

SHARP

User's Manual

LED Display

[Models for indoor use]

LD-EC091

LD-EC121

LD-EC151

LD-EC181

MODEL: LD-EC091, LD-EC121, LD-EC151, LD-EC181

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- NOTE:** (1) The contents of this manual may not be reprinted in part or whole without permission.
(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.

The company names and product names mentioned in this manual are trademarks or registered trademarks of respective companies.



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.


















 WARNING	Failing to heed this symbol and handling the product incorrectly could result in accidents leading to major injury or death.
 CAUTION	Failing to heed this symbol and handling the product incorrectly could result in personal injury or damage to surrounding property.

Examples of symbols

	⚠ Indicates a warning or caution. This symbol indicates you should be careful of electric shocks.
	⊘ Indicates a prohibited action. This symbol indicates something that must be prohibited.
	● 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.

WARNING

-  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.
-  Cover the openings on each side of the product using the metal frame, metal plates, or the like to prevent foreign matter from adhering to the top, bottom, and side surfaces of the product.
-  For safety, be sure to install a breaker to the electrical equipment to which the product is to be connected.
-  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.

CAUTION



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.



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 displays 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.



Use a power outlet located close to the product or in a location where the power cord can be easily plugged and unplugged.



Use a shielded LAN cable of CAT 5e or higher for the product.



This equipment is not suitable for use in locations where children are likely to be present.



This product is intended for use in restricted access areas.

Depending on the installation location, ensure that the system cannot be interfered with by enclosing it within a frame or restricting access to the rear section, as necessary.

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.

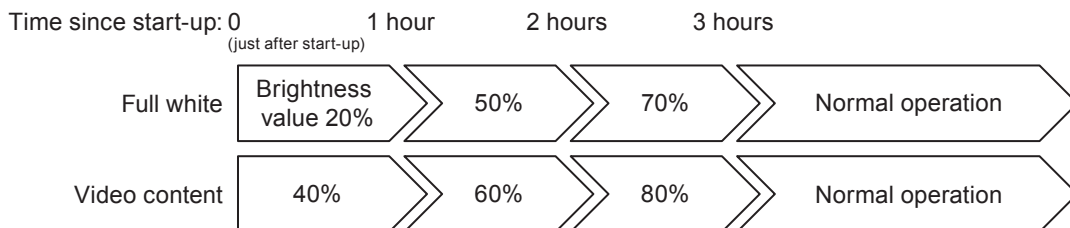
The LED lamps may absorb and hold moisture during the LED display installation or if not used for a long time. Therefore, in such cases, the brightness must be increased gradually during a break-in period before setting the normal brightness.

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 display.

After a break-in period of approximately 3 hours, the LED display 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.

About the power supply

To prevent voltage drop and fluctuation in the AC power supplied to the LED display due to inrush current that occurs just after the power is input, use a power source with extra capacity.

If the power from the power source does not have extra capacity, problems may occur, such as delays in the AC voltage increase when the AC power is input or unstable AC voltage that causes abnormal image display due to improper start of the LED display.



To prevent such problems, consider the following points when designing the system to reduce the burden on the power source.

- Select a voltage between AC 200 and 240 V for the power source.
- Separate the AC power circuits that provide power to the LED displays and input power to each circuit one by one while waiting several minutes between each input (in this case, reduce the number of LED displays per circuit as necessary).

About the AC Power Supply

1. Power capacity

When supplying power to the LED display, use a power supply source with enough capacity to avoid voltage fluctuations caused by inrush current that may occur just after the power is input. (Recommended power supply voltage: AC 200 to 240 V)

2. Power supply control

Separate the power circuits for the AC power supply that supplies power to the LED display and input power to the circuits one by one. (Recommended power input interval: 2 sec. or more)

When using a switch device for the power supply control of the LED display, check that the capacity and reliability of the switch contact are sufficient in relation to the rated current and inrush current of each LED module. This is necessary to avoid power instability and chatter caused by degradation of the switch contact.

