

DLP Cinema® Projector

NEC

User's Manual

DLP Cinema® Projector

NC1201L-A

NEC Display Solutions, Ltd.

Model No. NP-NC1201L-A

Important Information

Precautions

Please read this manual carefully before using your **NC1201L-A** and keep the manual handy for future reference. The NC1201L-A (projector unit) is called the “projector,” and the NP-90MS01/NP-90MS02 (integrated media server) is called the “media block” or “IMB” in this manual.

- DLP (Digital Light Processing), DLP Cinema and DLP Cinema logo are trademarks of Texas Instruments.
- Microsoft, Windows and Internet Explorer are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Mozilla and Firefox are either registered trademarks or trademarks of the Mozilla Foundation in the United States and/or other countries.
- Oracle and Java are registered trademarks of Oracle and/or its affiliates.
- Linux is a registered trademark of Linus Torvalds in the United States and/or other countries.
- Other product names and logos mentioned in the user's manual may be the trademarks or registered trademarks of their respective holders.
- The display screens and illustrations shown in this manual may differ slightly from the actual ones.
- GPL/LGPL Software Licenses
The product includes software licensed under GNU General Public License (GPL), GNU Lesser General Public License (LGPL), and others.
For more information on each software, see “readme.pdf” inside the “about GPL&LGPL” folder on the supplied CD-ROM.



WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT OPEN TOP COVER. NO USER SERVICEABLE PARTS INSIDE.



This symbol warns the 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 of 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.

Laser Safety Caution

This product is classified as Class 1 of IEC60825-1 Third edition 2014. Obey the laws and regulations of your country in relation to the installation and management of the device.



CAUTION

Use of controls or adjustments of procedures other than those specified herein may lead to hazardous laser radiation exposure.

- Do not look into the lens while the projector is on. Serious damage to your eyes could result.



- Keep any items such as magnifying glass out of the light path of the projector. The light being projected from the lens is extensive, therefore any kind of abnormal objects that can redirect light coming out of the lens, can cause unpredictable outcome such as fire or injury to the eyes.
- When turning on the projector, ensure that nobody is facing towards the lens in the path of the light emitted from the laser.
- This product can only be operated in theaters by specified personnel. Customers should not operate this product.

DOC Compliance Notice (for Canada only)

This Class A digital apparatus meets all requirements of the Canadian ICES-003 Standards.

Machine Noise Information Regulation - 3. GPSGV,

The highest sound pressure level is less than 70 dB (A) in accordance with EN ISO 7779.



WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CAUTION

- In order to reduce any interference with radio and television reception use a signal cable with ferrite core attached. Use of signal cables without a ferrite core attached may cause interference with radio and television reception.
- 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 installation 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.

WARNING

THE END USER IS NOT ALLOWED TO OPEN OR MODIFY THE PRODUCT.
NO USER SERVICEABLE PARTS.
MAINTENANCE AND SERVICE OF THE PRODUCT IS ONLY TO BE HANDLED BY NEC AUTHORIZED TECHNICIANS.

Important Safeguards

These safety instructions are to ensure the long life of your projector and to prevent fire and shock. Please read them carefully and heed all warnings.

Installation

1. Do not point the projection beam toward other people or reflective objects.
2. Consult your dealer for information about transporting and installing the projector. Do not attempt to transport and install the projector yourself. The projector must be installed by qualified technicians in order to ensure proper operation and reduce the risk of bodily injury.
3. Place the projector on a flat, level surface in a dry area away from dust and moisture. Tilting the front of the projector up or down from level could reduce Laser life. Do not put the projector on its side when the Laser is on. Doing so may cause damage to the projector.
4. Do not place the projector in direct sunlight, near heaters or heat radiating appliances.
5. Exposure to direct sunlight, smoke or steam could harm internal components.
6. Handle your projector carefully. Dropping or jarring your projector could damage internal components.
7. To carry the projector, a minimum of four persons are required.
8. Do not hold the lens part with your hand. Otherwise the projector may tumble or drop, causing personal injury.
9. Do not place heavy objects on top of the projector.
10. Turn off the projector, and disconnect the power cable before moving the projector.

11. Do not install and store the projector in the below circumstances. Failure to do so may cause of malfunction.
 - In powerful magnetic fields
 - In corrosive gas environment
 - Outdoors
12. If you wish to have the projector installed on the ceiling;
 - Do not attempt to install the projector yourself.
 - The projector must be installed by qualified technicians in order to ensure proper operation and reduce the risk of bodily injury.
 - In addition, the ceiling must be strong enough to support the projector and the installation must be in accordance with any local building codes.
 - Please consult your dealer for more information.

WARNING

1. Do not use the projector with the supplied lens cap or equivalent while the projector is operating. This may cause the lens cap to heat up and deform or melt.
2. Do not place any objects, which are easily affected by heat, in front of the projector lens. Doing so could lead to the object melting from the heat that is emitted from the light output.



It is possible to vertically set up this device at 360 degrees. However, please do not set up the main part of the device slanted to the left or right because it may result in malfunctions.



Important Information

Power Supply

1. The projector is so designed that it operates with the power supply voltage described below.
 - AC200–240V 9.2 A 50/60Hz Single-phaseEnsure that your power supply fits this requirement before attempting to use your projector.
2. The power cable is not included with the projector. Ask your dealer for the power cable to select and purchase. Use a power cable that meets the standards and power supply voltage of the country where you are using the projector.
Refer to “2-2. Connecting the Power Cable” (page 18) for details on connecting the power cable.
3. Handle the power cable carefully. A damaged or frayed power cable can cause electric shock or fire.
 - Do not bend or tug the power cable excessively.
 - Do not place the power cable under the projector, or any heavy object.
 - Do not cover the power cable with other soft materials such as rugs.
 - Do not heat the power cable.
4. Placing the power cable and the signal cable closely to each other can cause beat noise. If this happens, keep the two separated so that beat noise is not generated. Beat noise is corruption of the picture often seen as a rolling band moving through the image.
5. Do not touch the projector during a thunder storm. Doing so can cause electrical shock or fire.
6. When installed on the ceiling, install the breaker in a location that is easy to reach by hand.

Fire and Shock Precautions

1. Ensure that there is sufficient ventilation and that vents are unobstructed to prevent potentially dangerous concentrations of ozone and the build-up of heat inside your projector. Allow at least 12 inches (30cm) of space between your projector and a wall. In particular, clear a space of 26.7 inches (70 cm) or more in front of the air outlet on the rear surface and 12 inches (30 cm) or more on the upper part of the projector body.
2. Prevent foreign objects such as paper clips and bits of paper from falling into your projector. Do not attempt to retrieve any objects that might fall into your projector. Do not insert any metal objects such as a wire or screwdriver into your projector. If something should fall into your projector, disconnect it immediately and have the object removed by a qualified service person.
3. Turn off the projector, unplug the power cable and have the projector serviced by a qualified service personnel under the following conditions:
 - When the power cable or plug is damaged or frayed.
 - If liquid has been spilled into the projector, or if it has been exposed to rain or water.
 - If the projector does not operate normally when you follow the instructions described in this user's manual.
 - If the projector has been dropped or the cabinet has been damaged.
 - If the projector exhibits a distinct change in performance, indicating a need for service.
4. When using a LAN cable:
For safety, do not connect to the connector for peripheral device wiring that might have excessive Voltage.

Cleaning

1. Turn off the projector and unplug the power cable before cleaning the cabinet or replacing the Laser.
2. Clean the cabinet periodically with a cloth. If heavily soiled, use a mild detergent. Never use strong detergents or solvents such as alcohol or thinner.
3. Use a blower or lens paper to clean the lens, and be careful not to scratch or mar the lens.
4. Do not touch the projector or the power plug with wet hand. Doing so can cause electrical shock or fire.



CAUTION

1. Do not unplug the power cable from the wall outlet or projector when the projector is powered on. Doing so can damage the projector.
 - While projecting images
 - While cooling after the power is turned off.
(The STATUS indicator LED blinks in orange while the fan is rotating, and “cooling...” is displayed on the LCD screen.)
 - When using the NP-90MS01/NP-90MS02: 90 seconds
 - During IMB Operation (if the projector is not in standby state)
2. Do not turn off the AC power for 90 seconds after the Laser is turned on and while the POWER indicator is blinking green. Doing so could cause premature Laser failure.
3. Keep hands away from the lens mounting portion while the lens shift is in operation. Failure to do so could result in fingers being pinched between the cabinet and lens cover.

Caution on Carrying the Projector/Handling the Optional Lens

When shipping the projector with the lens, remove the lens before shipping the projector. Always attach the dust cap to the lens whenever it is not mounted on the projector. The lens and the lens shift mechanism may encounter damage caused by improper handling during transportation.

WARNING TO CALIFORNIA RESIDENTS:

Handling the cables supplied with this product will expose you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm. WASH HANDS AFTER HANDLING

Light Module

1. A light module containing multiple laser diodes is included in the product as the light source.
2. These laser diodes are sealed in the light module. No maintenance or service is required for the performance of the light module.
3. End user is not allowed to replace the light module.
4. Contact qualified distributor for light module replacement and further information.

Disposing of your used product



EU-wide legislation as implemented in each Member State requires that used electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste.

This includes projectors and their electrical accessories. When you dispose of such products, please follow the guidance of your local authority and/or ask the shop where you purchased the product.

After collecting the used products, they are reused and recycled in a proper way. This effort will help us reduce the wastes as well as the negative impact to the human health and the environment at the minimum level.

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



For EU: The crossed-out wheeled bin implies that used batteries should not be put to the general household waste! There is a separate collection system for used batteries, to allow proper treatment and recycling in accordance with legislation.

According to the EU directive 2006/66/EC, the battery can't be disposed improperly. The battery shall be separated to collect by local service.

For questions relating to unclear points or repairs

Contact your dealer or the following support branch for questions relating to unclear points, malfunctions and repairs of the product.

In Europe

Company Name: NEC Display Solutions Europe GmbH
Address: Landshuter Allee 12-14, D-80637 Muenchen, Germany
Telephone: +49 89 99699 0
Fax Line: +49 89 99699 500
Email Address: info@nec-displays.com
WEB Address: <http://www.nec-display-solutions.com>

In North America

Company Name: NEC Display Solutions of America, Inc.
Address: 500 Park Boulevard, Suite 1100 Itasca, Illinois 60143, U.S.A.
Telephone: +1 800 836 0655
Fax Line: +1 800 356 2415
Email Address: pjtechsupport@necdisplay.com
WEB Address: <http://www.necdisplay.com/>

In China

Company Name: NEC Solutions (China) Co., Ltd.
Address: Rm 1903, Shining Building, 35 Xueyuan Rd, Haidian District Beijing 100191, P.R.C.
Telephone: +8610-4008-900-678
Email Address: nec-support@nec.cn

In Hong Kong and Taiwan

Company Name: Strong Westrex, Inc.
Address: Room 4108 China Resources Building, No. 26 Harbour Road, Wanchai, Hong Kong
Telephone: +852 2827 8289
Fax Line: +852 2827 5993
Email Address: Felix.chen@btn-inc.com

In South Korea

Company Name: Hyosung ITX Co., Ltd.
Address: 1F, Ire Building, 2, Yangpyeong-dong 4-ga, Yeongdeungpo-gu, Seoul, Korea 150-967
Telephone: +82-2-2102-8591
Fax Line: +82-2-2102-8600
Email Address: moneybear@hyosung.com
WEB Address: <http://www.hyosungitx.com>

In Australia and New Zealand

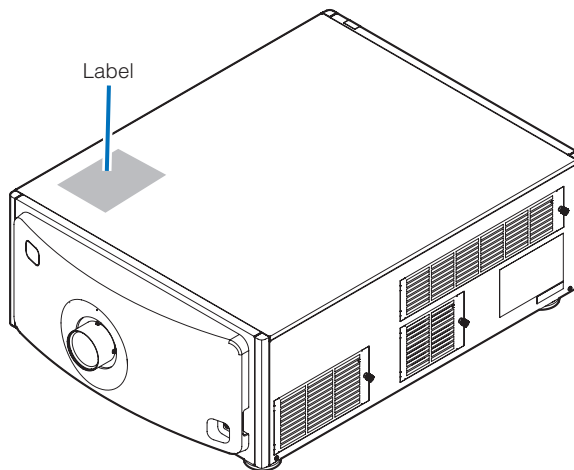
Company Name: NEC Australia Pty Ltd
Address: 26 Rodborough Road Frenchs Forest NSW 2086
Telephone: 131 632 (from anywhere in Australia)
Email Address: displays@nec.com.au
WEB Address: <http://www.nec.com.au>


In Thailand, Singapore, Malaysia, Indonesia and Philippines

Company Name: Goldenduck International Co., Ltd.
Address: 65 Soi Phutthamothon Sai 1, 21 Bangramad, Talingchan, Bangkok, Thailand 10170
Telephone: +66-2887-8807
Fax Line: +66-2887-8808
Email Address: contact@goldenduckgroup.com

Laser Aperture Modules

- The laser module is equipped in this product.
Use of controls or adjustments of procedures other than those specified herein may lead to hazardous laser radiation exposure.
- This product is classified as Class 1 of IEC60825-1 Third edition 2014. Obey the laws and regulations of your country in relation to the installation and management of the device.
Blue pumping laser diodes: Wave length 448 nm, Output power 300 W
Blue laser diodes: Wave length 462 nm, Output power 56 W





RISK GROUP 3
WARNING
Possibly hazardous optical radiation emitted from this product.
Do not look at operating lamp. Eye injury may result.

