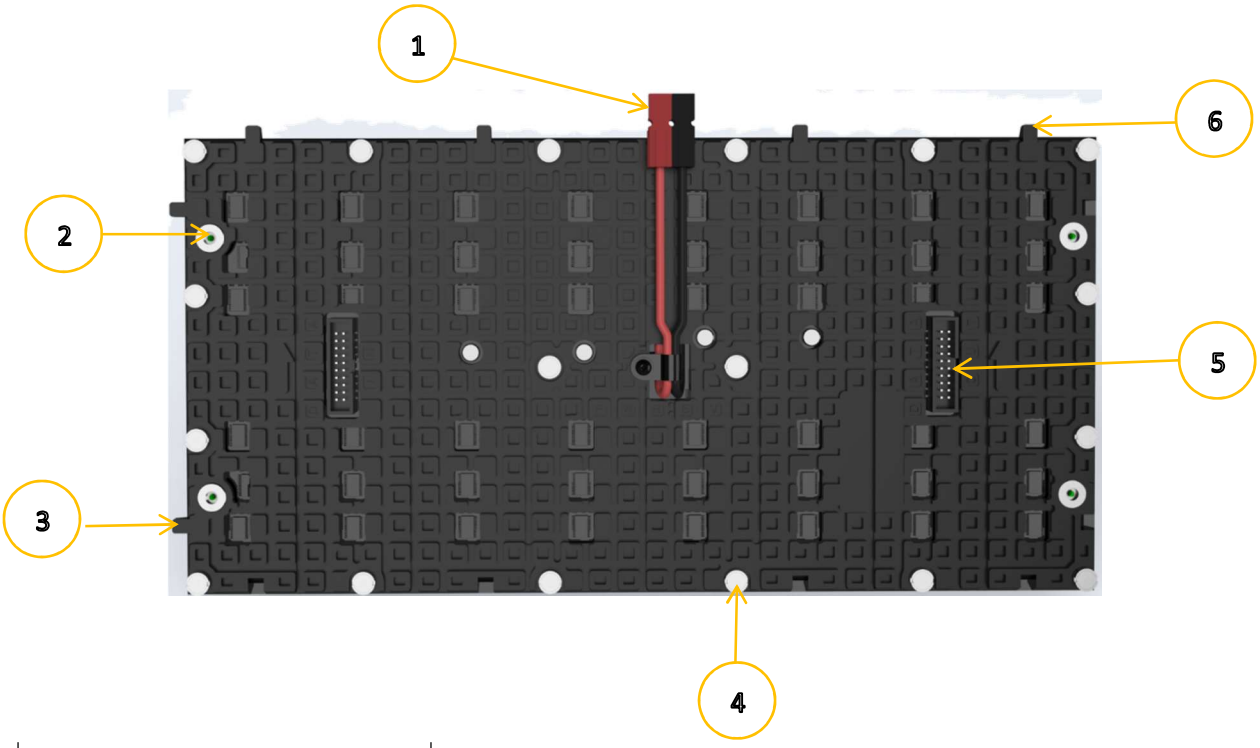
Two different PDU models are used for the different LCCM Series models. The LCCM panel with a pixel pitch of 1.9 mm is supported by a dissimilar PDU than the other model (pixel pitch 2.5mm). The 1.9 PDU (PD-LCCMA) has two Power and four Data output to connect the LED modules, the 2.5 PDU (PD-LCCMB) has four Power and six Data outputs. The difference specifications are compare in the following table.

	PD-LCCMA (P1.9)	PD-LCCMB (P2.5)
POWER		
Input	1	1
Output AC (to the next PDU)	1	1
Output DC (to the modules)	3	3
DATA		
Main Data Supply (I/O)	1	1
Output (PDU loop)	1	1
Output (to the modules)	6	6

It’s important that the LED module is linked with the correct PDU, due to the Receiver card and Power supply specifications. An incorrect interlink could cause a faulty video presentation or even damage to the components. Within the following slides is explained, how to connect and operate the components properly.



1.4 External Component



Pos.	Name	Note
1	Power connection	DC Power interlink to the PDU
2	Mounting point	Mounting point with internal M3 thread (4x)
3	Horizontal position pin	Rubber pin for an easy alignment
4	Magnet	Magnetic connection with installation structure (18x)
5	Data socket	Socket for data input
6	Vertical position pin	Rubber pin for an easy alignment

1.5 Other Components

The LCCM series features apart from the standard main power and data cables different cables to interlink the PDU with the LED panels.
Customized power cables provide a proper connection with the best power distribution for each PDU output port. The power cables feature one power input plug and two or three power output plugs. Due to that system it is ensured, that the provided power is optimal distributed and used.

Main Power and Data cable

Power and Data interlink cable (PDU – Module)

1.6 Package

Pack the cabinets in LCCM Series flight case for transportation. This will provide protection against the physical damage during transportation or storage. Ensure all flight cases are transported or stored in upright position.
To reduce the impact of vibration in transit, please package the cabinets using the EPE foam provided.

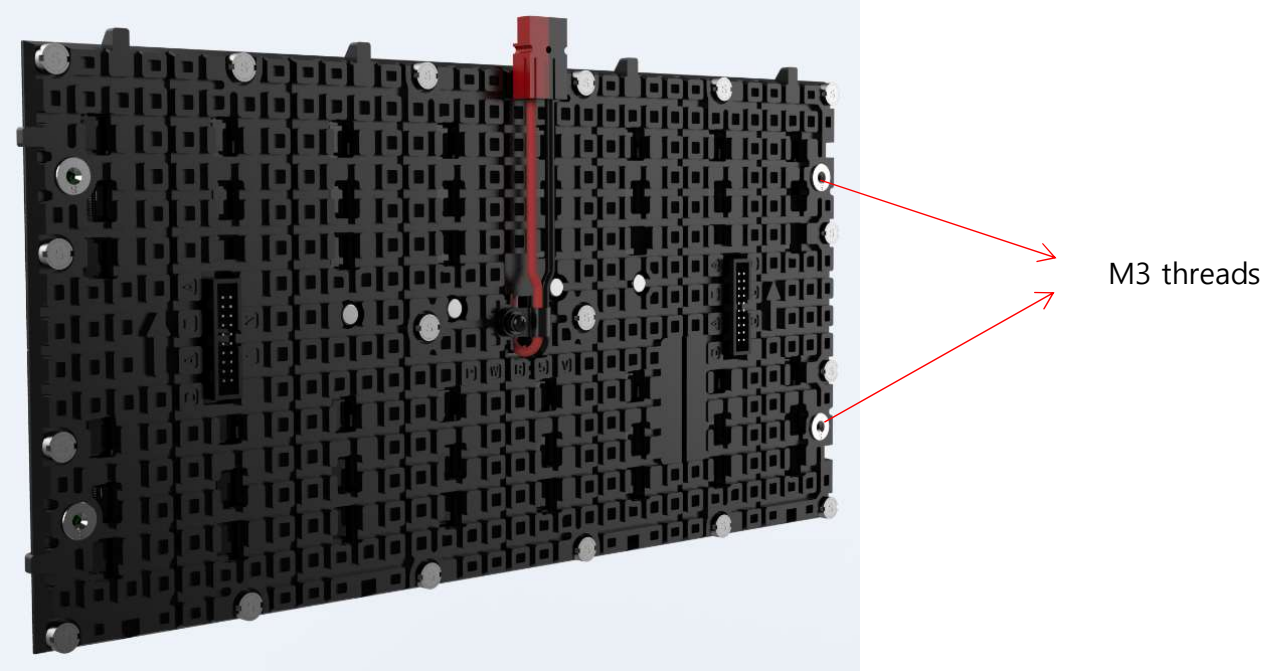
Any damage sustained by incorrect packaging or storage is not within the scope of warranty.

Notifications for packing and storage:

- Always dry the panels before packing or storage
- Make sure the cabinet or flight case doesn’t show any signs of damage
- Look the case as soon as all cabinets, which need to be stored, are inside
- When the cases are stacked, make sure the wheels are looked and in the wheel recesses of the case below
- Carry the flight case by an suitable forklift and take safeguard procedures to avoid injury if necessary
- Prior to normal operation, please allow long- term stored displays two hours of warming at 50% brightness, followed by two hours of warming at 100% brightness level

2. Mechanical Installation

Each panel of the LCCM series features recessed magnets, which provide a strong mechanical connection to the metal installation structure.
Due to the extreme flexibility of the panels, convex and concave screen solutions and even complex installations are possible. Modify the metal structure individual after your project conception.
Simply align the panels to the magnetic installation structure and they will safely stick to it. The position pins on top and left side assist in the correct positioning for flat and smooth screen assembling. Ensure that the panel is in the desired position before releasing it.



