User's Manual

NEC

LED Module

LED-06AF1
LED-15BF1

Index

Declaration of conformity

For USA

FCC Information

1. Use the attached specified cables with the LED-06AF1 (D060P0) / LED-15BF1 (D150P1) LED module so as not to interfere with radio and television reception.

    (1) Please use the supplied power cord or equivalent to ensure FCC compliance.
    (2) Please use a good quality shielded video signal cable.

    Use of other cables and adapters may cause interference with radio and television reception.

2. This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

    Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If necessary, the user should contact the dealer or an experienced radio/television technician for additional suggestions.

The user may find the following booklet, prepared by the Federal Communications Commission, helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

For Canada

Canadian Department of Communications Compliance Statement

DOC: This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

C-UL: Bears the C-UL Mark and is in compliance with Canadian Safety Regulations according to CAN/CSA C22.2 No. 60950-1.

Important Information

⚡	**WARNING**	⚠

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. ALSO, DO NOT USE THIS UNIT'S POLARIZED PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLETS UNLESS THE PRONGS CAN BE FULLY INSERTED. REFRAIN FROM OPENING THE CABINET AS THERE ARE HIGH VOLTAGE COMPONENTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

⚡	**CAUTION**	⚠

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, MAKE SURE POWER CORD IS UNPLUGGED FROM WALL SOCKET. TO FULLY DISENGAGE THE POWER TO THE UNIT, PLEASE DISCONNECT THEPOWER CORD FROM THE AC OUTLET. DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

⚡ This symbol warns user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside this unit.
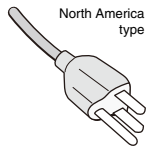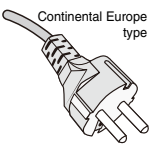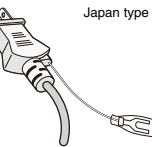
⚠ This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

This product comes with a power cord to connect LED Modules together.
A power cord to supply power is not included.

Compatible Power Cord Specifications

• 3-pin (on the LED Module: IEC 3-pin female/straight)

• Rated current: 10 A

• By referring to the table below, choose the right plug type and a power cord that is suitable for your voltage.

Plug Shape	North America type	Continental Europe type	UK type	Japan type
Region of Use	USA/Canada	Europe (except for UK)	UK	Japan
Voltage (V)	120	230	230	100

This product comes with a signal cable to connect LED Modules together.
A signal cable to connect the video distributor and LED Module is not included.

Compatible Signal Cable Specifications
• DVI-D dual link (max 30 meters: Signal quality may degrade depending on the quality of the signal cable)

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

Safety Precautions, Maintenance & Recommended Use

FOR OPTIMUM PERFORMANCE, PLEASE NOTE THE
FOLLOWING WHEN SETTING UP AND USING
THE MULTI-FUNCTION LED MODULE:

- **DO NOT OPEN THE LED MODULE.** There are no user serviceable parts inside and opening or removing covers may expose you to dangerous shock hazards or other risks. Refer all servicing to qualified service personnel.
- Do not spill any liquids into the cabinet or use your LED module near water. (LED-06AF1)
- Do not insert objects of any kind into the cabinet slots, as they may touch dangerous voltage points, which can be harmful or fatal or may cause electric shock, fire or equipment failure.
- Do not place any heavy objects on the power cord. Damage to the cord may cause shock or fire.
- Do not place this product on a sloping or unstable cart, stand or table, as the LED module may fall, causing serious damage to the LED module.
- Do not mount this product face up, face down or upside down for an extended period of time as it may cause permanent damage to the screen.
- The power supply cord you use must have been approved by and comply with the safety standards of your country. (Type H05VV-F 3G 1mm2 should be used in Europe)
- In UK, use a BS-approved power cord with molded plug having a black (13A) fuse installed for use with this LED module.
- Do not use the LED module outdoors.(LED-06AF1)
- Do not bend, crimp or otherwise damage the power cord.
- Do not cover vent on LED module.
- Do not use LED module in high temperature, humid, dusty, or oily areas.
- If LED module is broken, handle with care.
- Allow adequate ventilation around the LED module, so that heat can properly dissipate. Do not block ventilated openings or place the LED module near a radiator or other heat sources.
- The power cable connector is the primary means of detaching the system from the power supply. The LED module should be installed close to a power outlet, which is easily accessible.
- Handle with care when transporting. Save packaging for transporting.
- Please clean the holes of back cabinet to reject dirt and dust at least once a year because of set reliability.
- If using the cooling fan continuously, it's recommended to wipe holes a minimum of once a month.

Immediately unplug your LED module from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- If the LED module has been wobbled.
- If the LED module has an unusual odor.
- When the power supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the LED module. (LED-06AF1)
- If the LED module has been exposed to rain or water. (LED-06AF1)
- If the LED module has been dropped or the cabinet damaged.
- If the LED module does not operate normally by following operating instructions.

Ergonomics

To realize the maximum ergonomic benefits, we recommend the following:

- Use the preset Size and Position controls with standard signals.
- Use the preset Color Setting.
- Use non-interlaced signals.
- Do not use primary color blue on a dark background, as it is difficult to see and may produce eye fatigue due to insufficient contrast.

Cleaning the Cabinet

- Unplug the power supply
- Gently wipe the cabinet with a soft cloth
- To clean the cabinet, dampen the cloth with a neutral detergent and water, wipe the cabinet and follow with a dry cloth.