リスクグループ 3
警告
強い光が製品から放射される。
目に悪影響を与える可能性があるのでビームを見ないこと。

GROUPE DE RISQUE 3
AVERTISSEMENT
Ce produit peut émettre des rayonnements optiques dangereux.
Ne regardez pas la lampe en fonctionnement. Il pourrait en résulter de graves blessures aux yeux.

RISIKOGRUPPE 3
WARNUNG
Dieses Produkt emittiert möglicherweise gefährliche optische Strahlung.
Schauen Sie nicht in die Projektionslampe. Eine Augenverletzung könnte die Folge sein.

ГРУППА РИСКА 3
ПРЕДУПРЕЖДЕНИЕ
Данное изделие может генерировать оптическое излучение.
Не смотрите на рабочую лампу. Это может привести к повреждению зрения.

위험군 3
경고
아마도 이 제품에서 위험한 광 방사선이 방출되었습니다.
작동 중인 램프를 쳐다보지 마십시오. 눈 부상이 생길 수 있습니다.

风险等级 3
警告
本产品会发出可能有害的光辐射。
请勿直视光束。否则可能导致眼睛受伤。

24L79481

Table of Contents

Important Information	2
1.What's in the Box? and the Names of the Projector Parts.....	8
1-1. Features	8
1-2. What's in the Box?	10
1-3. Names of the Projector Parts	11
2.Installation and Connection.....	17
2-1. Steps for setting up and connecting	17
2-2. Connecting the Power Cable	18
2-3. Connecting the image input terminals.....	23
2-4. Connecting the various control terminal	23
3.Projection of Images (Basic Operation).....	24
3-1. Steps of projecting images.....	24
3-2. Turning your projector on.....	25
3-3. Selecting the title of input signal.....	27
3-4. Adjusting the position and the size of projected screen.....	28
3-5. Preventing misoperations	32
3-6. Turning on/off the light source with the projector turned on	33
3-7. Turning your projector off	34
4.Using Menus	35
4-1. Basic operation with adjustment menus.....	35
4-2. Table of adjustment menus	40
4-3. Title Select	41
4-4. Configuration	42
4-5. Title Setup	44
4-6. Information	44
5.Maintenance of Your Projector	48
5-1. Cleaning the Cabinet.....	48
5-2. Cleaning the Lens	49
5-3. Cleaning the Air Filters	49
6.Appendix	56
6-1. Troubleshooting.....	56
6-2. Indicator display list	57
6-3. Operation using an HTTP browser	60
6-4. Writing of the log file (Save Information)	63
6-5. Outline Drawing	66
6-6. Specifications.....	67
6-7. Power Cable	68
6-8. Pin Assignment and Functions of Terminal	70
6-9. Related products list.....	77

1.

What's in the Box? and the Names of the Projector Parts

1-1. Features

- **DLP Cinema® projector**

Complies with the strict projection standards defined by the Digital Cinema Initiatives (DCI) industry group in the United States using leading imaging technology of NEC. It also supports 3D projection and high frame rates (HFR).

- **Employs a long life laser light source**

The projector employs a newly developed laser light source offering excellent reliability and redundancy. Since the laser light source has a long life (approx. 20,000 hours), this delivers low cost operation by removing the need for maintenance such as replacing and adjusting the light module over extended periods of time. Furthermore, it reduces the risk of the light source suddenly shutting off and leaving a black screen.

- **Superior dust prevention abilities**

The projector utilizes a circular cooling system when cooling the optical components. It cycles cold air to replace the warm air inside the interior of the airtight case so open air does not touch the optical components. This protects against the device getting dirty with dust and dirt, as well as maintains brightness.

*However, it cannot perfectly insulate against dust.

- **Delivers reduced installation space and increased freedom through a more compact and lightweight body**

The use of a 0.69" DLP cinema chip together with integration of the light module into the projector main unit both delivers a reduced installation area as well as improving the degree of freedom of installation, such as removing the need to connect to external ventilation ducting and supporting both pedestal-mounted and ceiling-suspended installation. A wide variety of optional lenses (sold separately) are also available for the projector in order to support a wide variety of installation methods (a lens is not mounted when the projector is shipped from the factory).

- **Running cost reduction by using a metal filter**

With regular cleaning, the filter can be repeatedly used without replacement.

On top of reducing running costs, we have implemented this eco-friendly feature so there is no need to dispose of used filters.

- **Equipped with easy to use functions**

- (1) Lens memory function and light memory function that can be operated with one touch.

The projector is equipped with a lens memory function that can save the zoom position and shift position of the lens and a light memory function that can save the brightness setting separately for each input signal. This makes it possible to project using preconfigured settings simply by selecting the signal when projecting multiple different input signals each with different screen size and brightness settings.

- (2) Built-in automatic adjustment function that makes the brightness and color of the light source uniform

Degradation of brightness and variations in color that occur as the light source is used for longer periods of time are kept to a minimum (the period over which variations in brightness can be limited varies depending on the brightness setting).

- (3) Frequently used titles can be registered in preset buttons

The projector has been equipped with 8 preset buttons that make it easy to select registered title (input signal). To this projector, 100 titles at most can be registered (input signal registration). Among the registered titles, any 16 titles can be assigned to the preset buttons.

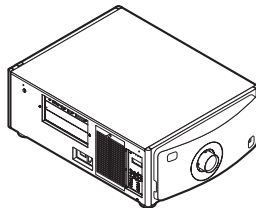
- (4) You can operate and configure the projector via a network from a PC

You can operate and configure the projector via a network from a PC by using the separately supplied software Digital Cinema Communicator (DCC).

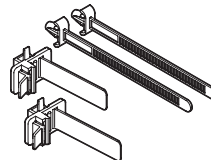
1-2. What's in the Box?

Check the content of the accessories.

☐ Projector



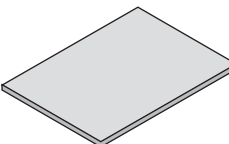
☐ Power cable stopper



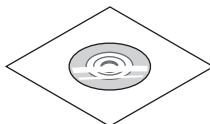
☐ Service Keys x 2



☐ Important Information



☐ CD-ROM (User's Manual)



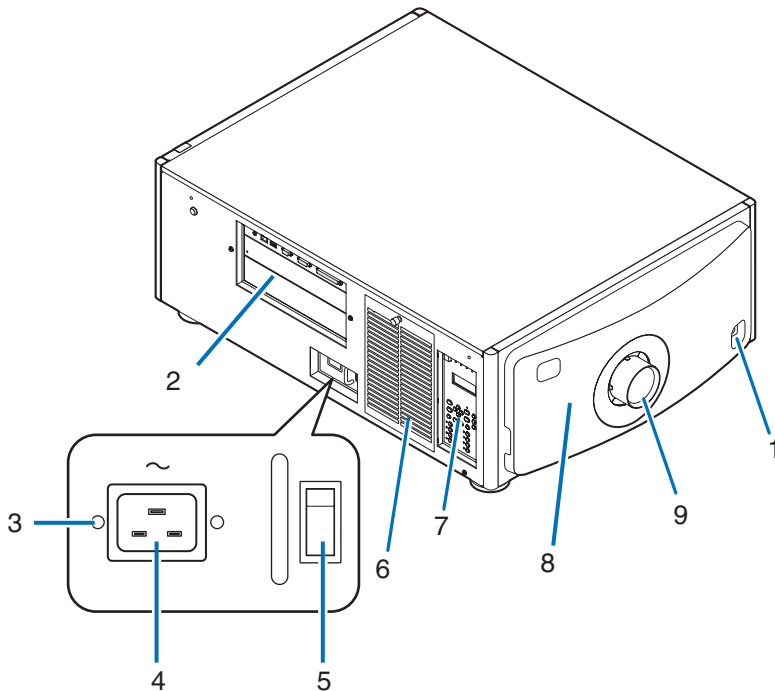
☐ Warranty (for Japan)



TIP In the event that you did not receive all of the accessories outlined above, or some are damaged, contact your dealer/distributor.
Differs slightly from the drawings in this manual, but there is no problem in actual use.

1-3. Names of the Projector Parts

1-3-1. Front of the projector



1. Rear status indicator

Indicates the status of the projector. When the projector is operating normally, these light/blink in green or orange. When an error occurs, they light/blink in red. When an error occurs, check the contents of the display on the LCD screen. (See page 59)

2. Connection terminals

Various image signal cable are to be connected here. (See page 14)

You can expand signal input terminals by installing the optional board. (See page 77).

Contact your dealer/distributor for more information on separately sold optional products.

3. Power cable stopper

Prevents the power plug from falling out from the projector.

4. AC input

Connects to the AC power cable. The AC power cable is not an accessory. Consult with your dealer/distributor about the AC power cable.

5. Main power switch

While AC power is being supplied, set the main power switch to ON position (1), then your projector will enter a standby state.

6. Air inlet / Air filter

The air inlet for cooling inside the projector. Do not cover.

An air filter is attached over the air inlet to prevent dust. Refer to "5-3. Cleaning the Air Filters" (page 49) on how to clean the air filter.

7. Control panel

On the control panel, power to your projector is turned on or off, titles are selected, and various adjustments are made of projected screen. (See page 15)

1. What's in the Box? and the Names of the Projector Parts

8. Remote interlock connector (inside front of projector)

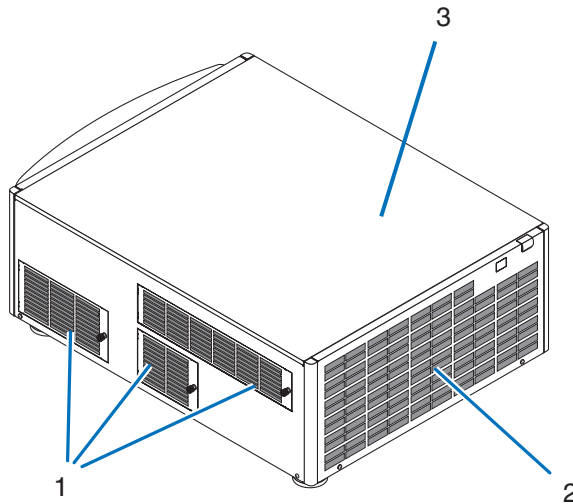
This port is for safely using the laser in this device. It is used to externally control the laser illumination in the projector. Consult with your dealer/distributor about using this.

9. Lens (optional)

Images are projected from the lens. Request your dealer/distributor to install or replace the lens.

NOTE Do not cover the air inlets and outlet while the projector is in operation. Insufficient ventilation leads to a rise of the internal temperature and may cause a fire or malfunction.

1-3-2. Rear of the projector



1. Air inlet / Air filter

The air inlet for cooling inside the projector. Do not cover.

Two filters are attached over the air inlet to prevent dust. Refer to "5-3. Cleaning the Air Filters" (page 49) on how to clean the air filters.

2. Air outlet

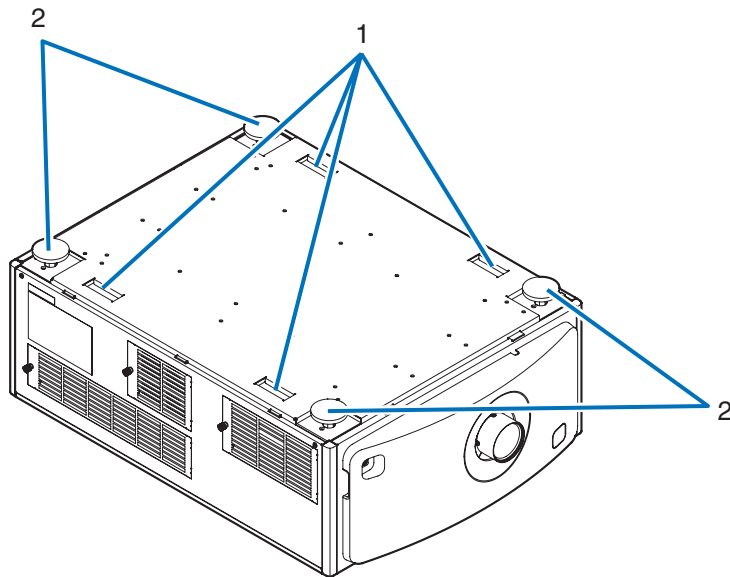
The air outlet to exhaust heat inside the projector. Do not cover.