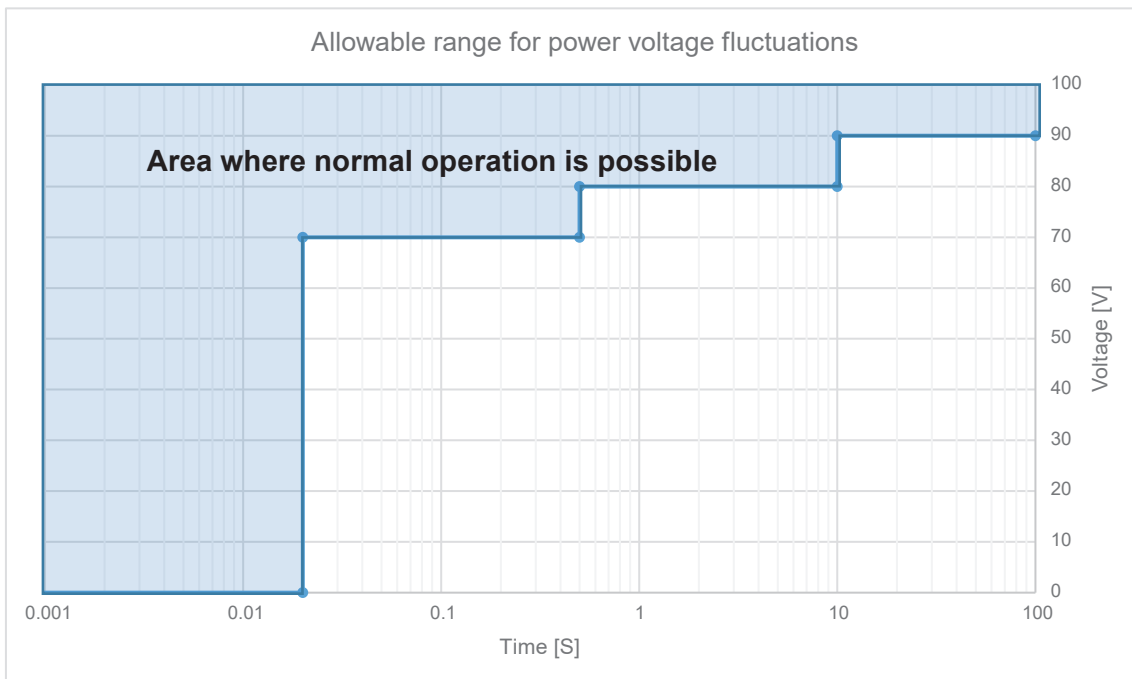
3. Allowable range for power voltage fluctuations

Check that the power voltage fluctuations of the AC power supply that supplies power to the LED display are within the area where normal operation is possible, shown in the following figure.

- * If the LED module cannot start normally and abnormalities occur in the image display, the problem may be caused by delays in the voltage increase when AC power is input or voltage instability. In such cases, turn the AC power supply off, and then turn it on again.

CAUTION

The recommended values (for power supply voltage and power input interval) are reference values to minimize the risk of malfunction. There is no guarantee that no malfunction will occur when the product is used with the recommended values or when the recommended values are maintained.