NOTE :

DO NOT clean with benzene thinner, alkaline detergent, alcoholic system detergent, glass cleaner, wax, polish cleaner, soap powder, or insecticide. Rubber or vinyl should not be in contact with the cabinet for an extended period of time. These types of fluids and materials can cause the paint to deteriorate, crack or peel.

Contents

The parts supplied with this unit are as follows.
In the rare case that one of these parts is missing or damaged, contact the retailer.
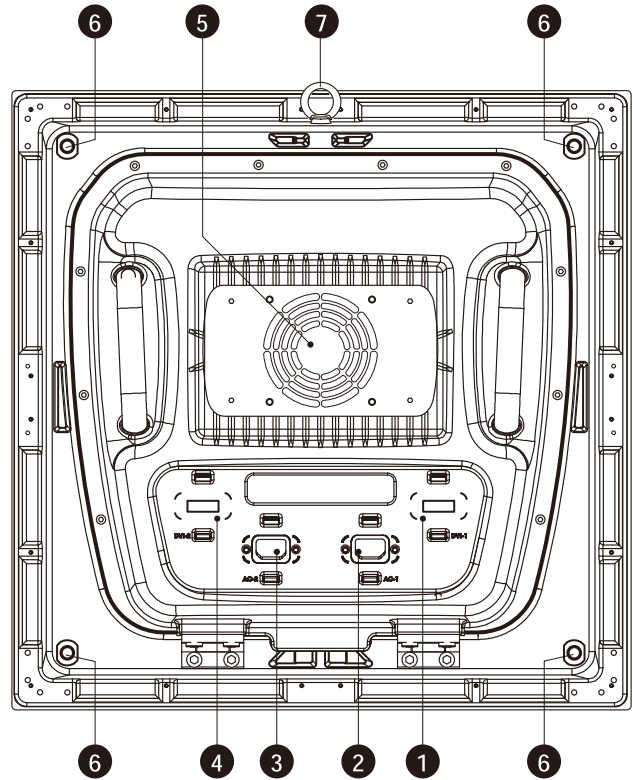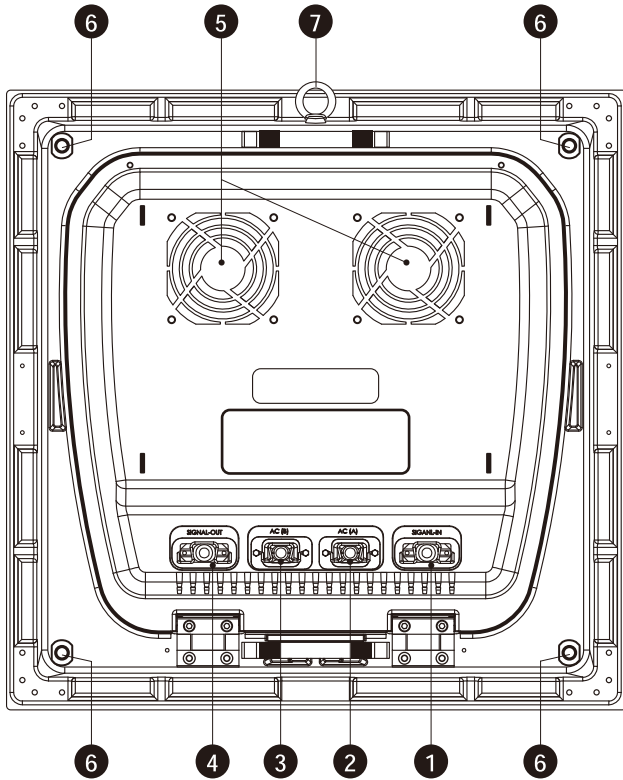
LED-06AF1 (LED Module for indoor use)

• Power cord (0.75 m)

• Signal cable (DVI-D, 0.75 m)

• Nuts (M-10) (x4)

• Setup manual

LED-15BF1 (LED Module for outdoor use)

• Power cord (with waterproof cover, 0.75 m)

• Signal cable (DVI-D dual link with waterproof cover, 0.75 m)

• Nuts (M-10) (x4)

• Setup manual

Parts Name and Functions

Rear panel

❶ DVI Input

Digital image signal input. Connect to DVI output (for LED Module) of the video distributor (LED-VD1) or the DVI-D output of the preceding LED Module with the included signal cable.

❷ AC Power Inlet (IEC-3 Male)

AC power input terminal.
Use the included power cord to connect to the AC power outlet of the preceding LED Module.

❸ AC Power Outlet (IEC-3 Female)

AC power output terminal.
Connect to the AC power inlet of the next LED Module with the included power cord. Do not connect to any other devices.

❹ DVI-D Output

Digital image signal output. Connect to the DVI-D input of the next LED Module with the included signal cable.

❺ Cooling Fan

Do not cover the vents.

❻ Bolt (for Frame Mounting)

Mount to the frame using the included nuts (M10).

❼ Eyebolt

Suspend using wire rope when mounting or removing the LED Module to/from the frame.

Setup (Mounting to the Frame)

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

⚠ **CAUTION**

- Ask the retailer where you purchased the product or a technician to perform the setup.

⚠ **CAUTION**

- Always perform setup, installation or movement with enough people to ensure sufficient safety (at least two people).
- Suspend the eyebolts with wire rope to prevent the unit from falling.