3. Buzzer (inside rear of projector)

The buzzer rings when the power is turned on or an error has occurred.

NOTE Do not cover the air inlets and outlet while the projector is in operation. Insufficient ventilation leads to a rise of the internal temperature and may cause a fire or malfunction.

1-3-3. Bottom of the projector



1. Handle (4 locations)

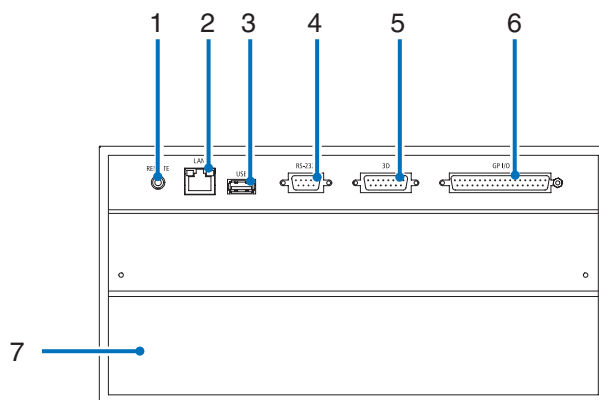
Handles for moving the projector.

2. Level adjusters (in 4 positions)

In the ordinary installation, you can adjust the projector inclination at 4 positions.

1. What's in the Box? and the Names of the Projector Parts

1-3-4. Connection terminals



1. Service terminal (REMOTE) (Stereo mini)

This terminal is used for service purpose only.

2. Ethernet port (LAN) (RJ-45)

The port for interfacing with an image signal server or controlling the projector from a PC via a network. Connect the projector and the PC with a commercially available Ethernet cable (10/100Base-T).

3. USB port (USB) (type A)

The port for the projector maintenance.

4. PC control terminal (RS-232) (D-sub 9P)

The terminal for operating the projector from a PC via an RS-232C or for service personnel to set data for the projector. Connect the projector and the PC with a commercially available RS-232C straight cable.

5. 3D terminal (3D) (D-sub 15P)

The terminal for connecting a 3D image system to the projector. (See page 76)

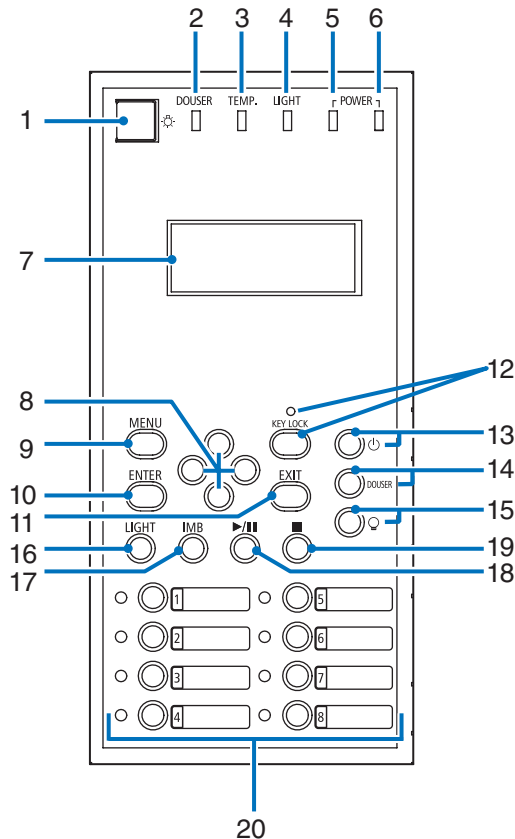
6. External control terminal (GP I/O) (D-sub 37P)

The terminal for externally controlling the projector or connecting a 3D image system to the projector. (See page 71)

7. Slot A

The slot is used for an image media block (IMB). Contact your dealer/distributor for an installation of IMB. Refer to the IMB instruction manual for details on IMB.

1-3-5. Control panel



1. **Light button**
Toggles ON and OFF the light on the control panel of the projector and the backlight on the LCD screen.
2. **DOUSER indicator**
Displays the douser open/close state. (See page 58)
3. **TEMP. indicator**
Displays the status of the temperature inside the projector. It blinks or lights up when the temperature inside the projector rises close to the operating temperature limit or exceeds the operating temperature. (See page 58)
4. **LIGHT indicator**
Displays the status of the light source. The indicators turn on when the light source is on and turn off when the light source is off. (See page 58)
5. **POWER indicator**
Displays the status of the power after the projector software has been started. (See page 58)
6. **POWER (BOOT) indicator**
Displays the status that the projector software is starting after the main power switch has been turned ON (see page 58). It goes off once the projector software startup and internal check are completed.
7. **LCD screen**
The LCD screen displays menus and setting values for the projector operations.
8. **UP/DOWN/LEFT/RIGHT buttons**
Press these buttons to select a menu item while a menu is displayed.
9. **MENU button**
Press this button to display the menu for various settings and adjustments. (See page 40)
10. **ENTER button**
Press this button to select the menu item.

1. What's in the Box? and the Names of the Projector Parts

11. EXIT button

Press this button to return to the previous menu item.

12. KEY LOCK button

Press this button to lock (KEY LOCK) the buttons on the control panel. Buttons on the control panel do not function while KEY LOCK is on.

Pressing the KEY LOCK button for one second or longer while KEY LOCK is off locks the buttons.

Pressing the KEY LOCK button for one second or longer while KEY LOCK is on unlocks the buttons. (See page 32)

NOTE KEY LOCK becomes automatically on if no control panel operation takes place in the standby state for 30 seconds by default. (See page 32)

13. POWER button

Press this button for more than three seconds to turn on or off (standby) the projector. (See page 58)

In order to start up the projector, turn on the main power switch for the projector to set the projector in the standby state. (See page 25)

14. DOUSER button

Press this button to open and close the douser. (See page 58)

15. LIGHT ON/OFF button

Press this button for five seconds or longer to turn on or off the light source while the projector is on. (See page 33)

16. LIGHT button

Press this button to display the light source adjustment menu. (See page 31)

17. IMB button (planned to be supported in a future update)

This button is operable when the media block is installed in the projector.

Press this button to display the operation menu of the media block.

18. Play/pause button (planned to be supported in a future update)

This button is operable when the media block is installed in the projector.

Press this button to play or pause the image contents.

19. Stop button (planned to be supported in a future update)

This button is operable when the media block is installed in the projector.

Press this button to stop playing the image contents.

20. Preset buttons

Press the preset button to select a title (input signal) assigned to each button. Up to 100 titles (input signals) can be registered to this projector, and any 16 titles from them can be assigned to the preset button. Please request your dealer to register and change the titles of the buttons as required.

The preset button indicators show their assigned title or selection status. (See page 57)

TIP To select a title allocated to one of the preset buttons, use the following procedure.

- To select a title allocated to one of "Preset Button1" to "Preset Button8"
Press the button which corresponds to the number of the preset button (button <1> to <8>).
 - Press the <1> button to select the "Preset Button1".
 - Press the <8> button to select the "Preset Button8".
- To select a title allocated to one of "Preset Button9" to "Preset Button16"
Press the preset button (button <1> to <8>) while holding down the UP button.
 - Press the <1> button while holding down the UP button to select the "Preset Button9".
 - Press the <8> button while holding down the UP button to select the "Preset Button16".

2.

Installation and Connection

2-1. Steps for setting up and connecting

Use the following steps for setting up your projector:

- **Step 1**

Setup the screen and projector. (Contact your dealer to carry out the setup.)

- **Step 2**

Connect the power cable to the projector. (See page 18)

- **Step 3**

Connect cables to the image input terminals. (See page 23)

Connect cables to the various control terminals. (See page 23)

2-2. Connecting the Power Cable

The power cable is not included with the projector. Use a power cable that meets the standards and power supply voltage of the country where you are using the projector. Ask your dealer for the power cable to select and purchase.



WARNING

Carefully read the contents described in this section before connection and connect the cables according to the proper procedure. Inappropriate handling may cause fatal, serious or other bodily injuries due to fire or electric shock.



CAUTION

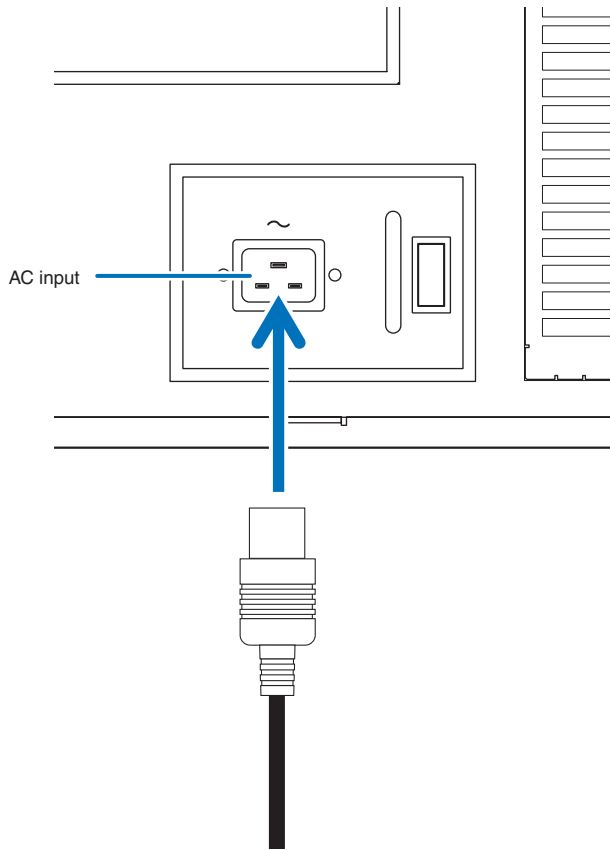
- Before connecting the power cables, check that the main power switch of the projector is turned off. Implement the connection with AC power shut off.
- Be sure to ground the equipment to ensure safety. Use a power cable that meets the standards and power supply voltage of the country where you are using the projector (page 68), and always connect the equipment to the ground. If the ground is not connected, it may cause electrical shocks.
- When connecting the power cable plugs to the AC IN and the electrical outlet, securely insert the plugs all the way in. If the connection between the power cable plug and the electrical outlet is loose, the plug area may generate heat, causing burns and accidents.

NOTE

- Install the electric outlet nearby the projector main unit so that the power supply can be cut by unplugging the AC power cable.
- When plugging in or unplugging the AC power cable, make sure that the main power switch is pushed to the [O] position. Failure to do so may cause damage to the projector.
- Do not use a three-phase power supply. Doing so may cause malfunction.

1 Connect the AC power supply cable.

Connect the AC power supply cable to the projector.



2 Connect the power plug to the electrical outlet.

This completes the connection of the AC power supply cable.

2. Installation and Connection

Attaching the power cable stopper

To prevent the power cable from accidentally removing from the AC IN of the projector, attach the supplied power cable stopper to clamp the power cable.



CAUTION

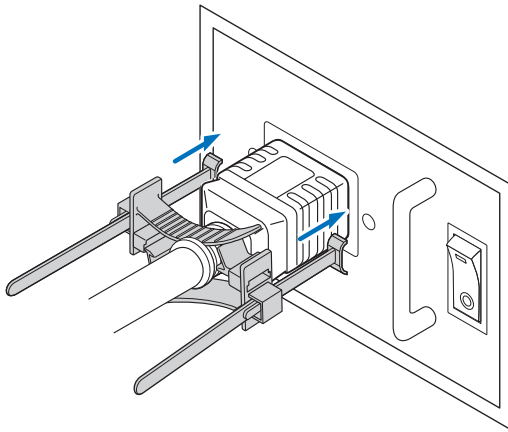
- To prevent the power cable from coming loose, make sure that all the prongs of the power cable are fully inserted into the AC IN terminal of the projector before using the power cable stopper to fix the power cable. A loose contact of the power cable may cause a fire or electric shock.
- Do not bundle the power cable. Doing this could cause heat or a fire.

NOTE

- Do not clamp the power cable with other cables. Doing so can generate noise, which can affect adversely the signal cable.
- Be careful not to insert the band inversely. Once the band is attached, it cannot be removed from the slot.

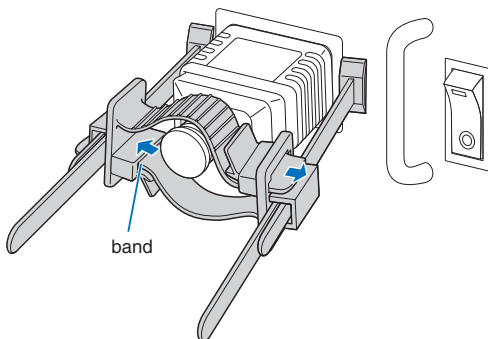
- 1** Set the clamber band to the power cable side, and insert the end of band of the power cable stopper into the slot next to the AC IN on the terminal panel.