The LCCM modules can also be fastened for a fixed installation. M3 threads are featured on the left and right backside of each module. If a fixed solution is desired or the modules need to be secured because of the extraordinary screen shape, use M3 bolts to fasten the modules tightly to the installation structure.
Be aware that the LED modules and PDUs are separated. Ensure that there is enough space and appropriate mounting points on the installation equipment.

3. Power and Data Connection

3.1 Electrical Components

Power cables

The following cables are used for the cabinets of the LCCM series:

Neutrik/ PowerCON connector

Data cables

RJ45 data cable

Power	**Data**
AC power starter cables	Cat5e/ Cat6e data starter cables
AC power inter-connector cables	Cat5e/ Cat6e data interlink cables
DC power module interlink cables	Flat module interlink cable

The operating power source must be 100- 240V, 50/ 60 Hz. One main power cable (3 x 2,5 mm²) for **LCCM019** can support a **maximum of 19 PDUs at 220V** and 9 PDUs at 110V; for **LCCM025**, can support **a maximum of 16 PDUs at 220V** and 8 PDUs at 110V. Ensure that no more cabinets are supported by one power source.

Data should be routed to ensure connection between all panels in a single chain up to the maximum output of the processor connection port. It is recommended that the data interlink begins in one corner of the display. These are usually 10m Cat5e cables with Neutrik PowerCON connectors and can be up to a maximum of 100m. For connections beyond 100m distance a fibre connection is required.

The **maximum amount of rigged PDUs** from one main data output depends on the PDU specification, LED- modules pixel pitch and frequency. **One main data output can load 650 Thousand pixels**, and one standard 4 port controller can support 2.3 Million pixels. (Example LGE LCIN007 Controller)

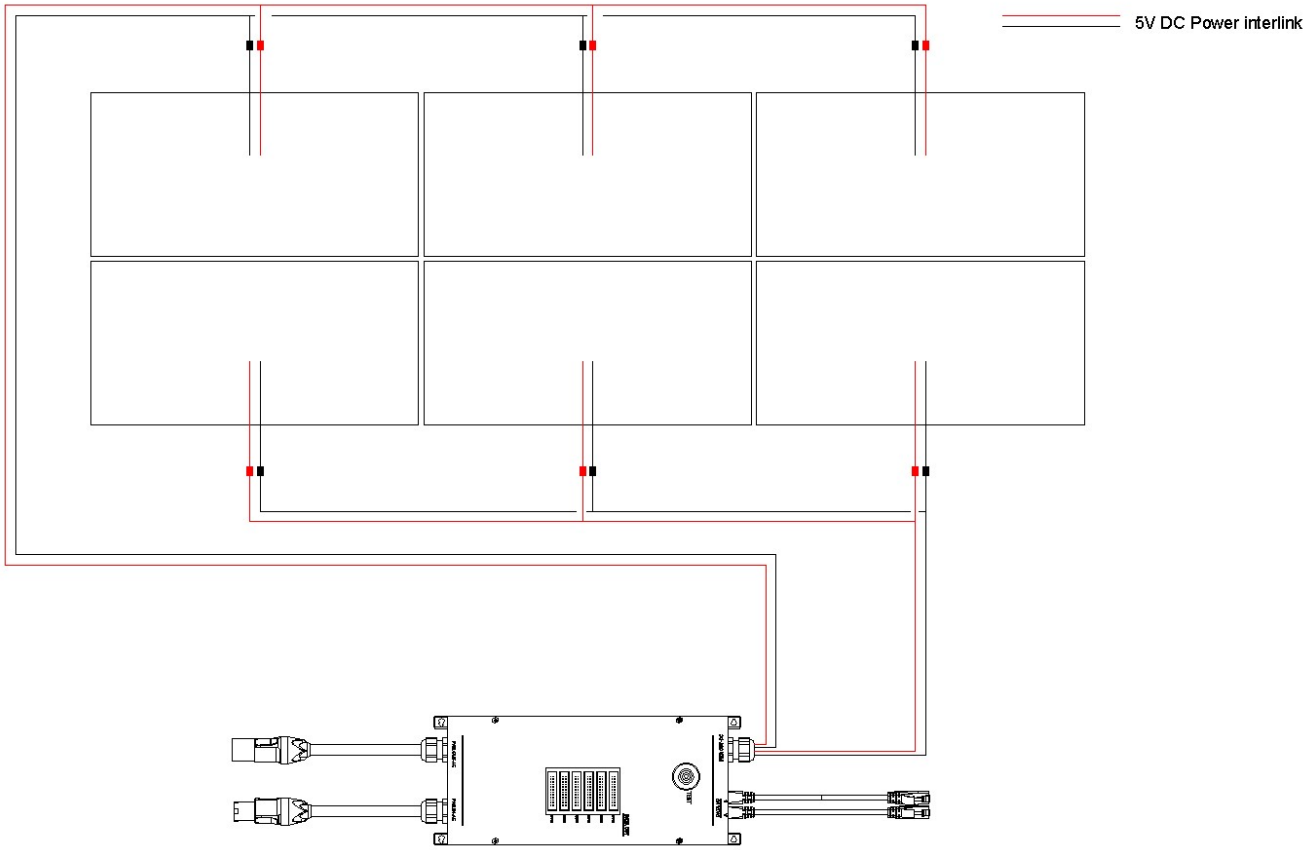
Model	LCCM019-GN PD-LCCMA	LCCM025-GN PD-LCCMB
Panel Resolution	168 x 84	128 x 64
Supplied PDU of one data cable	11	13
Controller LCIN007	40	46

3.2 Power and Data Link

As mentioned before, there are different power interlink cables available (2in1 and 3in1). The main power and data cables are common Neutrik power and Ethernet data cables.
It depends on the pixel pitch, how many panels can be supported by one PDU and therefore how the interlink between PDU and panels is applied. Every PDU has one main power input and output port, as well as two main Ethernet ports to interlink the PDUs. Refer to **1.3 PDU Specification** for more precise information about the different PDUs.