Maintenance After Setup
- **If any problem such as loose screws occurs, contact a technician or the retailer where you purchased the product immediately.**
- **Depending on the environment, the strength of the mount may not be sufficient. Ask a technician to perform maintenance at regular intervals.**

NEC will not be held responsible for any accidents or damage incurred due to faulty installation, misuse, modification, or natural disaster.
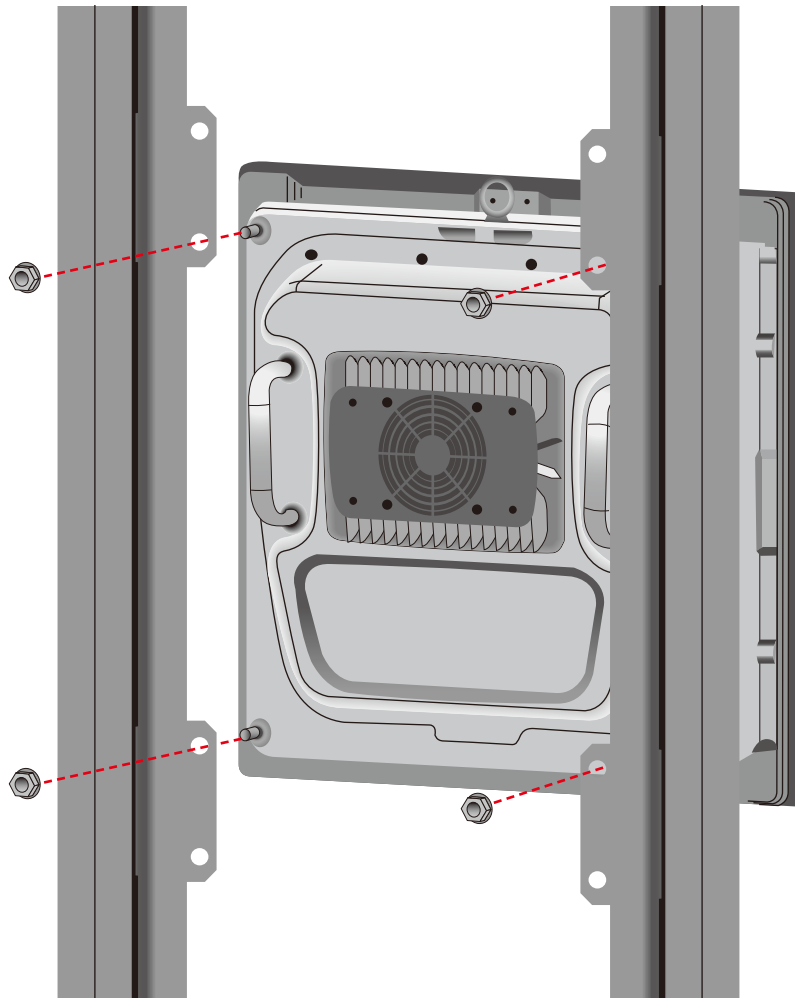
Mount the LED Module on the frame.

Check to make sure that the bolts are inserted properly into the holes on the frame, and secure them with the included nuts.

Using any nuts other than those included with the product may cause a malfunction.

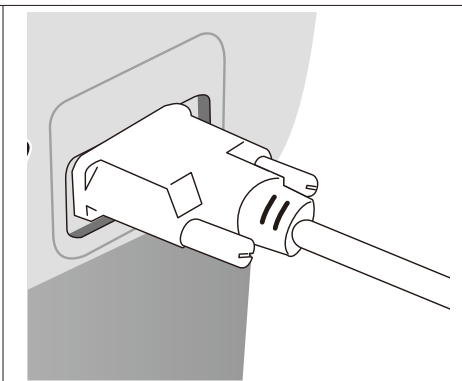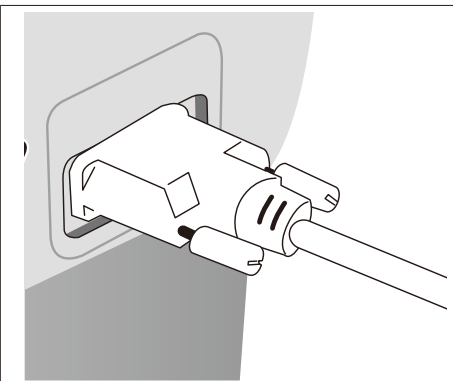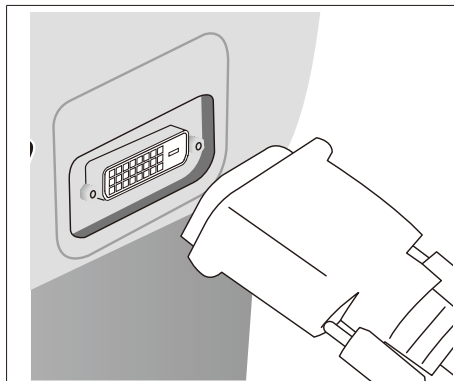Tighten the nuts at the regulated torque (24 to 27 N·m).