Attach the power cable stopper to the other side in the same way.



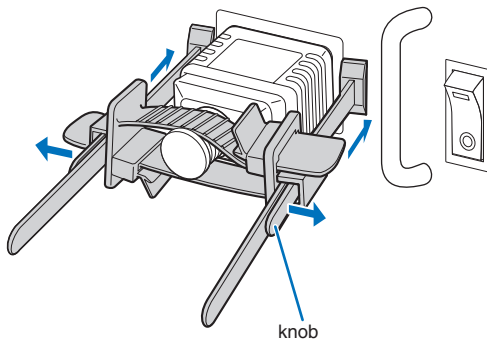
- 2** Pass each band through the slits in the power cable stopper.

Pass the bands through them so that the power cable will be sandwiched from above and below.



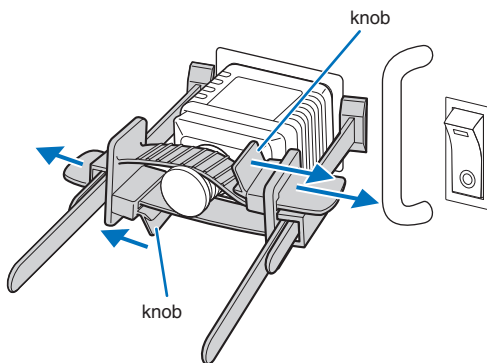
3 Slide the clamper to the hilt of the power cable.

Pulling the knob in the arrow direction allows you to adjust the clamper position.
Once the clamper position is adjusted, release the knob to lock the clamper.



4 Pull the band to hold the power cable.

Pulling the knob in the arrow direction allows you to adjust the band position.
Pull the top and bottom bands by keeping their balance.
Once the band position is adjusted, release the knob to lock.

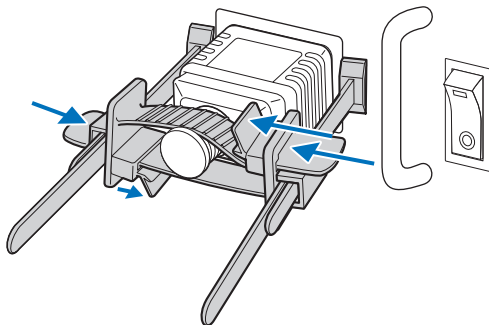


This completes the attachment of the power cable stopper.

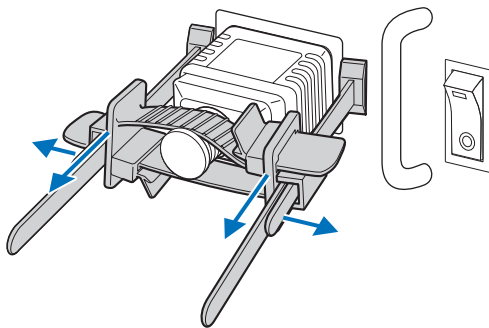
2. Installation and Connection

Removing the power cable from the power cable stopper

- 1 Pull the knob of the clammer and loosen the band.



- 2 Pull the knob and slide the clammer away from the power plug.



CAUTION

The projector may become hot temporarily when the power is turned off or if the AC power is disconnected while the projector is projecting. Take care when handling the projector.

2-3. Connecting the image input terminals

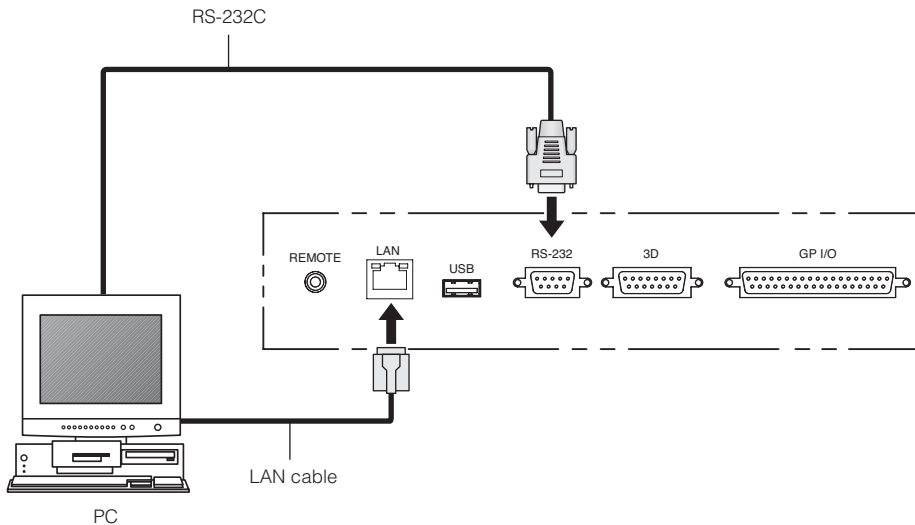
The video input ports that can be used with the IMB are as follows. Refer to the instruction manual of the IMB for details on connecting the video input ports with external equipment.

NP-90MS02	HDMI input port	x 1
	SDI input port	x 2

2-4. Connecting the various control terminal

For control, your projector comes with such ports as the PC control terminal and the Ethernet port (RJ-45).

- PC control terminal (RS-232) ----- Use this terminal when controlling the projector in serial connection from a PC.
- LAN port (LAN) ----- Use this port when controlling the projector in LAN connection from a PC.



3.

Projection of Images (Basic Operation)

3-1. Steps of projecting images

- **Step 1**

Turn on the power to the projector. (See page 25)

- **Step 2**

Select the title of input signal. (See page 27)

- **Step 3**

Adjust the position and size of the projected screen. (See page 28)

- **Step 4**

Turn off the power to the projector. (See page 34)

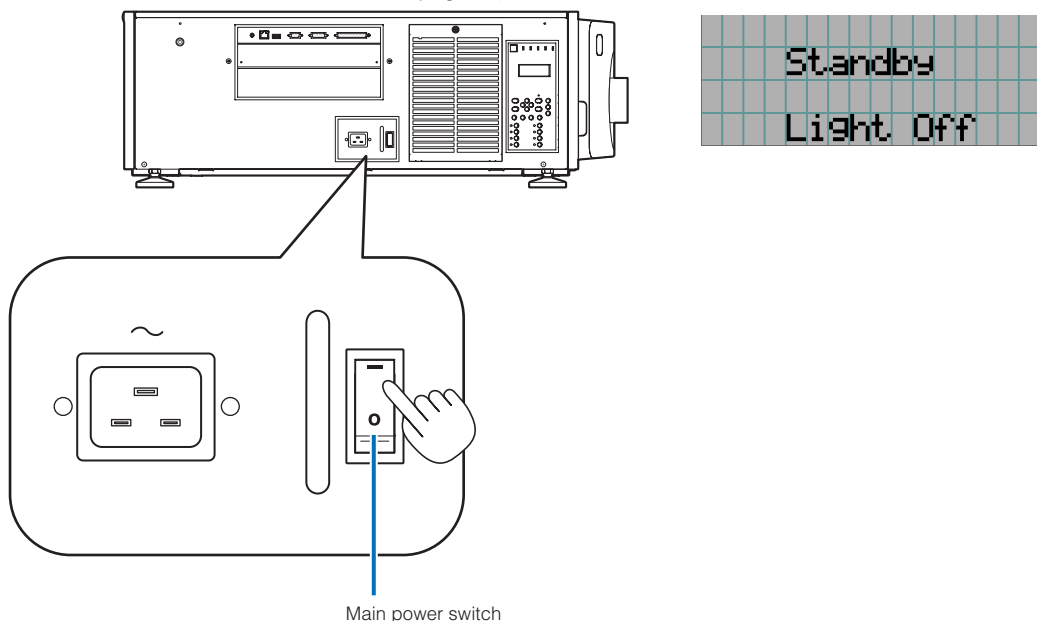
3-2. Turning your projector on

- Preparation:**
- Connect the power cable to the projector. (See page 18)
 - Supply AC power to the projector.

- NOTE**
- Turn off the main power switch to the projector when supplying or cutting AC power to the projector. Supplying or shutting down the AC power while the main power switch is on will damage the projector.
 - Turning on and off the projector involves a two-step operation; the “main power switch” and the “POWER button”.
 - Turning power on. (See this page)
 - [1] Turn on the “main power switch” of the projector.
Your projector is set in a standby state.
 - [2] If KEY LOCK is on, press the KEY LOCK button for one second or longer.
KEY LOCK is off and buttons on the control panel become operable.
 - [3] Press the POWER button three seconds or longer.
Your projector is turn on.
 - Turning power off. (See page 34)
 - [1] Press the POWER button three seconds or longer.
Your projector is set in a standby state.
 - [2] Turn off the “main power switch” of the projector.
Your projector is turned off.

1 Turn on the main power switch on the side of the projector.

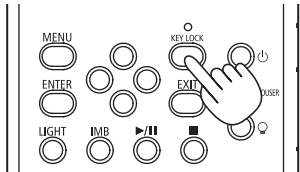
A buzzer sounds and the software begins to start. While the software is starting, the POWER (BOOT) indicator is changed from blinking in blue to lighting in blue. Once software startup is complete, the POWER (BOOT) indicator goes off, and the POWER indicator blinks in orange. When the projector goes into a standby state, the POWER indicator changes to lighting in orange and the rear status indicator lights in orange. KEY LOCK becomes automatically on if no control panel operation takes place in the standby state for 30 seconds by default. Buttons on the control panel do not function while KEY LOCK is on. (See page 32)



3. Projection of Images (Basic Operation)

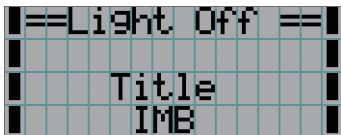
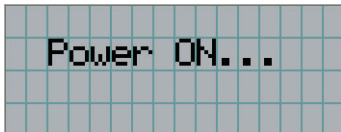
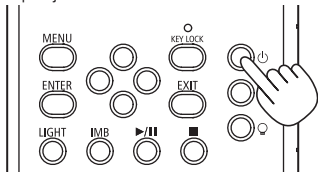
2 If KEY LOCK is on, press the KEY LOCK button for one second or longer.

KEY LOCK becomes off. The KEY LOCK button indicator turns off and buttons on the control panel become operable.
(See page 32)



3 Press the POWER button on the control panel of your projector three seconds or longer.

Your projector is turn on.

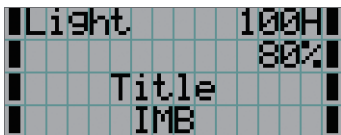
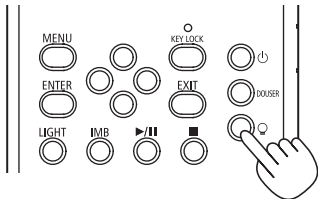


When the startup of the projector completes, the status of the POWER indicator, POWER (BOOT) indicator, DOUSER indicator, LIGHT indicator, and preset button (button <1> to <8>) changes as follows.

POWER indicator	Lit orange
POWER (BOOT) indicator	Off
DOUSER indicator	Initial settings: Off (douser is off)
LIGHT indicator	Initial settings: Off (light source is off)
Button <1> to <8>	The preset button which was last selected is lit green

4 Press the LIGHT ON/OFF button on the control panel for three seconds or longer.

After you press the button, the light source is turned on and the screen glows light about 15 seconds later.
The douser is closed until the light source turns on (the DOUSER indicator lights green). When the douser is open, the DOUSER indicator turns off.



NOTE

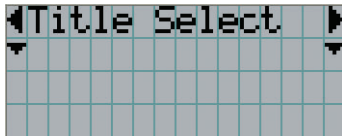
- While your projector is on, be sure to have the lens cap removed from the lens. Otherwise, the lens cap may get deformed due to a heat buildup.
- In the following instances, the power to your projector cannot be turned on even if you press the POWER button.
 - When the inside temperature is abnormally high. The protective function prevents power from turning on. Wait some time (until the projector inside cools down) and then turn on the power.
 - When the rear status indicator is blinking in red without the light source lighting up after power-on. Your projector may be in trouble. Check the error display on the LCD screen and contact your dealer/distributor for instructions.

3-3. Selecting the title of input signal

This projector allows you to select pre-registered title (input signal) using the preset buttons on the control panel (up to 16 titles). Request your dealer/distributor for details on registering and changing titles. This section explains the steps for selecting registered titles.

- 1** Turn on the power to the image devices connected to the projector.
- 2** Press the MENU button.
- 3** Press the LEFT/RIGHT button to display "Title Select" on the LCD screen.

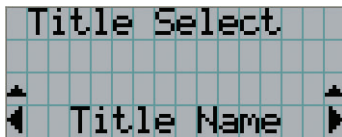
At each press of the LEFT/RIGHT buttons, the display will cycle as "Title Select" ↔ "Configuration" ↔ "(Title Setup)" ↔ "Information."