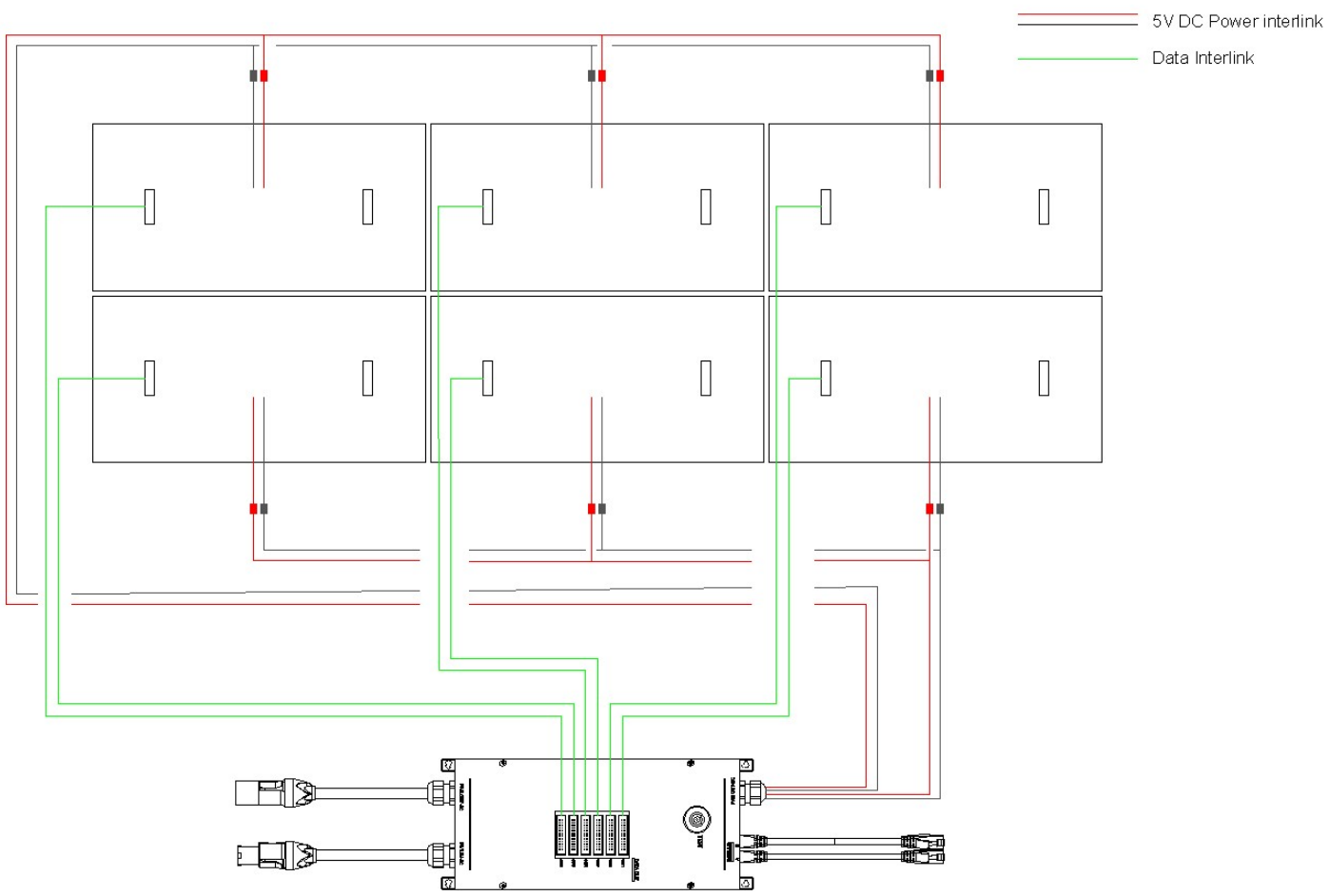
3.2.1.1 PD-LCCMA(P1.9) and Module Interlink

The PD-LCCMA model has **two power outputs** for the interlink to the modules. Each power output can be extended by a 3in1 power cable, which leads to a **maximum power connection of six modules** in total.



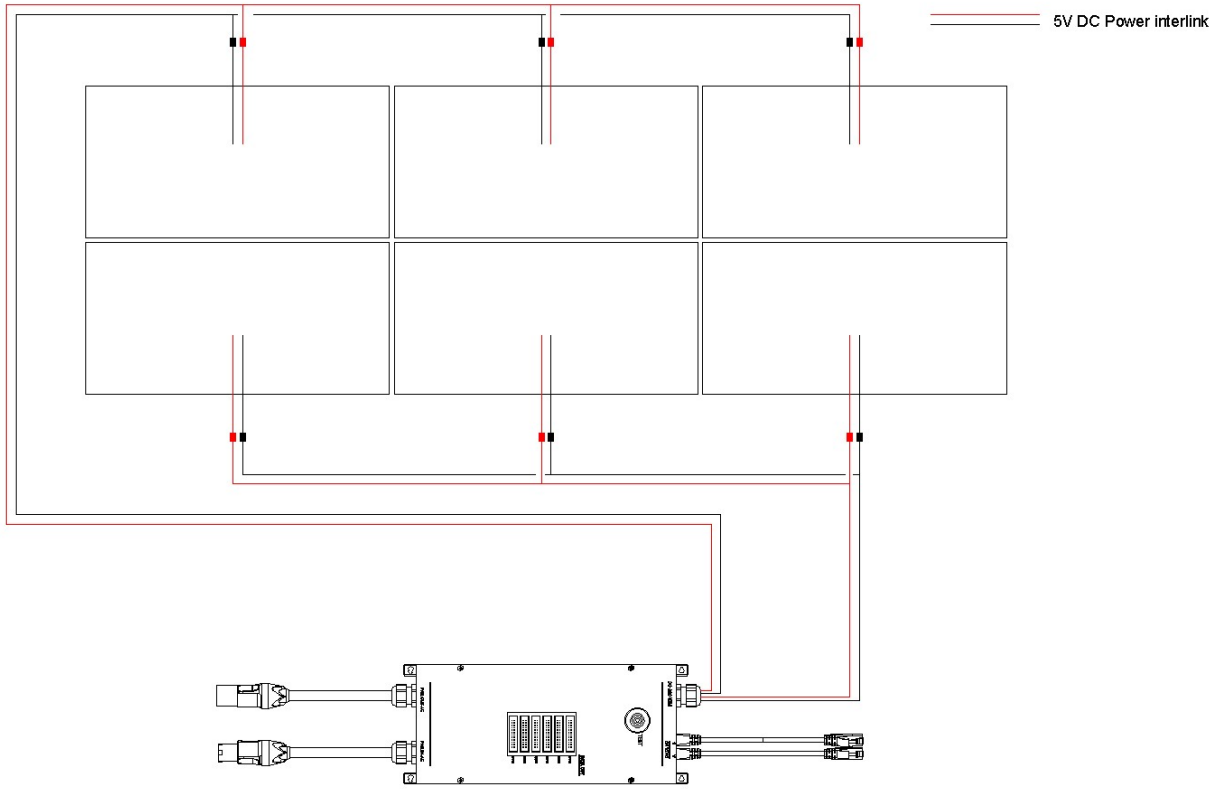
3.2.1.2 PD-LCCMA(P1.9) and Module Data Interlink

The PD-LCCMA features **six data outputs** in the middle of the PDU for the module data supply. Each output will support exactly one LED module.



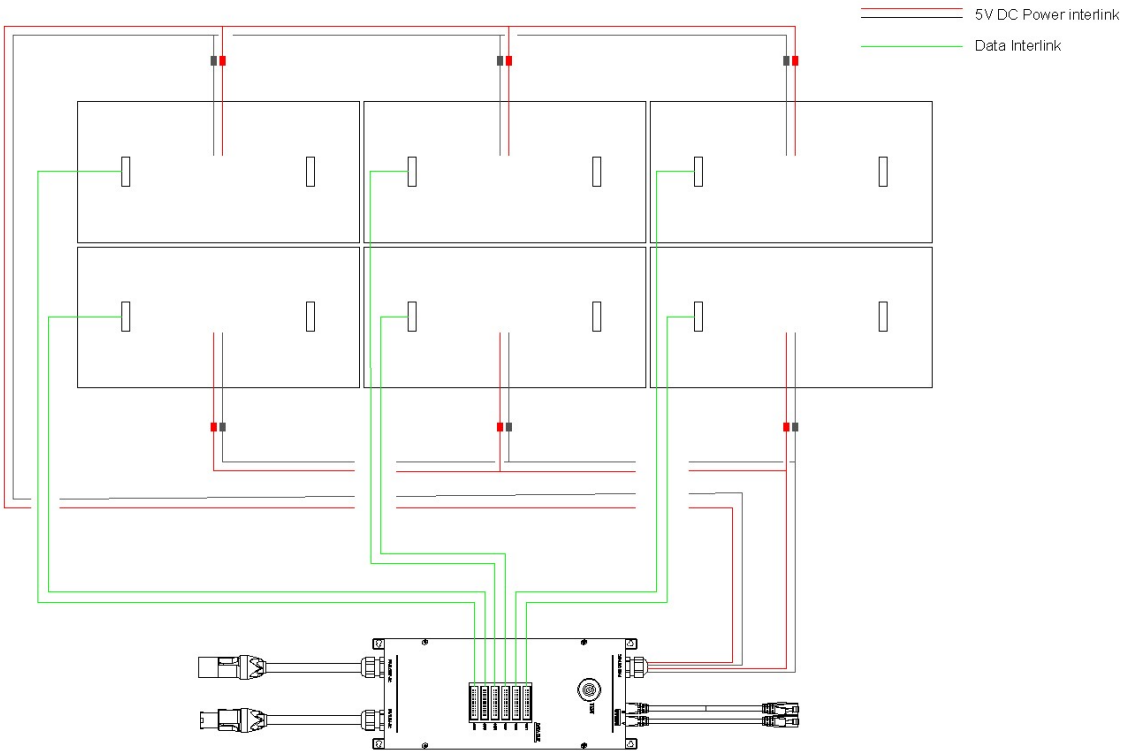
3.3.2.1 PD-LCCMB (P2.5) and Module Interlink

The PD-LCCMB model features two power supply units, which means more LED panels could be connected to one PDU. This PDU has two **power outputs** located on the top for the interlink to the modules. Each power output can be extended by a 3in1 power cable. **A maximum of six LCCM025 modules can be supplied with power**. It is recommended, to use the 3in1 extension cable to disperse the power consumption on three power outputs.