Connections (Installing the Signal Cable)

Connecting the Signal Cable to the LED-06AF1

(1) Check the direction of the connector

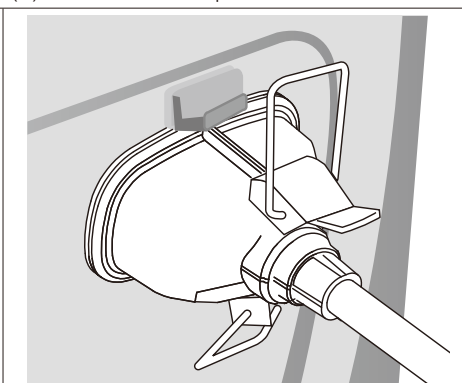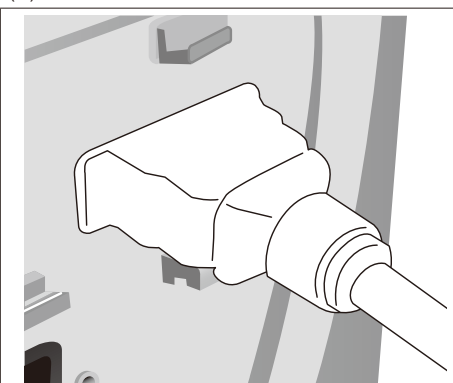(2) Install the connector

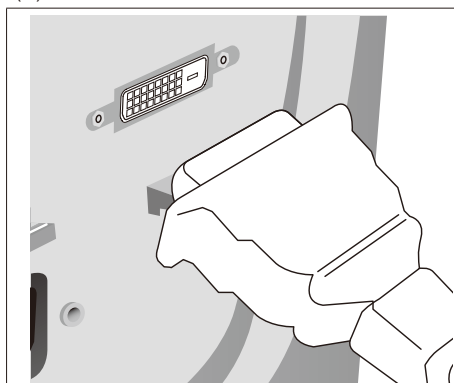(3) Tighten the screws

Connecting the Signal Cable to the LED-15BF1

(1) Check the direction of the connector
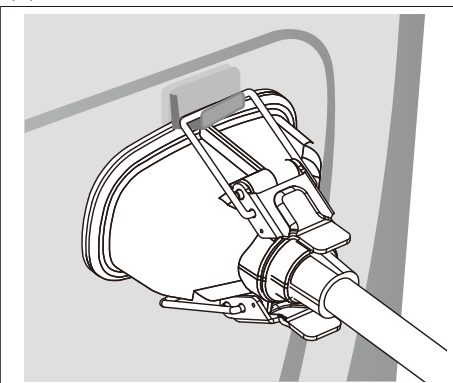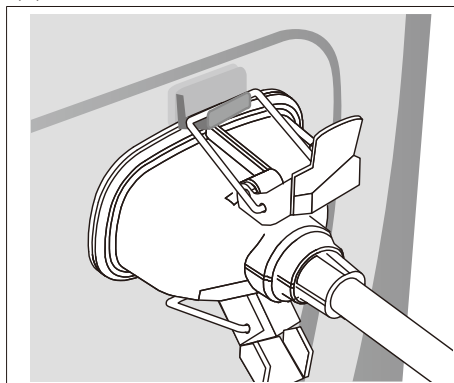
(2) Install the connector

(3) Install the waterproof cover

(4) Set the hooks

(5) Lock the lever

Connections (Installing the Power Cord)

NOTE :
• Plug the AC power supply into the LED Module only after all other connections are complete.

⚠ WARNING

• Do not use under any voltage other than the voltage shown. Doing so may result in a fire or electrical shock.

• The power outlet is for the LED Module only. Connect only the same module. Do not connect any other device.

• The power cord included with this product is for use with this product only. For your safety, do not use this power cord with any other device.

NOTE :
• Make sure that the area around the power outlet is clear so that you can easily plug in and remove the power cord.
    The outlet used to connect the unit must be easily accessible.

• Cascading Power Connections
    Any connections that exceed the allowable number of power cords can cause smoke or fire.
    If you cascade power cord connections, check the voltages and adhere to the number of connections listed below.

Model Name / Power	LED-06AF1	LED-15BF1
100 V AC	4	9
110 V AC	5	10
200 V AC	10	20
240 V AC	10	22