- 4** Press the DOWN button.

The title of the input signal is displayed.

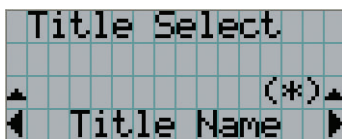
- When you have made a wrong selection, press the UP button. A return will be made to the previous menu.



- 5** Press the LEFT/RIGHT buttons to display "Title of Signal to be Projected" on the LCD screen.
- 6** Press the ENTER button.

The title of the signal to be projected is selected.

- The (*) mark on the LCD indicates that this is the currently selected item.

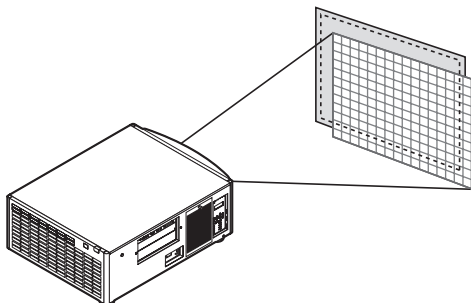


3-4. Adjusting the position and the size of projected screen

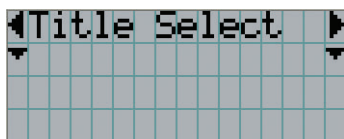
3-4-1. Displaying the test pattern

- 1** Press the MENU button, or select a test pattern from preset buttons (button <1> to <8>).

If you register the test patterns to the preset buttons (<1> to <8> buttons), select the test pattern according to “3-3. Selecting the title of input signal (See page 27)”.

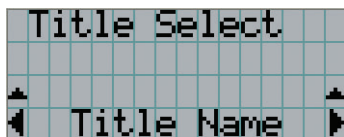


- 2** Press the LEFT/RIGHT button to display “Title Select” on the LCD screen.



- 3** Press the DOWN button.

The title of the input signal is displayed.



- 4** Press the LEFT/RIGHT button to display “TEST Pattern” on the LCD screen.

- 5** Press the DOWN button.

The LCD screen enters the mode where you can select a test pattern.



- 6** Press the LEFT/RIGHT button.

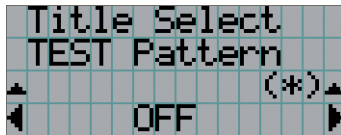
This switches the test pattern name displayed on the LCD screen.

- 7** Display on the LCD the name of the test pattern to be projected, then press the ENTER button.

The test pattern is displayed.



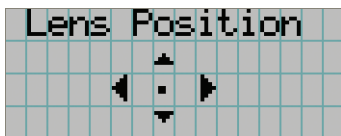
To cancel the test pattern display, select the title of the signal to project or select the "OFF" test pattern.



3-4-2. Adjusting the position of the projected screen (Lens shift)

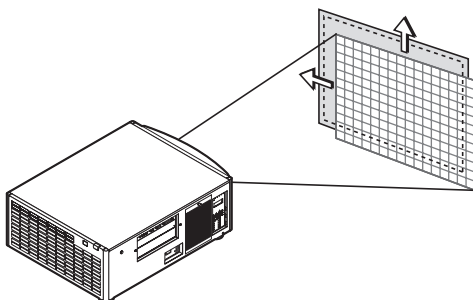
- 1** Press the MENU button.
- 2** Press the LEFT/RIGHT button to display "Configuration" on the LCD screen.
- 3** Press the DOWN button.
- 4** Press the LEFT/RIGHT button to display "Lens Control" on the LCD screen.
- 5** Press the DOWN button.

The screen ("Lens Position") to adjust the position of the projected screen is displayed.



- 6** Press the UP/DOWN/LEFT/RIGHT button.

The position of the projected screen moves in the selected direction.



- 7** Press the EXIT button when adjustment is complete.

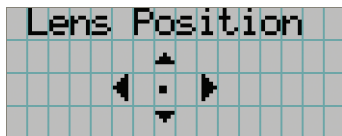
The display will return to a menu one level above (where "Lens Control" is displayed).

3. Projection of Images (Basic Operation)

3-4-3. Adjustment of the size (zoom) and focus of the projected screen

- 1** Press the MENU button.
- 2** Press the LEFT/RIGHT button to display “Configuration” on the LCD screen.
- 3** Press the DOWN button.
- 4** Press the LEFT/RIGHT button to display “Lens Control” on the LCD screen.
- 5** Press the DOWN button.

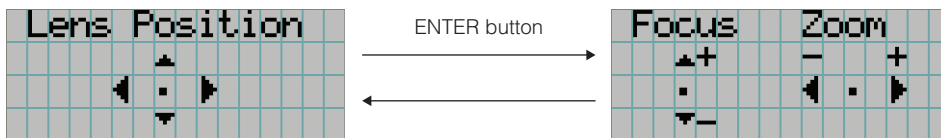
The screen (“Lens Position”) to adjust the position of the projected screen is displayed.



- 6** Press the ENTER button.

The screen to adjust the size and focus of the projected screen is displayed.

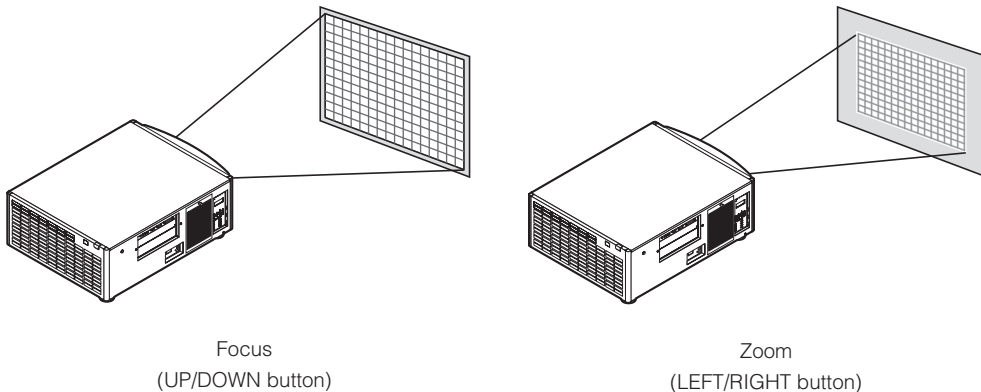
Press the ENTER button to switch the display between “Lens Position” and “Focus Zoom” adjustments.



- 7** Adjust the size and focus of the projected screen.

Press the UP/DOWN button to adjust the focus.

Press the LEFT/RIGHT button to adjust the size.



- 8** Press the EXIT button when adjustment is complete.

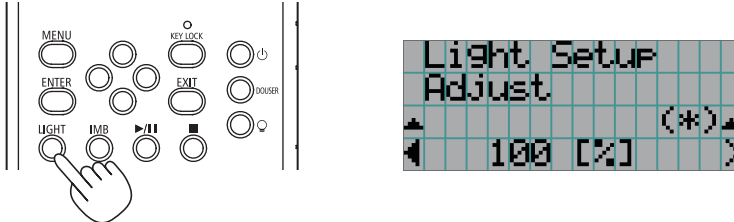
The display will return to a menu one level above (where “Lens Control” is displayed).

3-4-4. Adjusting the brightness of the projected screen (Light output)

NOTE If the internal temperature within the projector rises due to the temperature in the room being high, the light output may be automatically reduced. This is called "Thermal Protection Mode (Down Light Power)". When the projector is in the Thermal Protection Mode, the picture brightness decreases slightly. To clear Thermal Protection Mode, adjust the light output. Consult with your dealer/distributor for details.

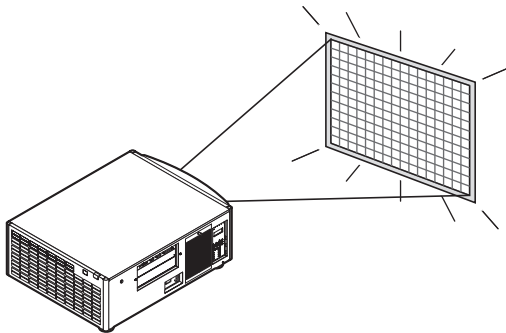
1 Press the LIGHT button.

The screen to adjust the light output is displayed.



2 Press the LEFT/RIGHT button to adjust the light output.

The specified adjustment value is applied.



3-5. Preventing misoperations

Buttons on the control panel can be locked (KEY LOCK) to prevent misoperations. Buttons on the control panel do not function while KEY LOCK is on. KEY LOCK must be off to operate these buttons.

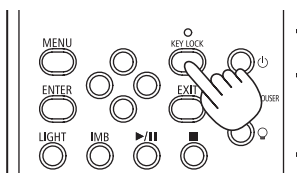
NOTE

- KEY LOCK is automatically turned on in the following cases.
 - When the projector has entered the standby state by turning on the main power switch of the projector while the AC power is supplied.
 - When the projector has entered the standby state after turning off the power using the POWER button.
- The timing where KEY LOCK is turned on while the projector is in standby state depends on the "Auto Key Lock" setting in the adjustment menu.
 - When Auto Key Lock is enabled, KEY LOCK becomes automatically on if no control panel operation takes place in the standby state for 30 seconds. KEY LOCK becomes automatically on again even after KEY LOCK is turned off if no control panel operation takes place for 30 seconds.
 - When Auto Key Lock is disabled, KEY LOCK becomes automatically on when the projector enters the standby state; however, it stays off after KEY LOCK is turned off.

3-5-1. KEY LOCK setting

- Press the KEY LOCK button on the control panel for one second or longer.

KEY LOCK becomes on. The KEY LOCK button indicator lights orange. When you press a button on the control panel of the projector while KEY LOCK is on, "Panel is Locked. (KEY LOCK)" is displayed, and the button will not function. (See page 36)



3-5-2. Turning KEY LOCK off

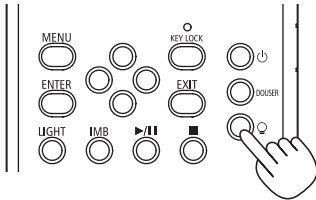
- Press the KEY LOCK button for one second or longer while KEY LOCK is on.

KEY LOCK becomes off. The KEY LOCK button indicator turns off.

3-6. Turning on/off the light source with the projector turned on

3-6-1. Turning off the light source

- Press the LIGHT ON/OFF button on the control panel for three seconds or longer.



3-6-2. Turning on the light source

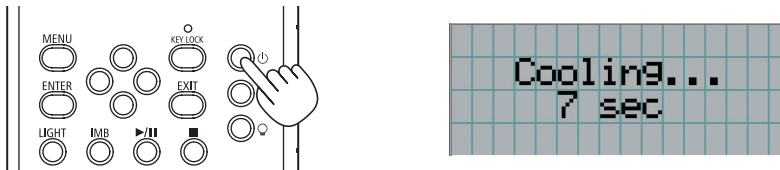
- Press the LIGHT ON/OFF button on the control panel for three seconds or longer.

3-7. Turning your projector off

- 1 Press the POWER button on the projector control panel for three seconds or longer.

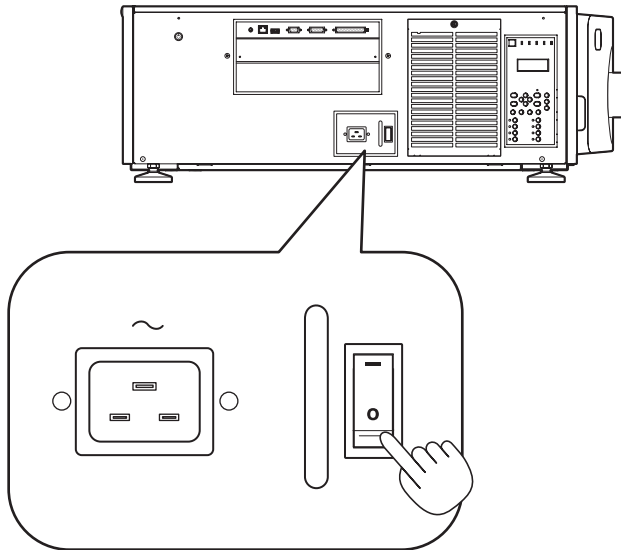
The light source is turned off, the POWER indicator blinks green, and the rear status indicator blinks orange (cooling state). The fan will continue to rotate while cooling, and the amount of time remaining for cooling is displayed on the LCD screen.

When the cooling is finished, the POWER indicator lights orange and the rear status indicator lights orange (standby state). KEY LOCK becomes automatically on if no control panel operation takes place in the standby state for 30 seconds by default. Buttons on the control panel do not function while KEY LOCK is on. (See page 32)



- 2 Wait till the projector enters standby state before turning off the main power switch of the projector.

The POWER indicator is turned off and the main power is turned off.



- 3 Turn off the AC power to the projector.

NOTE In the following instances, do not turn off the main power switch or disconnect the AC power. Doing so can damage the projector.