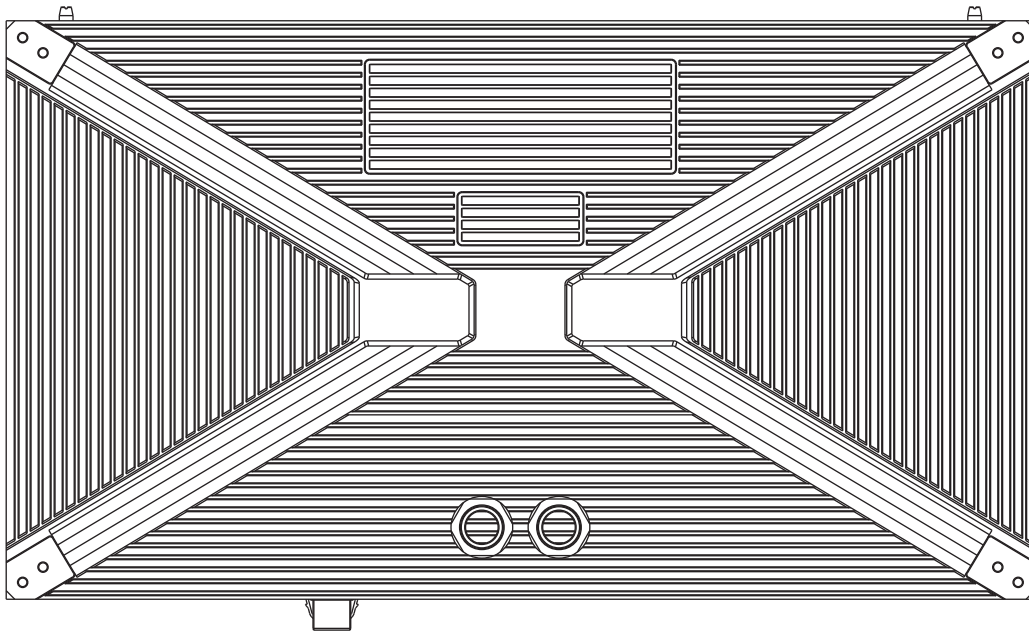


Contents

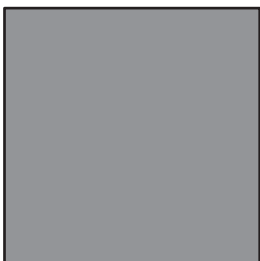
The supplied parts are as follows.

In case one of these parts is missing or damaged, contact the retailer.

[Cabinet]



[Pixel card]



8 cards per cabinet

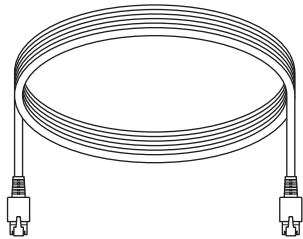
Related Items for Installation

The items required when installing the system are shown below.

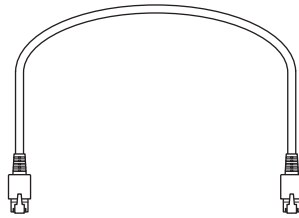
Included in the LED DISPLAY KIT.

Users who did not purchase the LED DISPLAY KIT should contact their retailer.

[LAN cable]

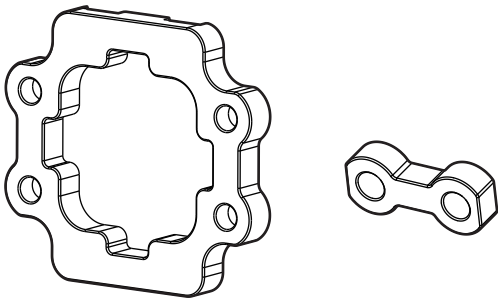


To connect the LED display to the LED controller

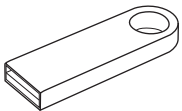


To connect two LED displays together

[Cabinet alignment bracket]