Connecting the Power Cord to the LED-06AF1

(1) Check the direction of the connector

(2) Insert into the connector
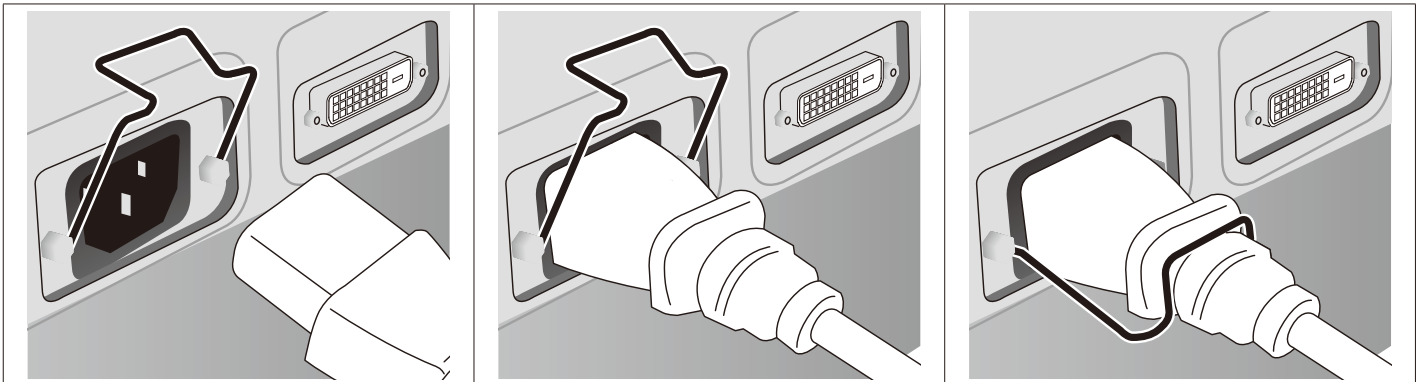   (Be sure to insert all the way in)
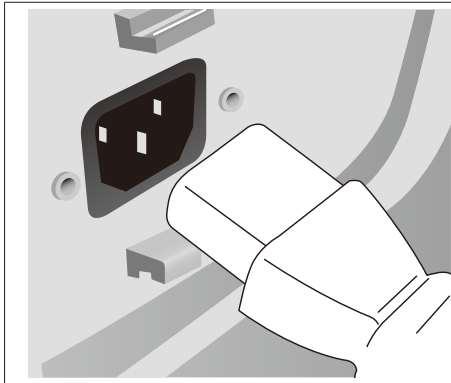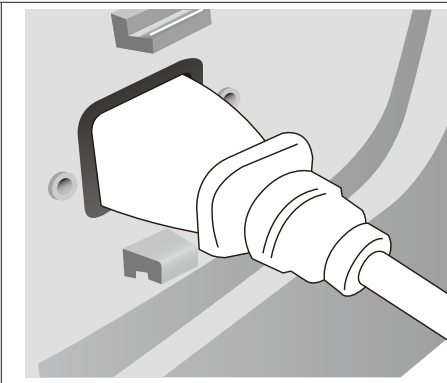
(3) Set the hook onto the power cord

Connecting the Power Cord to the LED-15BF1

(1) Check the direction of the connector

(2) Insert into the connector
(Be sure to insert all the way in)

(3) Install the waterproof cover
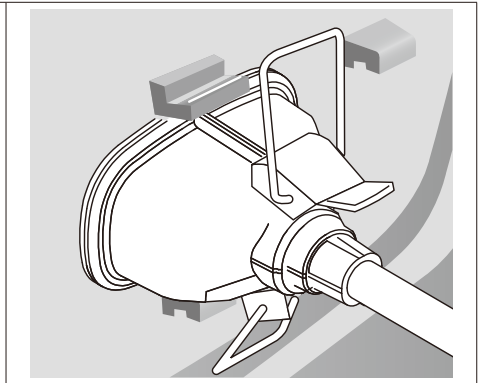
(4) Set the waterproof cover hooks onto
the main body
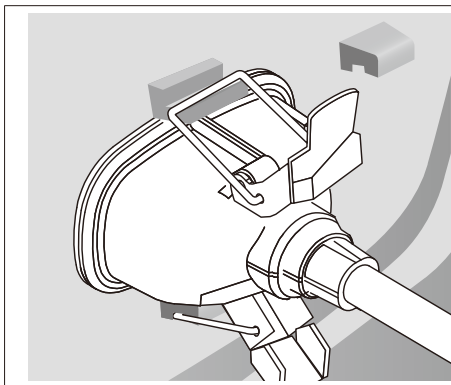
(5) Lock the lever
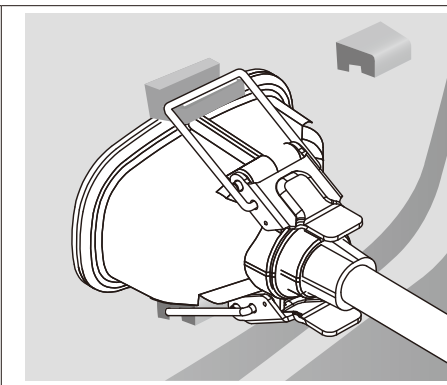
Connection Methods

Before Connecting

- **Before connecting to a device, turn off the power of the unit, of the device to be connected to the unit, and all other peripheral devices.**
- **Refer to the user's manuals of those devices.**

Included signal cable

Included signal cable

Connect to the DVI output
(for LED Module) of the LED-VD1

Included power cord

Included power cord

Connect to a power outlet or
power distributor
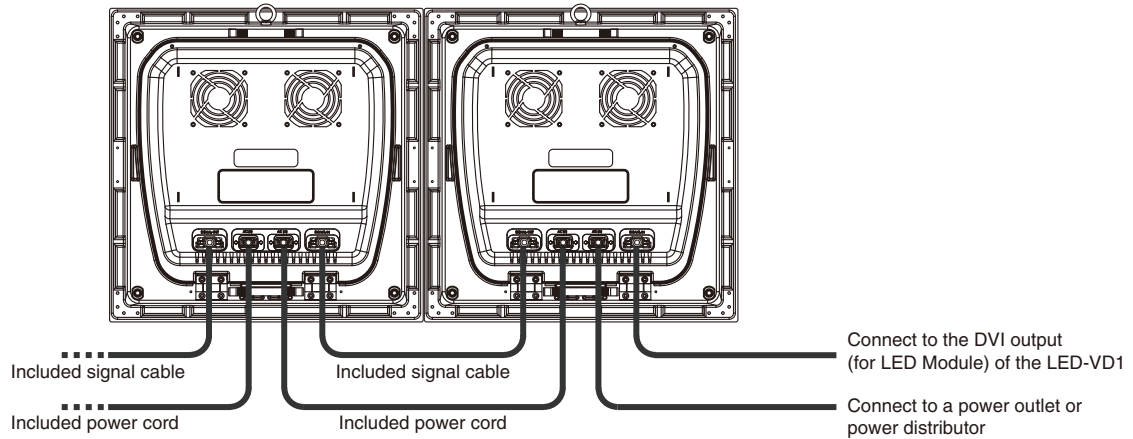
When making cascaded connections, use only the power cords or signal cables included with the units.