- While projecting images
- While the power is on
- During the cooling after the power is turned off.
 - When using the NP-90MS01/NP-90MS02: 90 seconds
- During IMB operation (if the projector is not in standby state)

4.

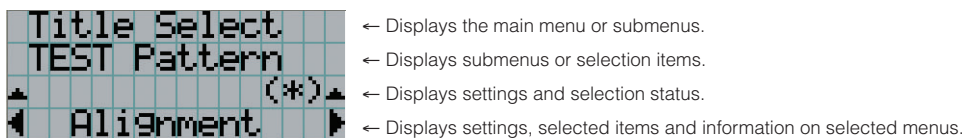
Using Menus

4-1. Basic operation with adjustment menus





To adjust the projector, display the menu on the LCD screen of the projector control panel.

4-1-1. Screen display

The menu display screen is composed of a menu display field (the upper two lines) and a setting item display field (the bottom two lines).



The meanings of symbols in the menu display screen are outlined below.

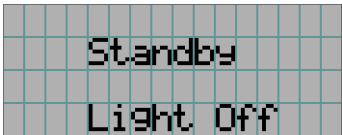
	Indicates that there is a menu of a higher level. Press the UP button to return to a menu one level above.
	Indicates that there is a selected item or menu at the same level. Press the LEFT/RIGHT button to display other selected items or menus.
	Indicates that there is a menu of a lower level. Press the DOWN button to display the menu one level below.
	Indicates that there are setting items of a higher or lower level. Press the UP button to return to a menu one level above. Press the DOWN button to display the setting item one level below.

4. Using Menus

When not displaying menus, the following screen is normally displayed.

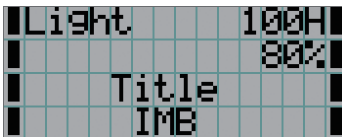
When in standby

When the projector is in a standby state (the main power switch in on), the following is displayed.



When power is turned on

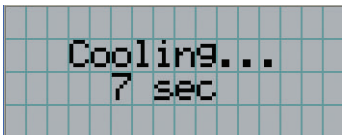
When the power is turned on, the following is displayed.



- ← Displays the hours of light source use.
- ← Displays the value of the light source output setting (%).
- ← Displays the selected title.
- ← Displays the selected video input port.

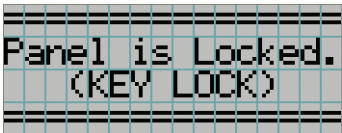
When the power is turned off

When you press the POWER button on the control panel of the projector for 3 or more seconds, the projector starts cooling. When cooling finishes, the projector enters the standby mode. The amount of time remaining for cooling is displayed as shown below during cooling.



When a button is pressed while the key lock function is on

If a button on the control panel is pressed while the key lock function is on, the following is displayed and the button will not function.

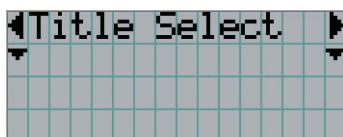


4-1-2. Operating menus

Preparation: Turn your projector on. (See page 25)

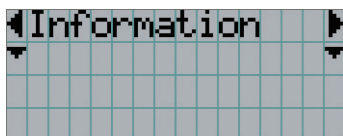
- 1** Press the MENU button on the control panel of your projector.

The menu is displayed in the LCD screen.



- 2** Press the LEFT/RIGHT buttons to display "Information."

At each press of the LEFT/RIGHT buttons, the display will cycle as "Title Select" ↔ "Configuration" ↔ "(Title Setup)" ↔ "Information".

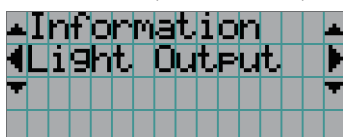


- 3** Press the DOWN button.

The submenu "Light Output" of "Information" is displayed.

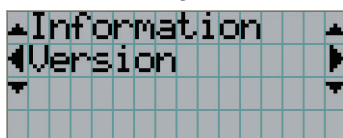
The menu item can be selected by pressing the ENTER button instead of the DOWN button.

To return to the previous state, press the UP button, or the EXIT button.



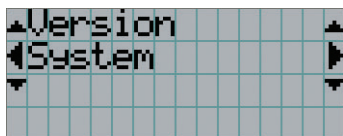
- 4** Press the LEFT/RIGHT button to select the submenu "Version."

At each press of the LEFT/RIGHT button, the display will cycle as "Light Output" ↔ "Lens Type" ↔ "Preset Button" ↔ "Usage" ↔ "Error Code" ↔ "Version" ↔ "IP Address" ↔ "Option Status".



- 5** Press the DOWN button.

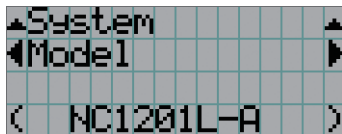
The submenu "System" another rank lower than "Version" is displayed.



4. Using Menus

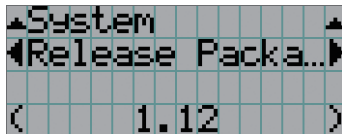
6 Press the DOWN button.

The submenu "Model" another rank lower than "System" is displayed.



7 Press the LEFT/RIGHT button to select the submenu "Release Package."

At each press of the LEFT/RIGHT button, the display will cycle as "Model" ↔ "Serial No." ↔ "Release Package" ↔ "Kernel" ↔ "U-Boot" ↔ "System Files" ↔ "Cinema Firmware" ↔ "Cinema Data" ↔ "ICP Firmware" ↔ "ICP ConfigFile" ↔ "FMT FPGA" ↔ "Slave BIOS" ↔ "Slave Firmware" ↔ "Slave Data" ↔ "SSL FPGA" ↔ "Secure Processor" ↔ "Laser Driver" and each version information is displayed.



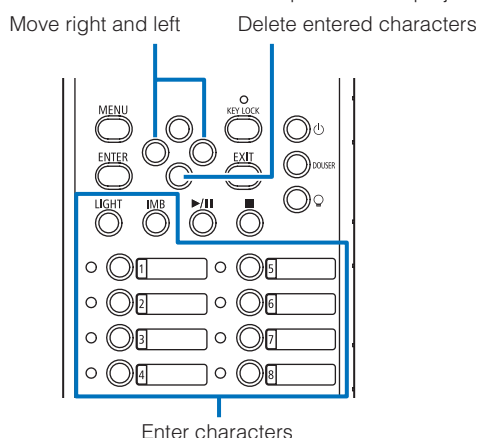
8 Press the UP button several times.

At each press of the UP button, the display will return to a menu one level above.

4-1-3. How to enter alphanumeric characters

Alphanumeric characters are entered for items, such as the log file of the specified period is written to USB memory. (See page 63)

Characters can be entered by pressing numeric buttons on the control panel on this projector.



Characters can be entered by pressing each button as shown in the following table.

To delete a character during entry, press the DOWN button.

[Example of Entry]

To enter "XGA" for example, use the following procedure:

- (1) Press the "8" button three times.

V → W → X

- (2) Press the RIGHT button.

- (3) Press the "3" button.

XG

- (4) Press the RIGHT button.

- (5) Press the "1" button.

XGA

Button	Entered character
1	A → B → C → 1 → a → b → c → ! → ↑
2	D → E → F → 2 → d → e → f → " → ↑
3	G → H → I → 3 → g → h → i → # → ↑
4	J → K → L → 4 → j → k → l → \$ → ↑
5	M → N → O → 5 → m → n → o → % → ↑
6	P → Q → R → 6 → p → q → r → & → ↑
7	S → T → U → 7 → s → t → u → ' → ↑
8	V → W → X → 8 → v → w → x → (→ ↑
LIGHT	Y → Z → / → 9 → y → z → ? →) → ↑
IMB	* → , → . → 0 → ; → : → + → - → ↑

4-2. Table of adjustment menus

Menus in parentheses are menus for our service personnel. Normally, these menus cannot be used.

Main menu	Submenu		Description	Reference page
Title Select	"Title Memory Name"		Selects the title of the signal to be projected.	41
	TEST Pattern		Selects the test pattern to be projected.	41
Configuration	Light Setup	Adjust	Adjusts the light source brightness (output).	42
	Lens Control	Lens Position	Adjusts the position of the projected screen.	42
		Focus Zoom	Adjusts the size and focus of the projected screen.	42
	Reset	(FactoryDefault)	Returns the settings to their default values. Selects between preset buttons and titles only, LAN settings only and all settings.	-
		Filter Cleaning	Initializes the air filter usage time (for confirming the filter cleaning time).	43
		(Fan Usage)	Initializes the usage time of the fan.	-
		(Light Usage)	Initializes the usage time of the light source.	-
		(Phosphor)	Initializes the usage time of the phosphor.	-
		(Diffuser)	Initializes the usage time of the diffuser.	-
	(Setup)	Douser Setup	Sets the douser open/close state.	-
		Panel Key Lock	Locks the buttons on the projector's control panel so that they cannot be operated.	-
		Auto Key Lock	Enables or disables Auto Key Lock.	-
		3D Connector	Sets the signal input terminal for a 3D image system (3D terminal or GPI/O terminal).	-
		Off Timer	Sets the time until the projector power is turned off automatically.	-
		Message	Sets the time to display the message indicating the air filter cleaning cycle.	-
		Silent Mode	Selects whether to use the status indicator (SYSTEM / LIGHT), buzzer, indicators on the control panel and backlight.	-
	Installation (Note)	(Option Slot)	Configures the device installed in slot A (only when the projector is in standby mode).	-
		(Orientation)	Sets the projection method and cooling fan operating mode.	-
		Lens Type (Note)	Sets the type of lens (supports or does not support the lens memory function) attached to the projector.	43
		Lens Calibrate (Note)	Performs calibration on lens that support the lens memory function (only when the projector power is turned on).	43
		Lens Center (Note)	Moves the lens shift position to the center (only when the projector power is turned on).	43
		(Baudrate)	Sets the PC control terminal (RS-232) data transmission speed (bps).	-
		(Date/Time)	Sets the date and time on the projector.	-
		(Fan Speed Mode)	Sets the cooling fan operating mode.	-
		(Service Adj.)	(Only when the projector is in standby mode) This is used during shadow adjustment and lens mount adjustment (focus balance adjustment).	-
	(Memory)	Light	The content of the selected light memory (light output power value) can be overwritten with the current settings.	-
		Lens	The content of the selected lens memory can be overwritten with the current settings.	-
(Title Setup)	Preset Button	Preset Button 1–16	Sets the title to be assigned to the preset buttons (<1> to <8> buttons).	44
Information	Light Output		Displays the light source output setting.	44
	Lens Type		Displays the lens type setting.	44
	Preset Button	Preset Button 1–16	Displays the titles which are assigned to the preset buttons (<1> to <8> buttons).	44
	Usage		Displays information related to projector usage.	45
	Error Code		Displays the currently occurring error.	45
	Version	System	Displays the model name and various version information about the projector.	46
		IMB	Displays the vendor name and version information about the media block (IMB).	46
	IP Address	System	Displays the IP address of the projector.	46
	Option Status		Displays the link status of the device mounted in slot A and projector.	47

(Note) Requires logging into the projector with Advanced User or higher privileges.

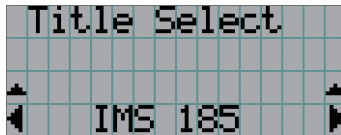
4-3. Title Select

4-3-1. Title select (Title Memory)

Selects the title of the signal to be projected.

You can register up to 100 titles. You can also assign registered titles to the preset buttons (<1> to <8> buttons) on the projector's control panel and call them up directly using those buttons.

Request your dealer/distributor for details on registering and changing titles.



← Displays the currently selected item with asterisk (*).

← Selects the title to be projected.

4-3-2. Test Pattern

Selects the test pattern to be projected.



← Displays the currently selected item with asterisk (*).

← Selects the test pattern to be projected.

OFF, Alignment, Cross Hatch, Convergence, Red, Green, Blue, White, Black,
White 50% [IRE], H-Ramp, Logo

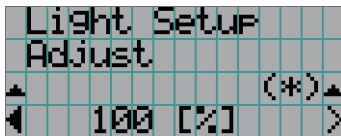
4-4. Configuration

Please request your dealer/distributor to perform the settings.

4-4-1. Light Setup

Adjust

Adjusts the light source brightness (output). This setting is the fraction based on taking the maximum value of light source brightness as 100%.



← Adjusts the output power value (%).

4-4-2. Lens Control

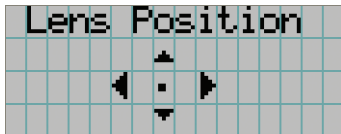
Adjust the position, size, and focus of the projected screen.

Press the ENTER button to switch the display between “Lens Position” and “Focus Zoom” adjustments. Press the EXIT button to return to a menu one level above.

Lens Position

Adjusts the position of the projected screen.

The projected screen moves in the selected direction as you press the UP/DOWN/LEFT/RIGHT button.