3.3.2.2 PD-LCCMB(P2.5) and Module Data Interlink

The PDU features **six data outputs** for the module data supply. Each data output connects exactly one LED module. More modules can’t be supported due to the small pixel pitch and the high resolution.



4. Software

4.1 Controller

The controller connects the Computer/ Software with the LED- panel. A high- performance controller from LGE is recommended for the best picture quality.
It’s important, that the controller is suitable for the LED- application. Ensure, that the controller can cover the quantity of pixels needed.
As an example, the LEG LCIN007 controller is described in more detail in the following section.

The front interface can be used to setup simple main configurations of the LED- wall and modify the colour settings.
More detailed configurations and setups can be performed with the software.

Connections:

Output:	4 x RJ45 HDMI- Loop DVI- Loop	Control:	RJ45 USB IN/OUT
Input:	single- link DVI/ HDMI Audio 3,5 Klinke HDMI	Power supply:	AC 100- 240 V 50 – 60 Hz

4.2 Hardware Connection

The data communication between the computer and sender board is enabled with USB or LAN connection. The sender board is connected via RJ45 cables to the LED- panel.
Ensure, that the plugs are connected correctly.

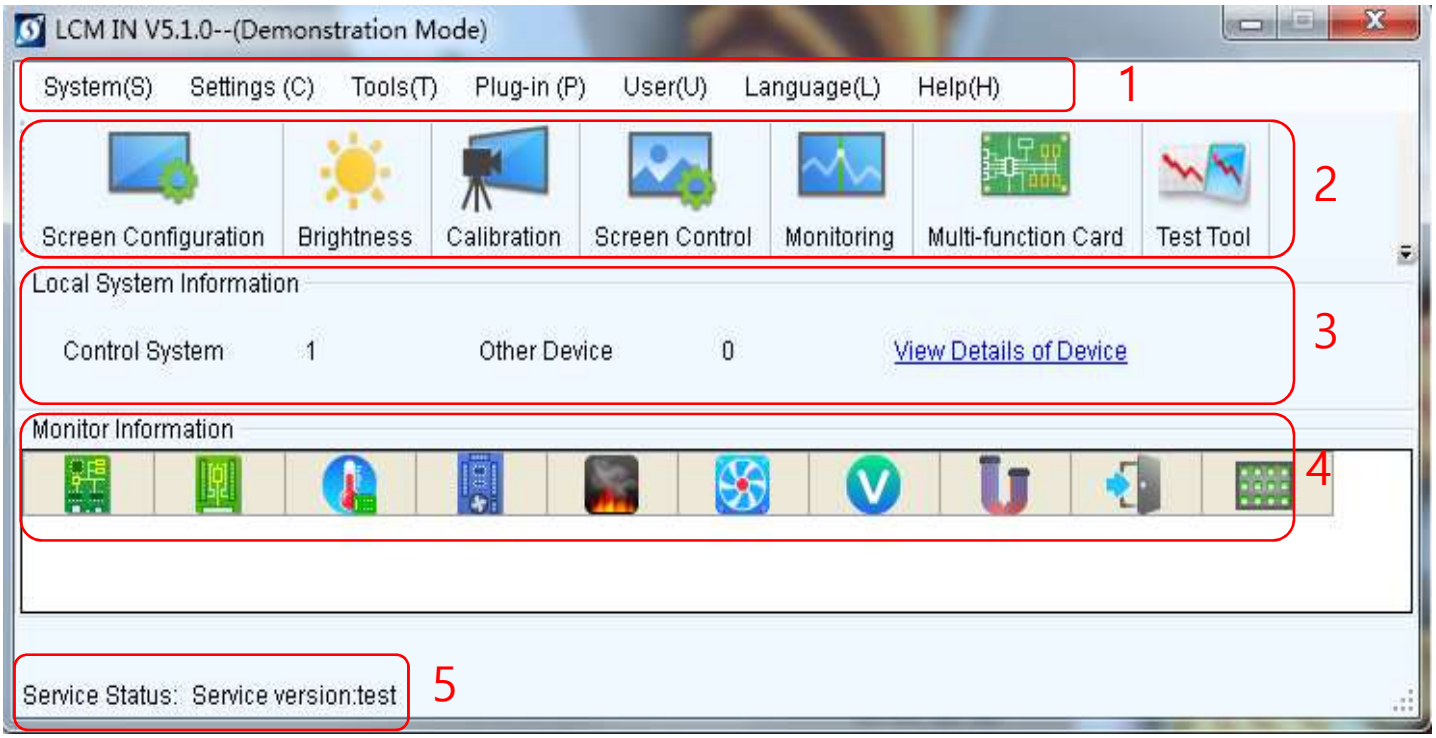
A USB- driver is needed for the data communication, which is already installed on the computer system or is included in the Nova software. Install the driver if necessary.
The communication between the controller and LED- panel begins immediately after the Nova software starts running.
A video processor (yellow line) can be used optional. The red line shows the basic but necessary connection between the software and LED- panel.

4.3 Software Introduction

This chapter informs shortly about the LGE software, its setup and operation.
For more detailed information about using the software and run the desired content, please refer to the LGE user manual.

Software installation
Alternatively, insert the USB disk received with the processor into the PC, click setup file to install the LCM IN software.

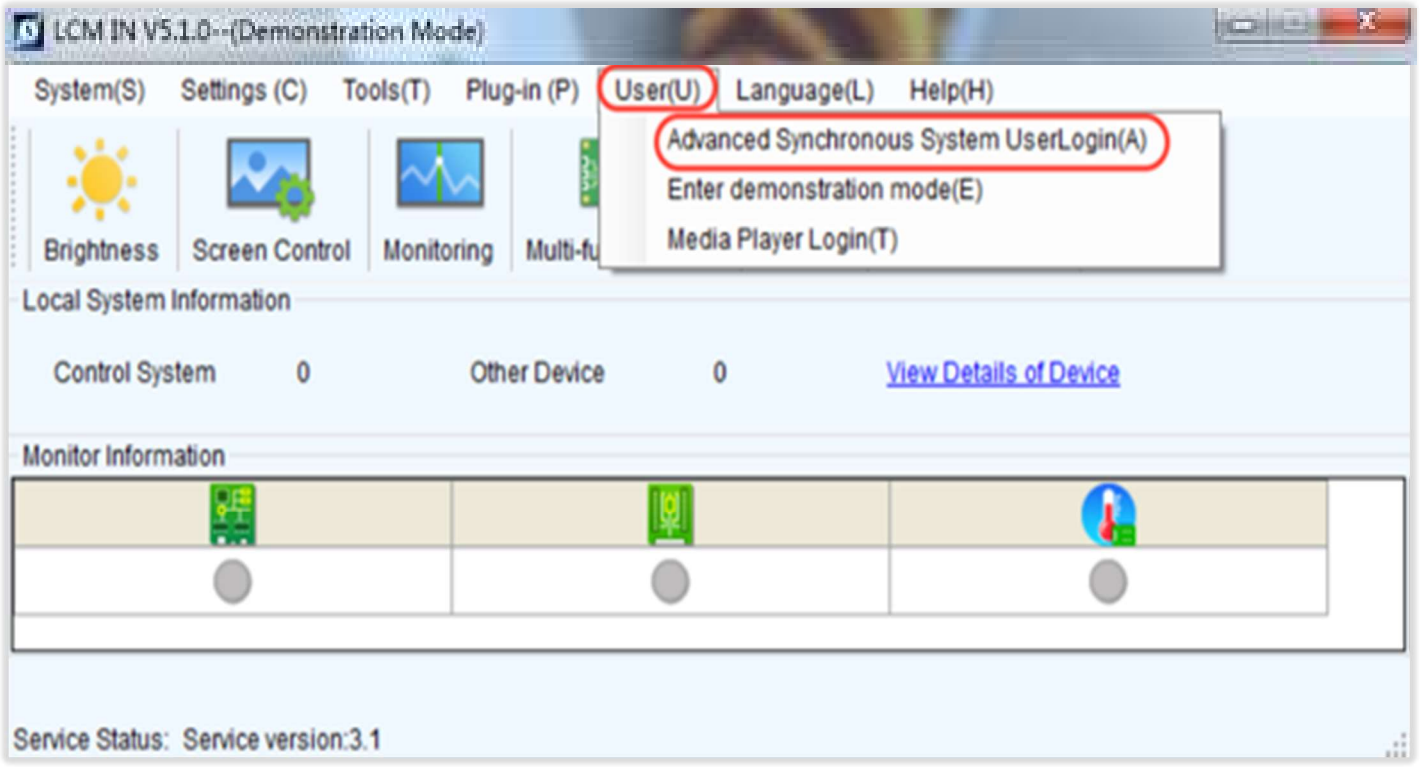
LCM IN Software Interface
After the software is installed and enabled, the main interface home screen will be displayed as below.