LED-VD1

Power Distributor
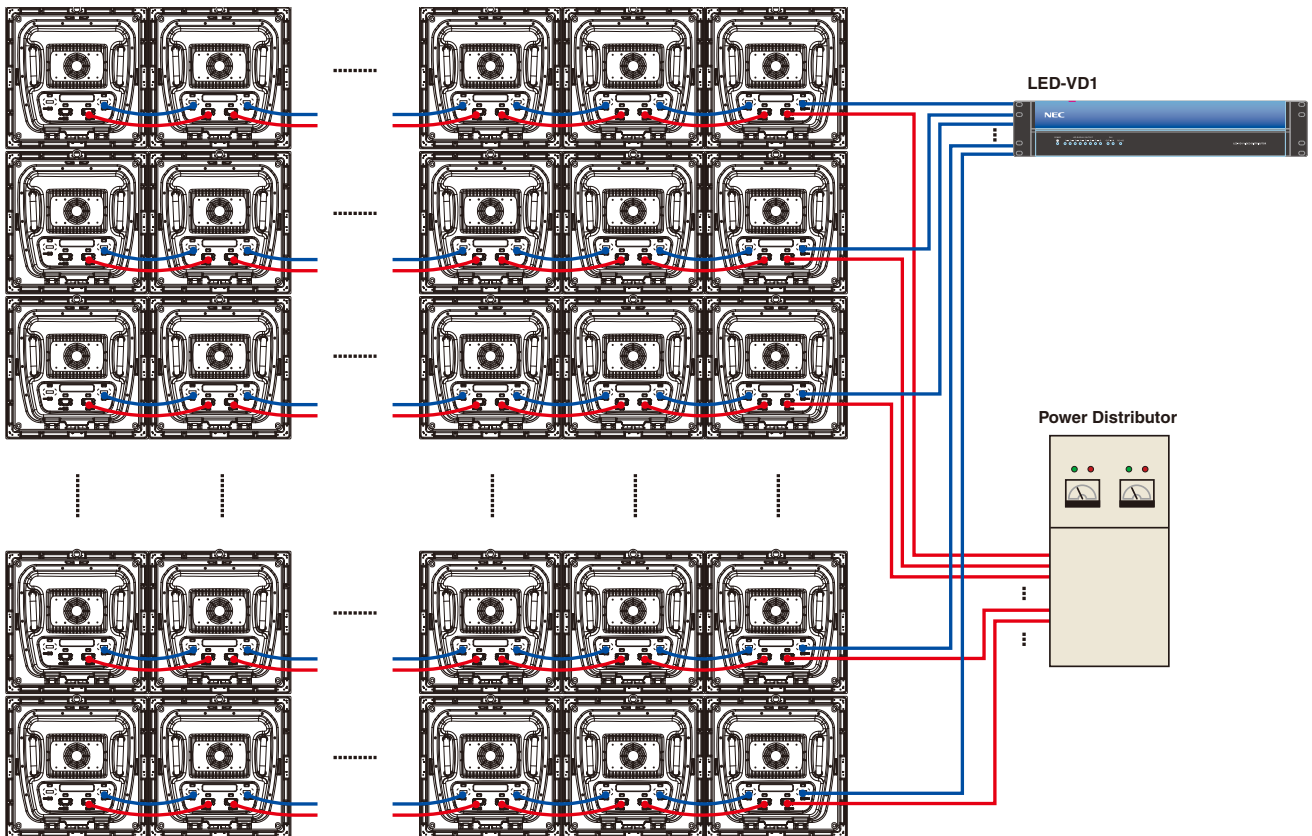
Troubleshooting

Check the following items.