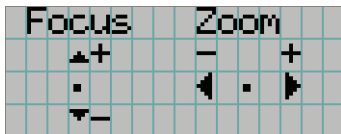


Focus Zoom

Adjusts the size (Zoom) and focus (Focus) of the projected screen.

Press the UP/DOWN button to adjust the focus.

Press the LEFT/RIGHT button to adjust the size of the projected screen.

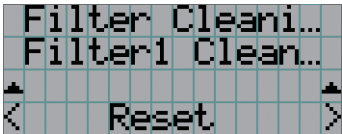


4-4-3. Reset

This is used to reset usage time for the air filter, etc.

Filter Cleaning

Resets the air filter usage time (for confirming the filter cleaning time). Select the filter. Press the ENTER button, then select “Yes” in the displayed confirmation screen, and then press the ENTER button to reset the air filter usage time (for confirming the filter cleaning time).

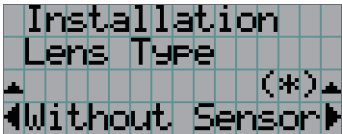


← Press the ENTER button to display the confirmation screen.

4-4-4. Installation

Lens Type

Sets the type of lens (supports or does not support the lens memory function) attached to the projector. This menu item is available only when you are logged into the projector with Advanced User or higher privileges.



← Displays the currently selected item with asterisk (*).

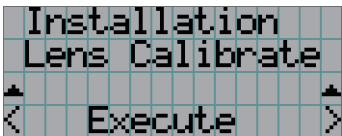
← Displays the setting.

Without Sensor	Selected when using a lens unit that does not support the lens memory function (default value).
With Sensor	Selected when using a lens unit that supports the lens memory function.

Lens Calibrate

Performs calibration on lens that support the lens memory function. Make sure to perform lens calibration every time after attaching a lens supporting the lens memory function. This menu item is available only when the projector power is turned on and you are logged into the projector with Advanced User or higher privileges.

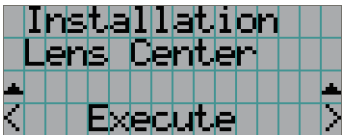
NOTE This items cannot be used if Lens Type is set to “Without Sensor”.



← Press the ENTER button to execute calibration.

Lens Center

Shifts the lens position at the center. The center position may slightly shift depending upon mounting conditions of the lens. This menu item is available only when the projector power is turned on and you are logged into the projector with Advanced User or higher privileges.



← Press the ENTER button to execute moving.

4-5. Title Setup

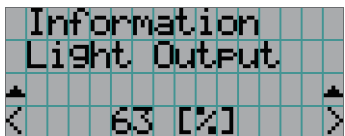
Sets the title to be assigned to the preset buttons (<1> to <8> buttons) (up to 16 titles).
Request your dealer/distributor to perform the settings.

4-6. Information

Displays information relating to the light source, the usage time of the projector, the version information and error codes.

4-6-1. Light Output

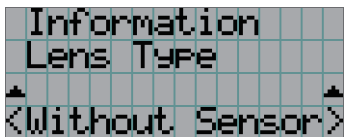
Displays the value of the light source output setting (%).



← Displays the current setting (%).

4-6-2. Lens Type

Displays the current lens type setting. The lens type setting is configured from "Lens Type" in the "Configuration" - "Installation" menu (page 43).

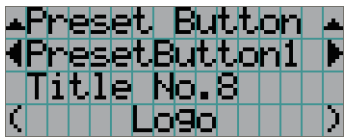


← Displays the current lens type setting.

Without Sensor	Using a lens unit that does not support the lens memory function.
With Sensor	Using a lens unit that supports the lens memory function.

4-6-3. Preset Button

Sets the title to be assigned to the preset buttons (<1> to <8> buttons) on the projector's control panel.



← Selects the preset button number whose contents you want to display.

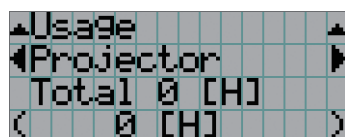
← Displays the assigned title numbers.

← Displays the registered names of the assigned titles.

TIP To select a title allocated to one of "Preset Button9" to "Preset Button16", press the preset button while holding down the UP button. For example, to select the title allocated to "Preset Button9", press the <1> button while holding down the UP button.

4-6-4. Usage

Displays information related to the projector usage, such as the usage time of the projector, light source, air filters, and fan, and information about the light source replacement cycle.



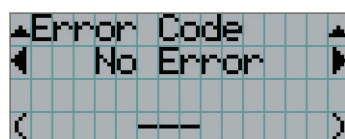
← Selects the item to display.

← Displays information about the selected item.

Projector	Displays the usage time of the projector.
Filter Cleaning	Displays the usage time of the air filters (for confirming the filter cleaning time).
Fan Usage	Displays the usage time of the fan.
Light Usage	Displays the usage time of the light source.
Phosphor	Displays the usage time of the phosphor.
Diffuser	Displays the usage time of the diffuser.

4-6-5. Error Code

Displays the error code when an error occurs.



← Displays the code of the error currently occurring.

← Displays the name of the error currently occurring.

When multiple errors occur, you can display them by pressing the LEFT/RIGHT buttons.

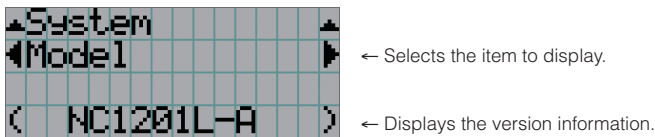
4. Using Menus

4-6-6. Version

Displays version information about the projector, optional boards, and IMB.

System

Displays the version information of the projector.

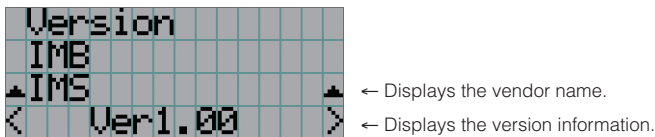


Display items are as follows.

- Model
- Release Package
- U-Boot
- Cinema Firmware
- ICP Firmware
- FMT FPGA
- Slave Firmware
- SSL FPGA
- Laser Driver
- Serial No.
- Kernel
- System Files
- Cinema Data
- ICP ConfigFile
- Slave BIOS
- Slave Data
- Secure Processor

IMB

Displays the vendor name and version information about the media block (IMB). When the projector is in standby mode, the vendor name is blank and the version information displays "---".



* When the NP-90MS01/NP-90MS02 is mounted, the vendor name displays "IMS".

4-6-7. IP Address

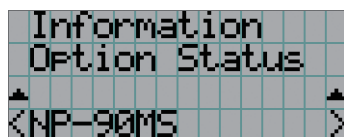
Displays the IP address set in the projector.



System	Displays the IP address set for the projector (System).
--------	---

4-6-8. Option Status

Displays the link status of the device mounted in slot A on the projector. The device name is displayed in () when the projector is in standby or when connection to the device cannot be confirmed.



← Displays the link status of the device in slot A.

- NP-90MS: NP-90MS01/NP-90MS02
- <Vendor Name> IMB: Media block
- No Board: No device mounted

5.

Maintenance of Your Projector

NOTE Please request your dealer to perform cleaning of the projector inside.

5-1. Cleaning the Cabinet

 **WARNING**

Please do not use a spray containing flammable gas to remove dust attached to the cabinet, etc. Doing so may result in fires.

Before carrying out maintenance of your projector, be sure to always check that the projector is turned off and the power plug is unplugged from the electrical outlet.

- Wipe with a dry, soft cloth without nap.
When the cabinet is excessively dirty, wipe with cloth well wrung after being dampened with a neutral detergent diluted with water and then finish up with a dry cloth.
When you use a chemical dust cloth, follow the instructions in the manual attached to it.
- Do not use a solvent, such as thinner or benzene. The coating may deteriorate or peel off.
- When removing dust on the ventilation opening, suck it off using an adapter with a brush on a vacuum cleaner. Never allow the cleaner without an adapter to come into direct contact or use a nozzles adapter in cleaning.
- Clean the ventilation opening at regular intervals. Dust, if allowed to accumulate there, may cause heating inside, which leads to functional trouble. The interval, which can vary with the location of your projector, is about 100 hours.
- Do not damage the cabinet by scratching it or allowing hard objects to hit it. This can scratch the projector.
- Consult your dealer/distributor about cleaning the inside of the projector.

NOTE Do not allow insecticide or other volatile liquid to splash on the cabinet, lens or screen. Also, do not allow any rubber or plastic object to remain in contact with the cabinet for a long time. The coating may deteriorate or peel off.

5-2. Cleaning the Lens

Clean the lens the same way as with camera lens (using a commercially available camera blower or cleaning paper for glasses). Take care not to damage the lens when cleaning.

WARNING

- Do not look into the light source while the projector is ON. Strong light is emitted from the projector and visual impairment could result.
- Please do not use a spray containing flammable gas to remove dust attached to the lens, etc. Doing so may result in fires.

5-3. Cleaning the Air Filters

Air filters are attached over the air inlet of the projector to prevent dust. The air filters should be cleaned periodically in order to maintain projector performance.

- You can view the usage time of the air filters in "Information" - "Usage" in the adjustment menus (See page 45).

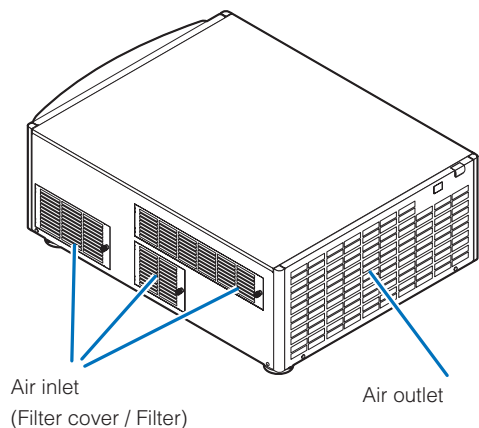
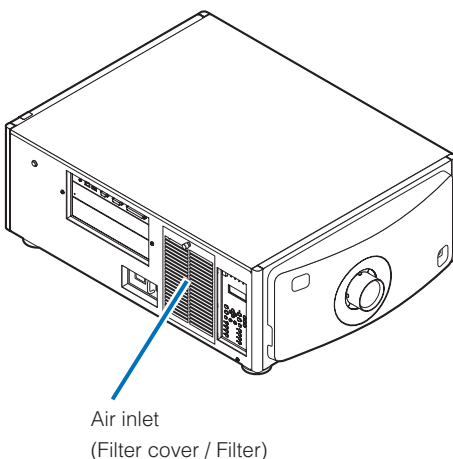
WARNING

- Dust in air filters will hinder ventilation of the projector, lead to a rise of the internal temperature and can cause a fire or malfunction.
- Please do not use a spray containing flammable gas to remove dust attached to the filters, etc. Doing so may result in fires.

CAUTION

Before cleaning the filter, first turn off the power, make sure the cooling fan has completely stopped, then turn off the main power switch. Make sure the unit has cooled down completely before cleaning the filter. Removing the filter cover while the unit is running could result in burns or electric shock from contact with internal parts.

The unit uses a three layer metal-mesh filter installed behind the filter cover. With regular cleaning it can be used repeatedly. There are four filters in total, located on the right and left sides. Clean all four at the same time.



5-3-1. Cleaning the Air Filters

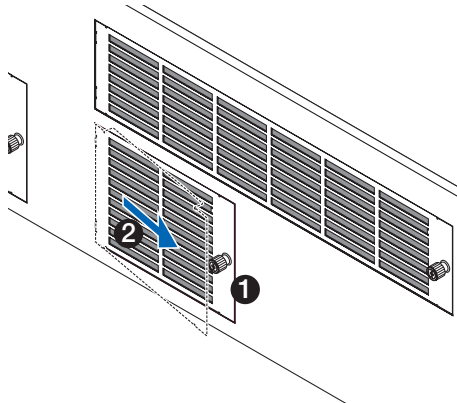
Preparation: Have a Phillips head screwdriver ready.

1 Remove the filter cover.

1. Twist the knob to the left until it turns without resistance.

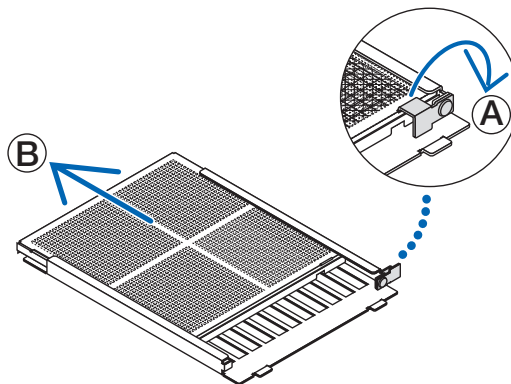
2. Open the filter cover and remove it.

- The knob does not come off.
- If the knob will not turn, use a Phillips head screwdriver.