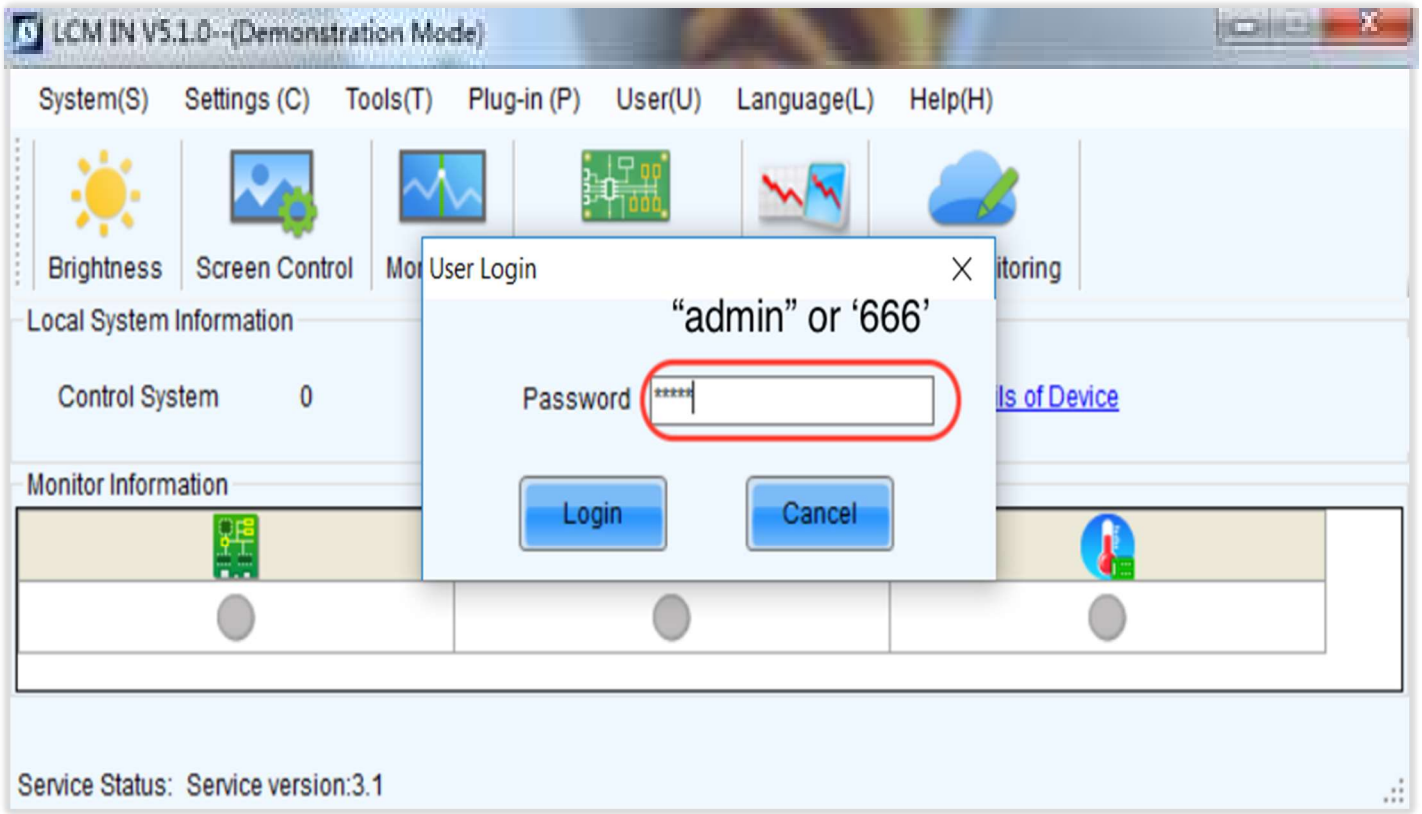
The main interface is composed of five areas:
1 › Menu
2 › Main tool bar
3 › Local system information
4 › Monitor information
5 › Version

User Login

Click on the “User(U)” tab in the menu of the home screen and then select “Advanced Synchronous System User Login(A)”.

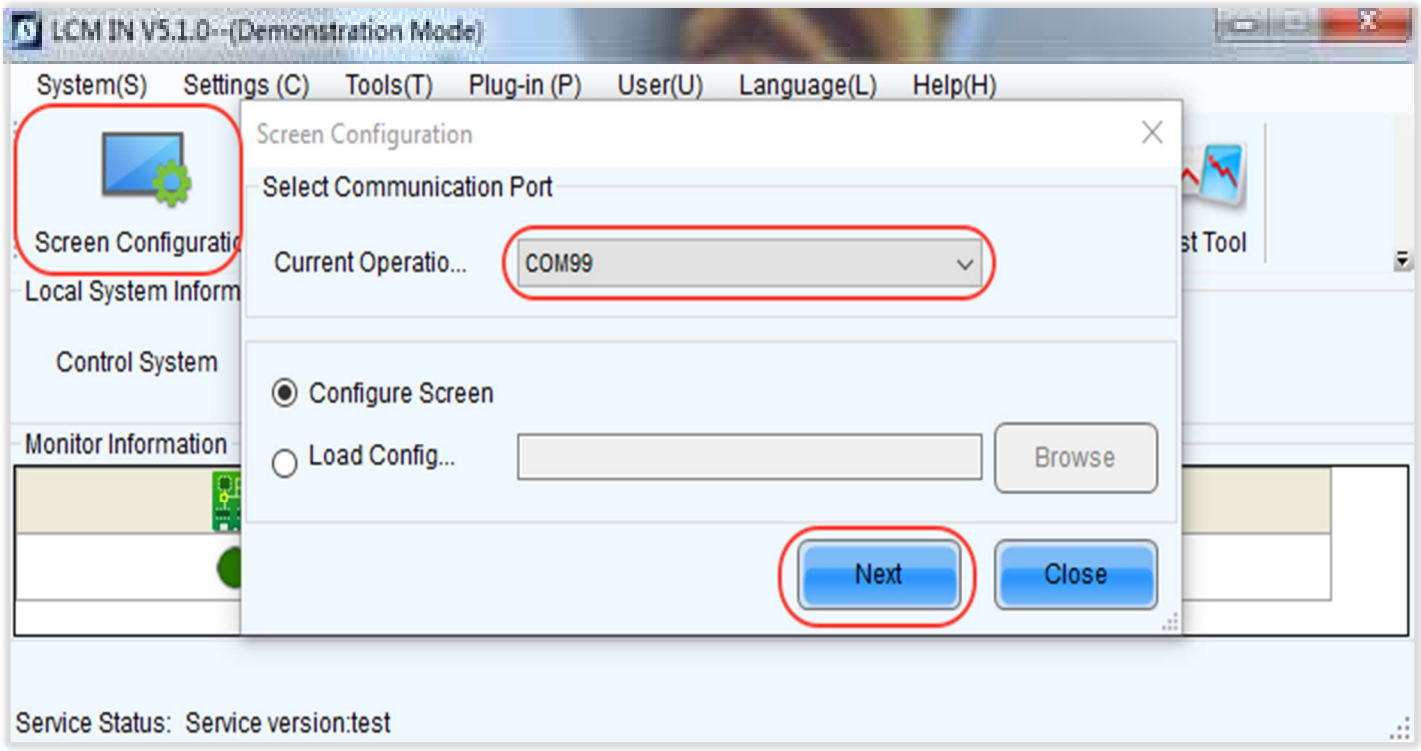


The Advanced User Login requires a password. Enter the password ‘admin’ or ‘666’ into the popup and continue the login.