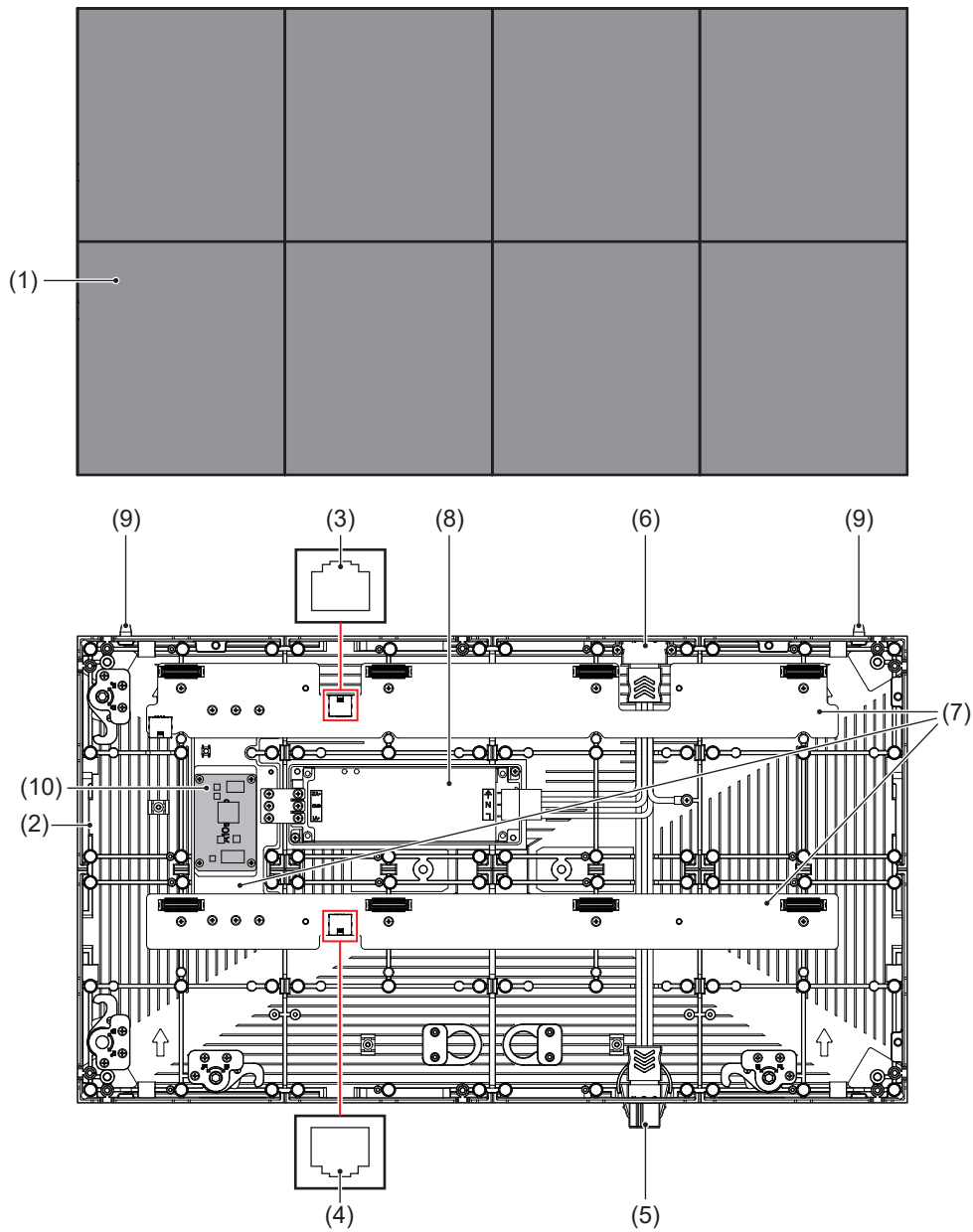


[USB drive]



Contains the data, the user's manual (this document), and the control software for the product you have purchased.