| Problems/Symptoms	Cause and Solution
No image is displayed	• Check to make sure the signal cable is connected. • Only 1024x768 @60Hz signals are compatible. Check the input signal.
There is visible noise in the image (In one specific module)	• Check to make sure the signal cable is connected properly. • If there is no problem with the signal cable, the LED Module may be broken. Contact the retailer you bought the product from or the repair/after-service center.
There is visible noise in the image (In multiple modules after a specific one)	• Check to make sure the signal cable is connected properly. • If you observe noise in a LED Module connected to a specific output terminal of the video distributor (LED-VD1), the video distribuor may be broken. Contact the retailer you bought the product from or the repair/after-service center.
There is visible noise in the image (All modules)	• Only 1024x768 @60Hz signals are compatible. Check the input signal. • Check the input signal of the video distributor (LED-VD1). • If no other problem is found after performing the steps above, the video distributor may be broken. Contact the retailer you bought the product from or the repair/after-service center.
Images after a specific module in a group of cascaded LED Modules are not being displayed	• Check to make sure the power cord is plugged in to all LED Modules where the problem occurs. • Check the signal cable used for the DVI input to the LED Modules where the problem occurs. • If no other problem is found after performing the steps above, the modules may be broken. Contact the retailer you bought the product from or the repair/after-service center.
Images on a specific module in a group of cascaded LED Modules are not being displayed	• Check that the Dimming setting for the LED Module is not set to 0. Use the control software included with the video distributor (LED-VD1) to check this value. • If there is no problem with the above setting, the LED Module may be broken. Contact the retailer you bought the product from or the repair/after-service center.
No LED Modules images are being displayed at all.	• Check to make sure that the LED Modules are receiving power. • Check that the Dimming setting for the LED Modules are not set to 0. Use the control software included with the video distributor (LED-VD1) to check this value. • If there is no problem found after performing the checks above, the video distributor (LED-VD1) may be broken. Contact the retailer you bought the product from or the repair reception or after-sales service center.
LED Modules vary in brightness	The Dimming, Gamma, or Color Temperature settings may be different for each LED Module. Use the control software included with the video distributor (LED-VD1) to adjust these settings.
Cannot perform control through the video distributor	• Use a DVI dual link cable for the signal cable. Check the DVI signal cable connected to the video distributor. • Check the communication settings on your PC. See the user's manual for the video distributor (LED-VD1) for more details.

Appendix

Specifications

| Product Name		LED-06AF1	LED-15BF1
LED Configuration		3-in-1 SMD Black Type	R/G/B Through-hole Type
Pixel Pitch		6.25 mm	15.625 mm
Resolution		80 x 80 dots	32 x 32 dots
Brightness		2000 cd/m^2 ±5%	7500 cd/m^2 ±5%
Contrast Ratio		3500:1	4500:1
Refresh Rate		800 Hz or higher	800 Hz or higher
Color Processing		14 bit	16 bit
Color Temperature		3200K, 5000K, 6500K (Default Setting), 7500K, 9300K	3200K, 5000K, 6500K (Default Setting), 7500K, 9300K
Gamma Correction		1.8/2.0/2.2/2.4	1.8/2.0/2.2/2.4
Dimming Levels		64 Levels	64 Levels
Viewing Angle		(H) ±75° or wider, (V) ±70° or wider	(H) ±75° or wider, (V) +15°/-30° or wider
LED Lifetime (Brightness Reduced to Half)	Normal Use	100,000 hours	100,000 hours
	Full White, Maximum Brightness	50,000 hours	50,000 hours
Video Input	Interface	DVI-D	DVI-D
	Resolution	1024x768@60Hz	1024x768@60Hz
Video Output	Interface	DVI-D	DVI-D
Control		RS-422 (Use DVI-D connector)	RS-422 (Use DVI-D connector)
Power		100 V AC to 240 V AC, 50/60 Hz	100 V AC to 240 V AC, 50/60 Hz
	Input	IEC-3 (Male)	IEC-3 (Male)
	Output	IEC-3 (Female)	IEC-3 (Female)
	Power Cord No. of Cascade Connections	4 (at 100 V AC)	9 (at 100 V AC)
		5 (at 110 V AC)	10 (at 110 V AC)
		10 (at 200 V AC)	20 (at 200 V AC)
		10 (at 240 V AC)	22 (at 240 V AC)
Power Consumption (Max)		235 W	135 W
Complied Regulatory and Guidelines		cTUVus, TUV-GS, FCC(Class-A), CE(Class-A)	cTUVus, TUV-GS, FCC(Class-A), CE(Class-A), IP-65
Dimensions		499.7 (W) x 499.7 (H) x 170.3 (D) mm	499.4 (W) x 499.4 (H) x 188 (D) mm
Weight		12.7kg(28.0lbs.)	14.0kg(30.9lbs.)
Operating Environment	Temperature	-20°C to 40°C	-20°C to 50°C
	Humidity	10% to 90%(without condensation)	10% to 99%(without condensation)
Storage Environment	Temperature	-30°C to 60°C	-30°C to 60°C
	Humidity	10% to 90%(without condensation)	10% to 99%(without condensation)

NOTE: Technical specifications are subject to change without notice.