Display Connection Setup

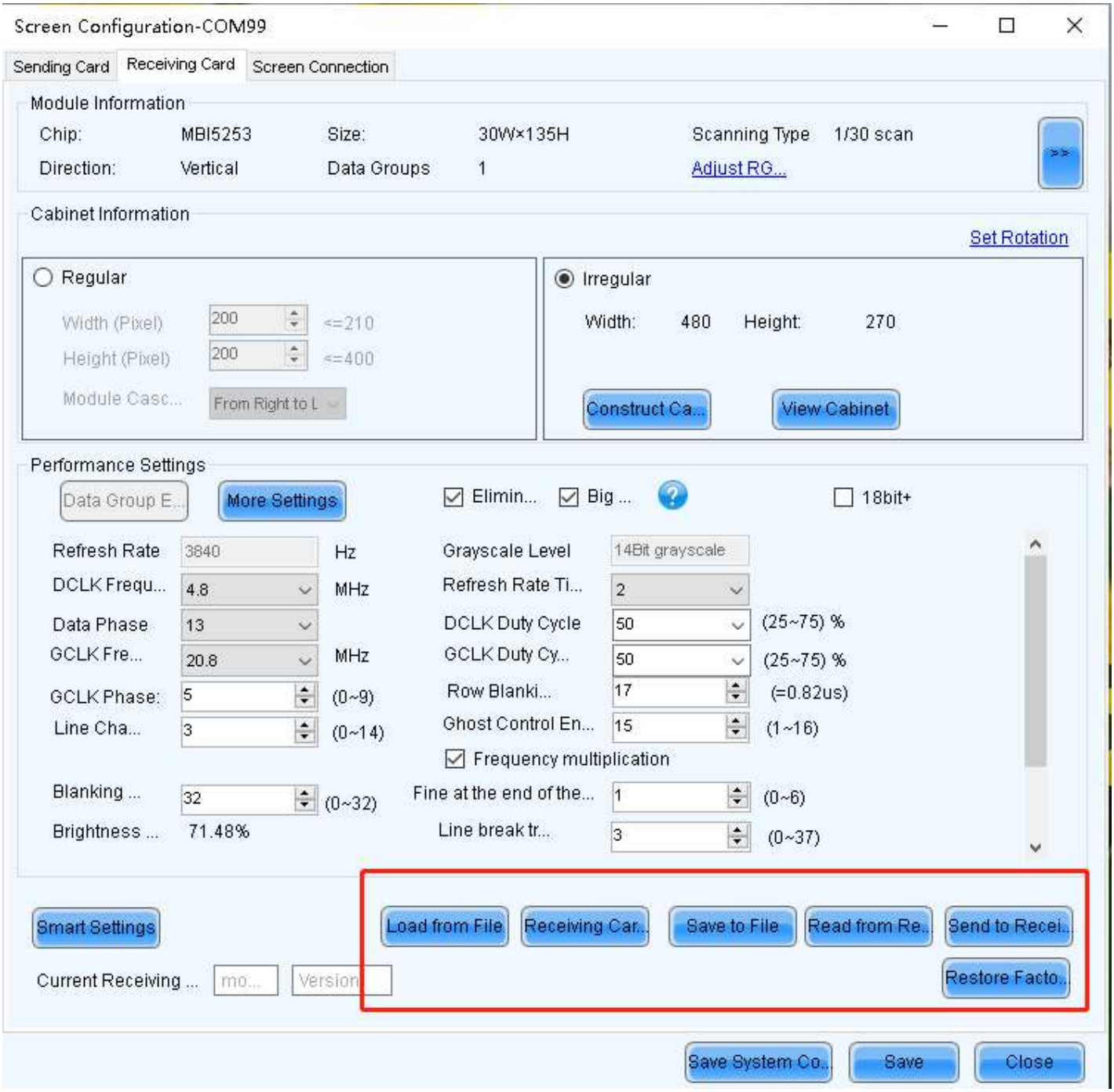
Press the “Screen Configuration” icon on the home screen. A popup will appear that allows you to select the COM Port (USB Port) number that the sending card is plugged into. After picking the correct port, select “Configure Screen” and press “Next”.



On the next window, the Screen Configuration for the selected COM Port appears. There are three different tabs where you can modify the Sending Card, Receiving Card and Screen Connection separately. There is no need to change anything on the Sending Card tab, the information is infilled automatically.

Load Configuration File

Select the “Receiving Card” window at the Screen Configuration settings.
On the top main information about the Module and Cabinet. First, we need to upload the correct receiving card file to the software. Ensure, that the file (“****.rcfgx”) belongs to the specific cabinet. After the file upload is completed, send the information to the receiving card.



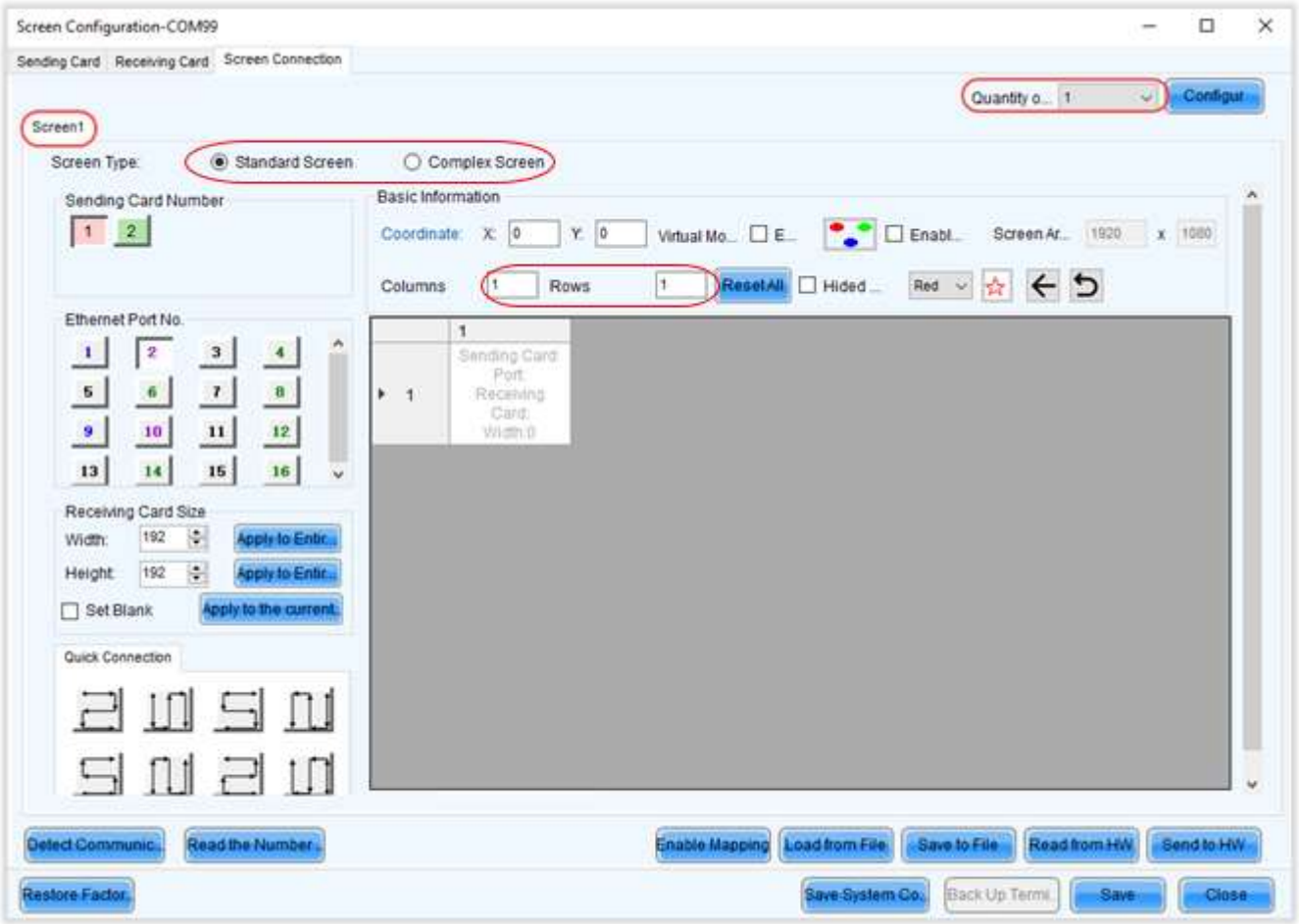
Load from File: Load a receiving card file to software
Save to File: Save a receiving card configuration as a file
Read from Receiving Card (HW): Read configuration from receiving card
Send to Receiving Card (HW): Send configuration to receiving card
Save Configure File: Save complete configuration as a file
Save: Save configuration information to the hardware