Parts Name



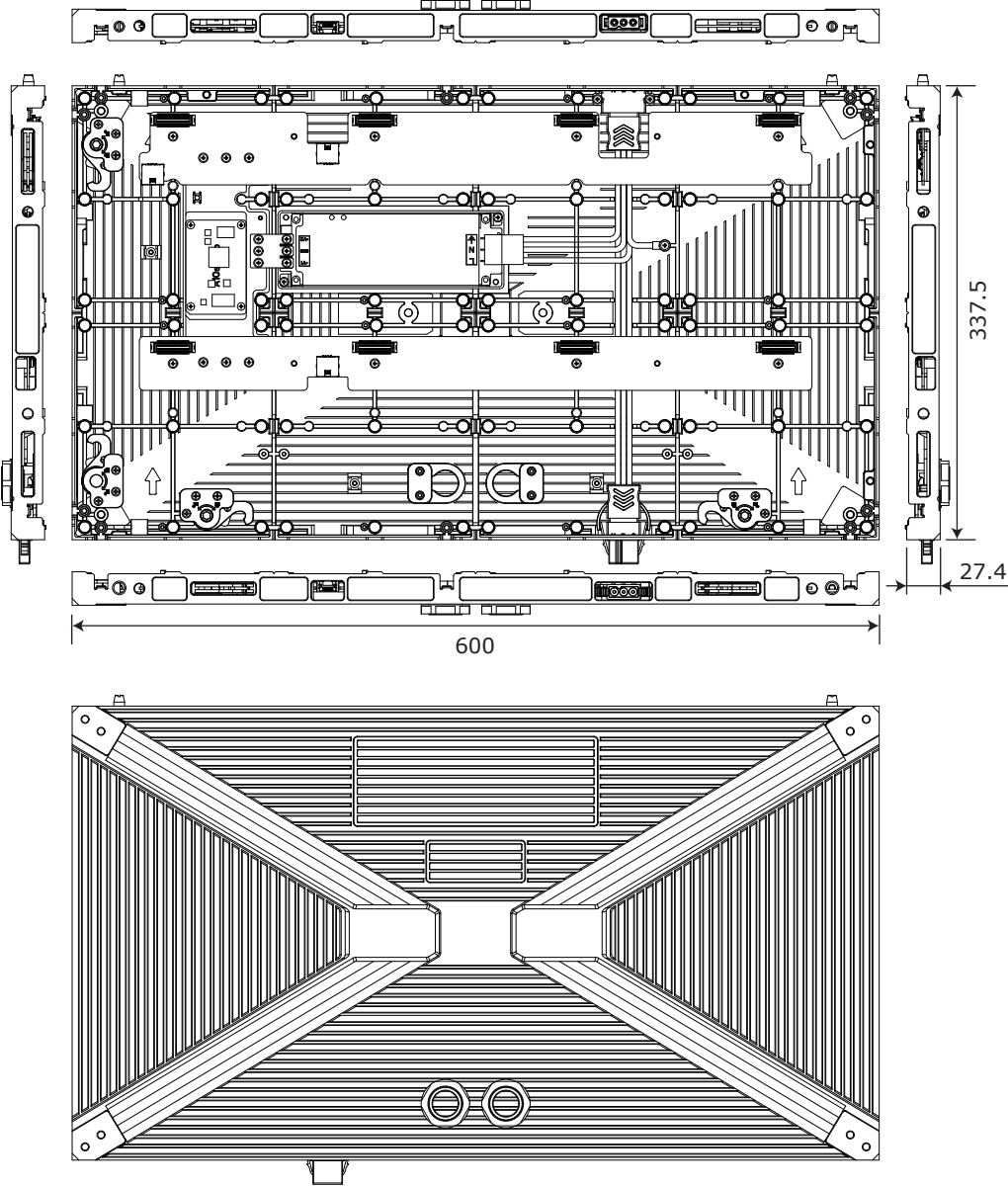
	Name	Description
(1)	Pixel card	Display section.
(2)	Cabinet	The chassis to which to install pixel cards.
(3) (4)	Signal input/output	To input the signal from the LED controller or the previous LED display. When a signal is input into (3), the signal is output from (4). When a signal is input into (4), the signal is output from (3).
(5) (6)	Power input (output)	When AC power is input into (5), AC power is output from (6). When AC power is input into (6), AC power is output from (5). Do not input AC power into both (5) and (6). The ground connection is included. When connecting the connectors, check that the ground is connected.
(7)	Hub board	Pixel card connectors and a receiving card are installed on this board.
(8)	Power unit	Supplies electric power to the pixel cards and receiving card.
(9)	Guide pin	Used to align the cabinets when installing them on top of each other.
(10)	Receiving card	Processes the input signal for video display.