Dimensional Drawing

LED-06AF1

499.7

499.7

170.3

410

410

LED-15BF1

499.4

499.4

188

410

410
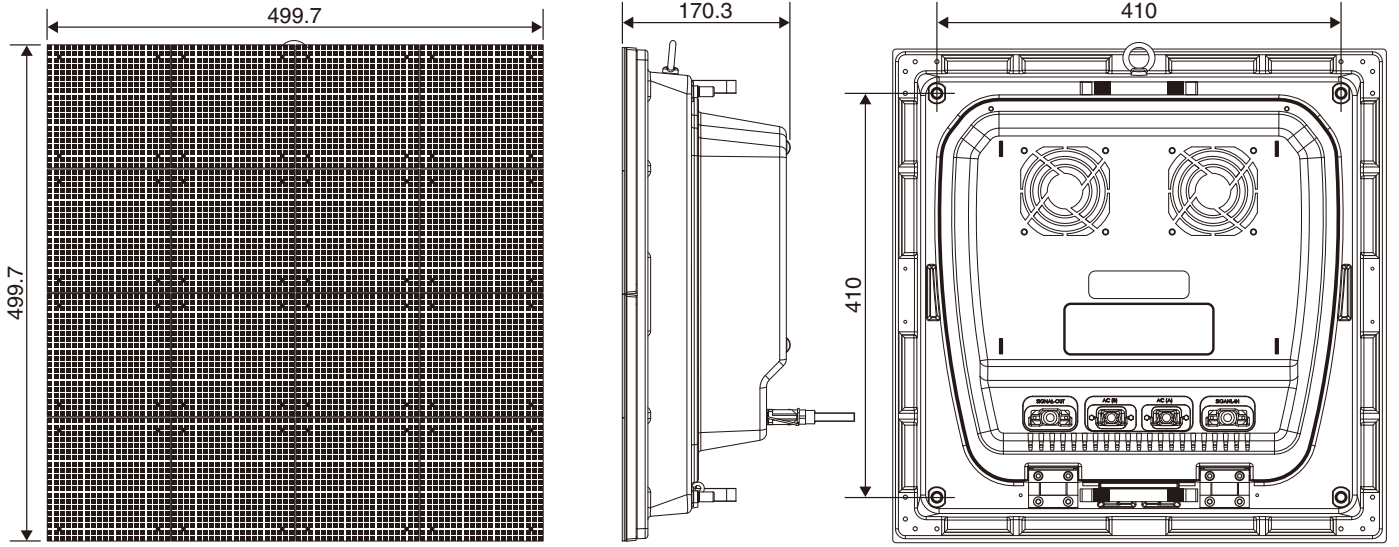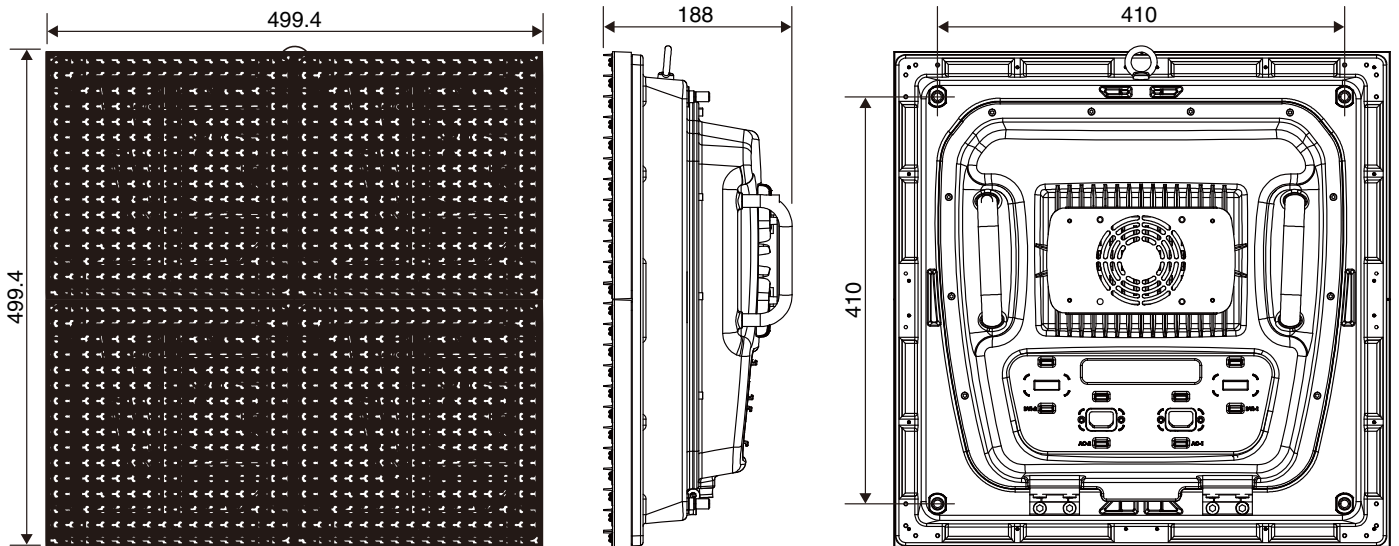
Unit: mm

Manufacturer's Recycling and Energy Information

NEC DISPLAY SOLUTIONS is strongly committed to environmental protection and sees recycling as one of the company'stop priorities in trying to minimize the burden placed on the environment. We are engaged in developing environmentally-friendly products, and always strive to help define and comply with the latest independent standards from agencies such as ISO (International Organisation for Standardization) and TCO (Swedish Trades Union).

Disposing of your old NEC product

The aim of recycling is to gain an environmental benefit by means of re-use, upgrading, reconditioning or reclamation of material. Dedicated recycling sites ensure that environmentally harmful components are properly handled and securely disposed. To ensure the best recycling of our products, **NEC DISPLAY SOLUTIONS offers a variety of recycling procedures** and gives advice on how to handle the product in an environmentally sensitive way, once it has reached the end of its life.

All required information concerning the disposal of the product and country-specific information on recycling facilities can be found on our following websites:

http://www.nec-display-solutions.com/greencompany/ (in Europe),

http://www.nec-display.com (in Japan) or

http://www.necdisplay.com (in USA).

WEEE Mark (European Directive 2002/96/EC)

Within the European Union

EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your NEC display products, please follow the guidance of your local authority, or ask the shop where you purchased the product, or if applicable, follow any agreements made between yourself and NEC.

The mark on electrical and electronic products only applies to the current European Union Member States.

Outside the European Union

If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.