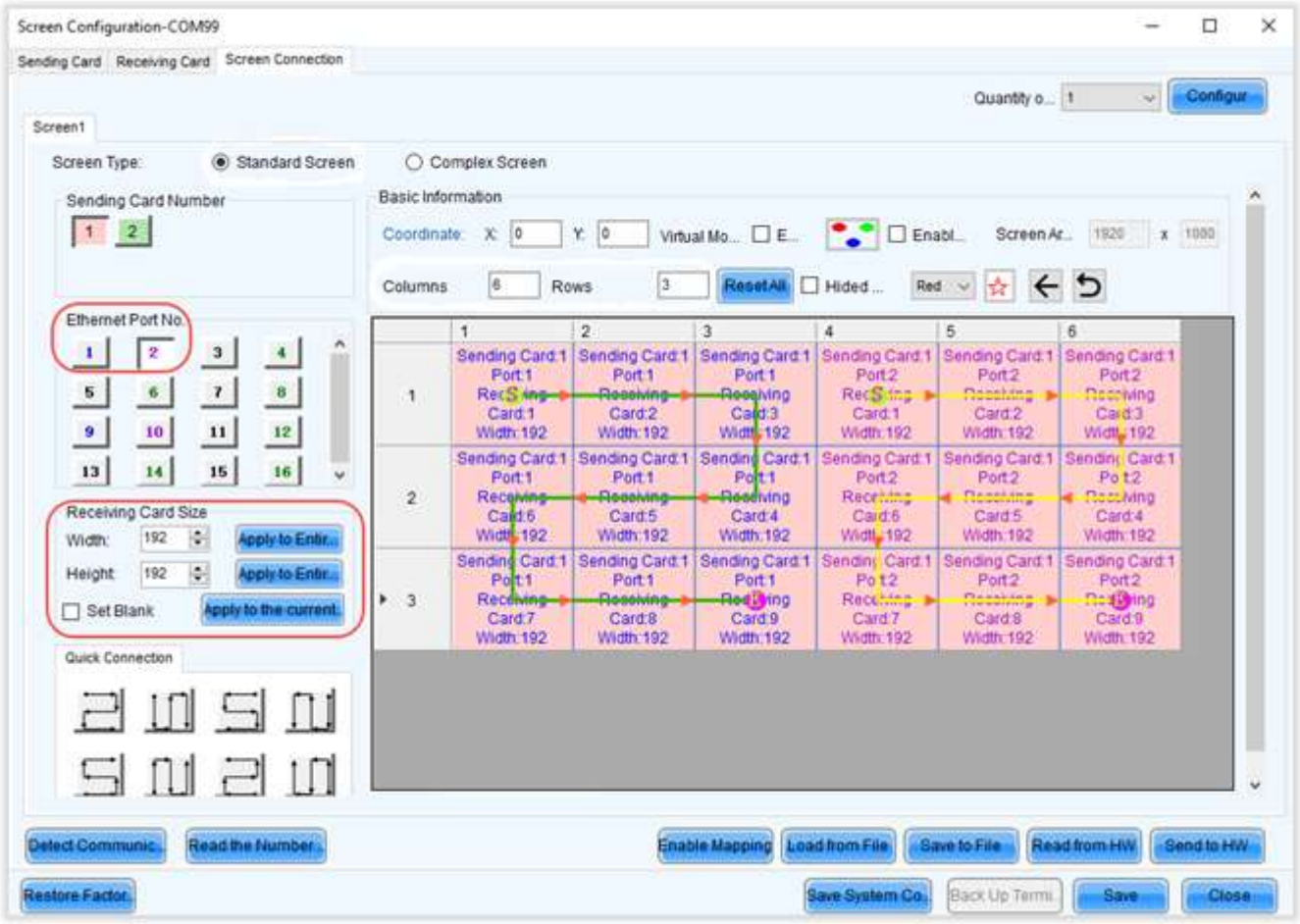
Screen Configuration

Enter the “Screen Configuration” tab. Determine the quantity of displays using the drop down list in the top right hand corner of the window. Select the correct number and press “Configure”. Then select the screen tab.

Select the correct Screen Type, “Standard Screen” or “Complex Screen”.

The dimensions of the LED- display need to be selected by entering the number of cabinets used in columns and rows.



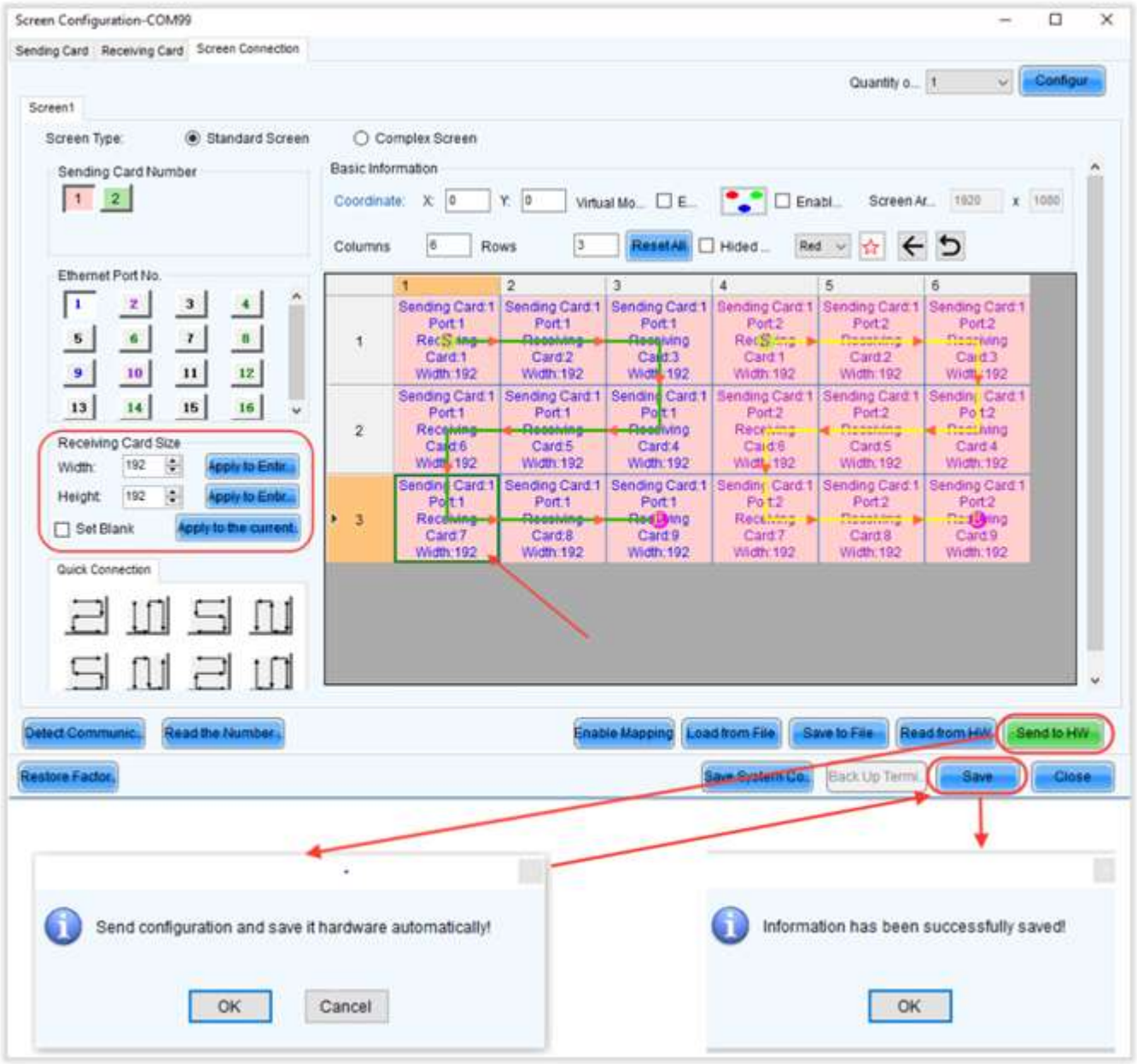


Be aware of the maximum pixel loading of each port on the controller in use. Use more output ports if necessary. In this example, two ports have been used.