Specifications

		LD-EC091	LD-EC121	LD-EC151	LD-EC181
LED configuration		Flip chip COB (chip size : 4mil*7mil)			
Pixel pitch		0.93 mm	1.25 mm	1.56 mm	1.87 mm
Number of displayed pixels (resolution/display)		640 × 360	480 × 270	384 × 216	320 × 180
Brightness		600 cd/m ²			
Contrast ratio		8000:1	10000:1		
Brightness adjustment range		0 to 100% (256 increments)			
Gamma correction		1.0 to 4.0 (default setting: 2.8)			
Color temperature		3000 K to 9500 K (default setting: 6500 K)			
Viewing angle		Up 70°, Down 70°, Left 80°, Right 80°			
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% brightness)		63 W	51 W		
Ingress protection		Front IP 40 / Back IP 20			
Maintenance		Front			
Dimensions		600 × 337.5 × 27.4 mm			
Weight		4.3 kg			
Operating environment	Temperature	-10 to 40°C			
	Humidity	10% to 80% (without condensation)			
	Altitude	No more than 5000 m			
Storage environment	Temperature	-20 to 45°C			
	Humidity	10% to 85% (without condensation)			

Specifications are subject to change without notice.

Diagram



(Unit: mm)

Disposal



Information on the Disposal of this Equipment

IF YOU WISH TO DISPOSE OF THIS EQUIPMENT, DO NOT USE THE ORDINARY WASTE BIN, AND DO NOT PUT THEM INTO A FIREPLACE!

Used electrical and electronic equipment should always be collected and treated SEPARATELY in accordance with local law.

Separate collection promotes an environment-friendly treatment, recycling of materials, and minimizing final disposal of waste. IMPROPER DISPOSAL can be harmful to human health and the environment due to certain substances! Take USED EQUIPMENT to a local, usually municipal, collection facility, where available.

If in doubt about disposal, contact your local authorities or dealer and ask for the correct method of disposal.

ONLY FOR USERS IN THE EUROPEAN UNION, AND SOME OTHER COUNTRIES; FOR INSTANCE NORWAY AND SWITZERLAND: Your participation in separate collection is requested by law.

The symbol shown above appears on electrical and electronic equipment (or the packaging) to remind the users of this.

Users from PRIVATE HOUSEHOLDS are requested to use existing return facilities for used equipment. Return is free of charge.

If the equipment has been used for BUSINESS PURPOSES, please contact your SHARP dealer who will inform you about take-back. You might be charged for the costs arising from take-back. Small equipment (and small quantities) might be taken back by your local collection facility. For Spain: Please contact the established collection system or your local authority for take-back of your used products.

Service & Support

Service & Support in Europe

Please contact:

Sharp Display Solutions Europe GmbH
Landshuter Allee 12-14, 80637 München
Phone: + 49 (0) 89/99699-0
Fax: + 49 (0) 89/99699-500

For the latest information please see

<https://sharpdisplays.eu>

Data is subject to change without notice.

Service & Support in U.S.A.

Please contact:

SHARP ELECTRONICS CORPORATION
100 Paragon Drive, Montvale, NJ 07645
Phone: 1-888-GO-SHARP / 1-888-467-4277

Sales Office List

For the latest information please see

<https://global.sharp/corporate/info/outline/consolidated/oversea.html>

■ Regional websites

Global: <https://sharp-displays.jp.sharp/global/index.html>

North America: <https://www.sharppusa.com/>

Europe, Russia, Middle East and Africa: <https://sharpdisplays.eu>