Identify how many pixels one receiving card is controlling by reading the information from the receiving card (see page 28) or referring to the specification sheet of the cabinet model.
Enter the width and height in the “receiving card size” section and confirm by clicking the “Apply to the current” icon.

Select one “Ethernet Port Number” and apply the connection between ports and cabinets to the current installation. Draw the wiring diagram to connect the cabinets/ receiving cards based on the physical data connections made at the LED-display as if you’re viewing the display from the front.

Check if the receiving card size is correct and that the wiring diagram matches the physical installation. Click “Send to Receiving Cards (HV)”, a window will appear a few seconds later. Click “Ok” to continue. Check if the display is still accurate and click the “Save” icon to store the settings. Another window pops up, by clicking “Ok” the setup is finished.



5. Service and management

5.1 Maintenance Announcement

In order to expand the working lifespan of our LGE LED Display products, LGE formally announce the maintenance guidance.

This announcement applies to all the LGE products with SMD LEDs.

1. LED Display should be in use for at least eight hours per week. (Five hours warming with 50% brightness, and three hours of running video content.)

2. If not used for a long time. Two hours of warming with 50% brightness, followed by two hours with 100% brightness is requested, before it is run under normal working conditions.

3. Ensuring that LED- panels are completely dry prior to packing into flight cases is extremely important. Wet storage can destroy SMD LEDs, this applies even for all indoor and outdoor products.

4. The environmental temperature for LED Display storage should be 20℃ (±5℃) at a humidity below 70%.

5. The surface of LEDs is fragile, any physical force will cause significant damage and may destroy the LEDs.

6. Inspect the display on a regular basis, to ensure that it is in good working order and perform any corrective Maintenance as soon as possible.

7. Any upgrades must be pre-approved by LGE technicians.

Cleaning

The LEDs will not be affected by weather conditions as they are sealed inside modules. However, the outer surfaces of LED modules will be exposed to the elements, dirt, dust, etc. The user will need to carryout periodic cleaning. Do not use abrasive, caustic or solvent- based products for cleaning, as they can cause surface damage.

How to clean a LSCB series panel:

1. Vacuum or gently blow away dust and loose particles from the panel with low-pressure compressed air.

2. Wipe the outside of the LED modules with a soft, lint-free cloth dampened with a solution of water and detergent or auto shampoo. Apply gentle pressure only.

Read the Maintenance Manual for detailed instructions, before performing any kind of maintenance or repair work on the LED-panel.

5.2 Test Button and Indicator LEDs

LCCM series uses indicator LEDs on the panels back. These are one of the most important fault-finding tools.

The test button and indicator LEDs are in the middle of the PSU backside. In the centre of the control boxes' indicator LEDs is the test button. **The red LED indicates the power supply status, the green LED indicates the data connection.**

Notes about the indicator LED

Solid RED	=	Receiving Power
Flashing GREEN (4 flashes per sec.)	=	Data connection ok, no Signal
Flashing GREEN (2 flashes per sec.)	=	Receiving Signal
Flickering GREEN (3 times per sec.)	=	Transmitting calibration data

Test button functions

Briefly pressing	=	Start and stop of the test pattern
Repeatedly pressing	=	Switching between test images
Long pressing (10 sec.)	=	Transmitting calibration data

5.3 Troubleshooting

Problem	Probable cause(s)	Remedy
Panel is complete dead	No power to panel	Check power and connections
	Fuse blown	Disconnect panel from power. Contact LGE professional for service.
	Defective PSU	Disconnect panel from power. Contact LGE professional for service.
One or more panels displays video incorrectly or does not display video at all	Incorrect panel settings on control system	Check settings (display configuration, panel device, properties, etc.)
	Panel defective	Have faulty panel service by LGE service technician
	Other device on Control system defective	Replace with a device known to be operating correctly. Have fault device tested and serviced
All panels and/or monitor screen display video incorrectly or do not display video at all	Incorrect video input or panel settings on Control System	Check settings (PAL/SECAM/NTSC selection, overall panel intensity setting, etc.)
	Unusable video signal or defective video source	Check video source
	Fault on Control System	Inspect connections and cables. Correct poor connections. Repair or replace damaged cables
	Device on Control System defective	Have faulty device tested and serviced by LGE service technician or supplier.
Display cuts out intermittently	Panel is too hot	Ensure free air flow around spine. Clean spine. Check that ambient temperature does not exceed max. permitted level. Contact LGE for service
	Fault on the control systems	Inspect connections and cables. Correct poor connections. Repair or replace damaged cables
One LED module cuts out	LED module incorrectly installed and connected. LED module faulty	Check module. Replace LED module.

5.4 Service Desk

Installation, on-site service and maintenance can be provided worldwide by the LGE Professional Global Service organization by providing agents, giving owners access to LGE’s expertise and product knowledge.

This type of partnership will ensure the highest level of performance throughout the product’s lifetime.

It is LGE policy to apply the strictest possible calibration procedures and use the best quality materials available to ensure optimum performance and the longest possible component life times.

However, LEDs are subject to wear and tear over the time in use, resulting in gradual changes in colour and over all brightness over many thousands of hours of use. The extent of wear and tear depends heavily on operating conditions and environment, so it is impossible to specify precisely whether and to what extent LED performance will be affected.

Please contact your LGE supplier for details and support.

6. Product Specifications

	Model Name	LCCM019-GN	LCCM025-GN
Physical Parameters	Pixel Configuration	3 in 1	3 in 1
	Pixel Pitch(mm)	1.90	2.50
	Module Resolution (WxH)	168x84	128x64
	Module Dimensions(WxH,mm)	320x160m	320x160
	Weight per Module (kg)	0.55	0.5
	No. of Modules per Cabinet (WxH)	-	-
	Cabinet Resolution (WxH)	-	-
	Cabinet Dimensions (W x H x D, mm)	-	-
	Cabinet Surface Area (㎡)	-	-
	Weight per Cabinet (kg/unit)	-	-
	Weight per Square Meter (kg/㎡)	-	-
	Physical Pixel Density (pixels/㎡)	275,625	160,000
	Flatness of Cabinet (mm)	-	-
	Cabinet material	-	-
	Service access	Front	Front
Optical Specifications	Max Brightness (After Calibration, nit)	800	1,200
	Color Temperature (K)	3,500~9,000	3,500~9,000
	Visual Viewing Angle (Horizontal)	160	160
	Visual Viewing Angle (Vertical)	160	160
	Brightness Uniformity	97%	97%
	Color Uniformity	±0.003CxCy	±0.003CxCy
	Contrast Ratio	5,000:1	5,000:1
	Processing Depth (bit)	14 (HDR10, HDR10 Pro)	14 (HDR10, HDR10 Pro)
Electrical Specifications	Power Consumption (W/Module, Max.)	36	36
	Power Consumption (W/Module, Avg.)	12	12
	Power Consumption (W/㎡, Max.)	720	720
	Heat Dissipation (BTU/h/Module, Max.)	123	123
	Heat Dissipation (BTU/h/Module, Avg.)	41	41
	Heat Dissipation (BTU/h/㎡, Max.)	2457	2,457
	Power Supply (V)	100 to 240	100 to 240
	Frame Rate (Hz)	50 / 60	50 / 60
	Refresh Rate (Hz)	1,920	1,920
Operation Specifications	LED Lifetime (Half brightness)	100,000	100,000
	Operating Temperature(℃)	-10℃ to +45℃	-10℃ to +45℃
	Operating Humidity	10-90%RH	10-90%RH
	IP rating Front / Rear	IP30	IP30
Controller		CVCA/LCIN007	

The model and serial number of the product are located on the back and on one side of the product.

Record them below in case you ever need service.

MODEL

SERIAL NO.

Temporary noise is normal when powering ON or OFF this device.