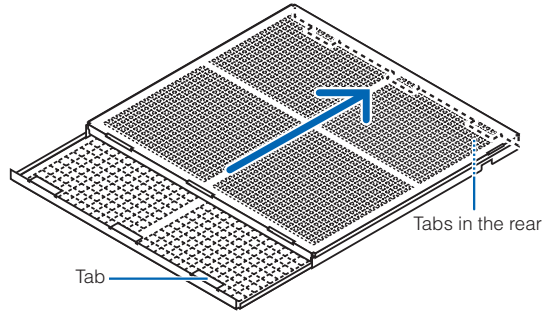
2 Undo the lock lever on the filter cover and remove it.

If the filter gets caught on the filter cover, press the filter cover down slightly and it will come out.

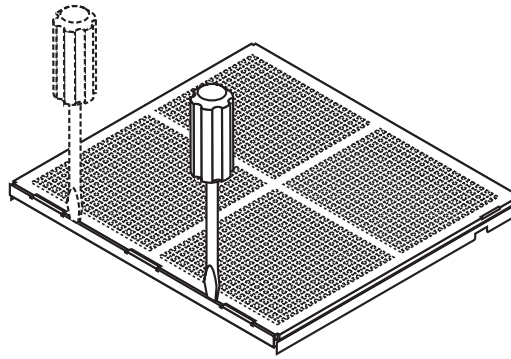


3 Remove the filters.

1. Turn the tabs to the left position and slide the top filter to the right.



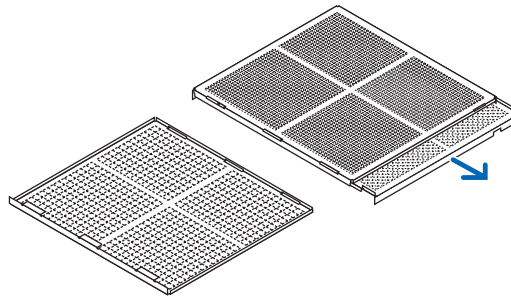
If it is stuck, slowly inserting the tip of a Phillips head screwdriver into the gap in a few places will loosen it.



NOTE Do not apply a high degree of force or attempt to pry it open. This could deform the flange making it impossible to reattach the filter cover.

2. With the tabs still on the left-facing position, remove the filter inside by pulling it toward you.

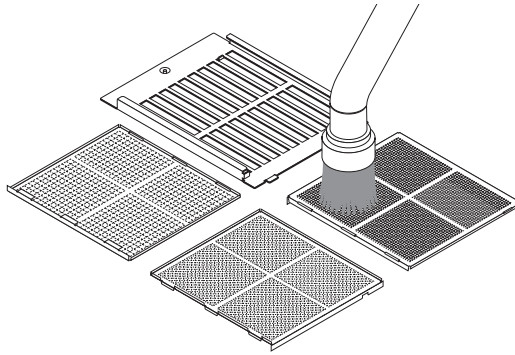
All three layers of the filter will come out.



5. Maintenance of Your Projector

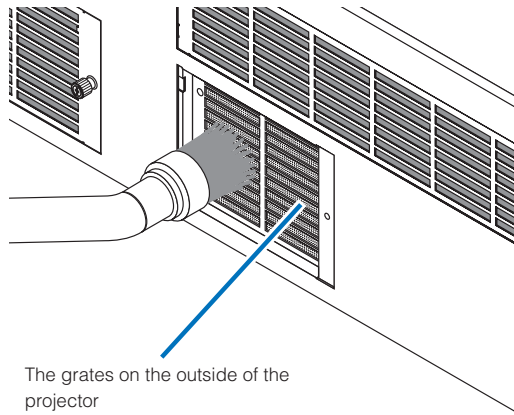
4 Clean all the dust from the filters using a vacuum cleaner.

Carefully remove the dust from the filter covers as well as from both sides of all the filters.



Remove the dust from the grates on the outside of the projector as well.

Some intake vents do not have grates. Be sure to also remove any dust stuck to the louver (blind with angled horizontal slats) with a vacuum cleaner.

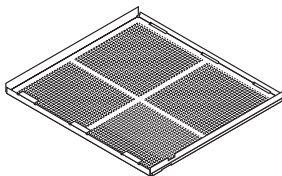


NOTE

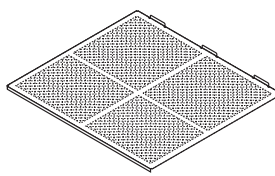
- Whenever you vacuum the filter, use the soft brush attachment to vacuum. This is to avoid damage to the filter.
- Do not wash the filter with water. Doing so can result in damage to the filter membrane and also cause clogging.

5 Put the various parts of the filter together and fit them inside the filter cover.

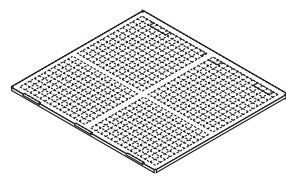
The three layers of the filter must be assembled and installed in a particular order and direction.



Fine grade filter

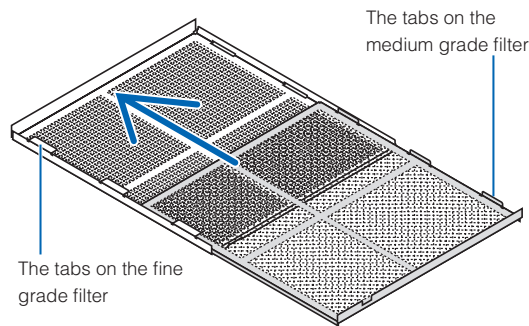


Medium grade filter

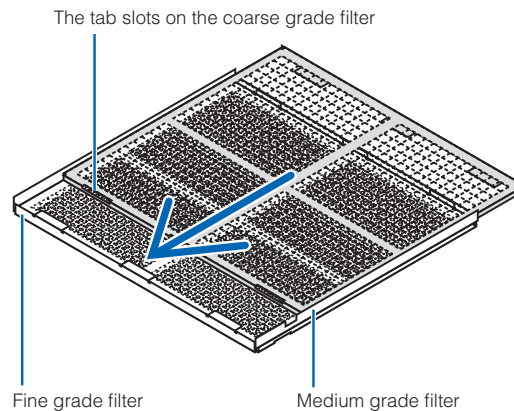


Coarse grade filter

1. Turn the tabs on the fine grade filter to the left, turn the tabs on the medium grade filter (with diagonal crossed mesh) to the right, then slide the fine grade filter into the medium grade filter.

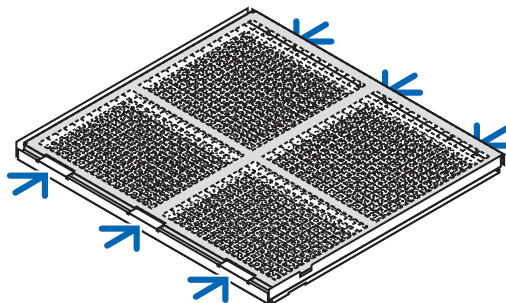


2. Turn the tab slots on the coarse grade filter to the left. Next set the fine grade filter and the medium grade filter into the flange, then slide them to the left.



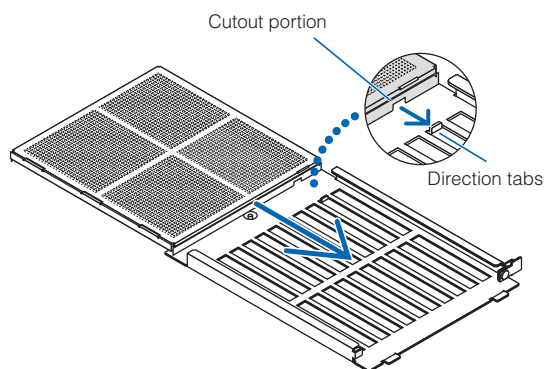
3. Make sure that all six tabs are slightly into the tab slots, then slowly push the filter together (some filters have ten tabs).

If the parts of the filter are not completely fitted together they will not fit inside the filter cover.

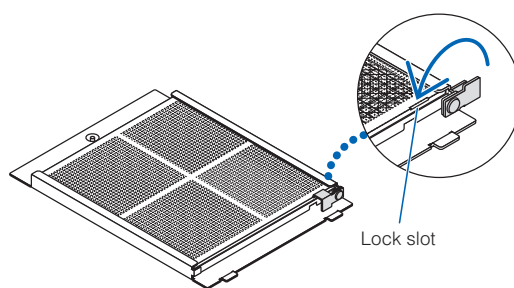


5. Maintenance of Your Projector

4. Turn the fine grade filter so it is facing upward, set the cutout portion of the medium grade filter inside the filter cover along the direction indicated by the tabs, and slowly slide the filter in.

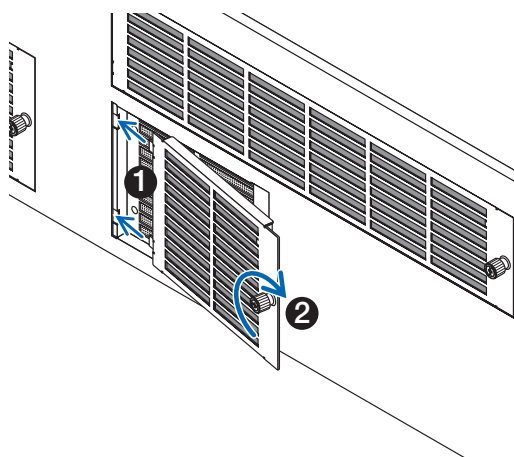


5. Close the lock lever, and insert it into the lock slot on the fine grade filter.



6 Fix the filter inside the projector unit.

1. Snap the filter cover tabs into the cutout portion of the projector unit to secure it.
2. Turn the knob to the right to fix it in place.



7 Clean the other intake vent air filters in the same way.

NOTE

- Before turning on the power, make sure that all filter covers are in place. If they are not fitted properly dust could get inside the projector causing it to malfunction.
- Reset "FilterCleaning Time" after cleaning the filters. (See this page)

5-3-2. Resetting the Air Filter Usage Time

1 Turn on the power to the projector.

2 Reset the displayed message by selecting "Configuration" → "Reset".

Select "Configuration" → "Reset" → "Filter Cleaning" in the adjustment menu. "FilterCleaning Time" message on the LCD screen is turned off.

This completes resetting the air filter usage time.

6.

Appendix

6-1. Troubleshooting

Before asking for repair, please check your connection, settings and operation once again. If the trouble cannot be corrected, please contact your dealer/distributor for instructions or repair.

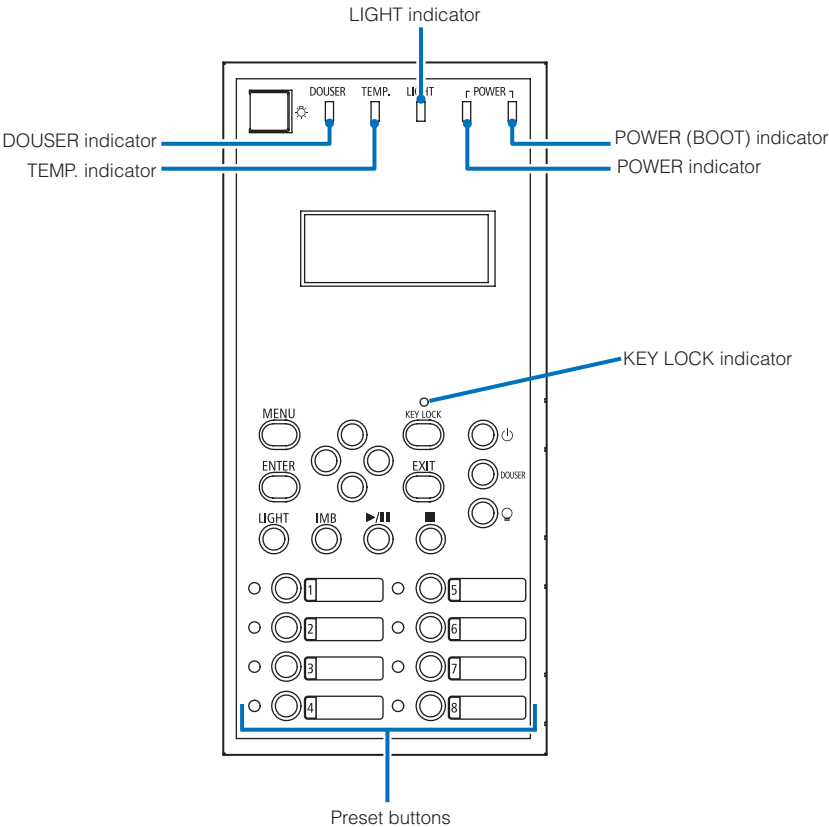
6-1-1. Problems and where to check

Problem	Check these items
The projector cannot be turned on.	Check to see if AC power is supplied to the projector.
	Make certain that the main power switch is ON.
	Check to see whether the panel key lock function is activated. If so, the main unit's control buttons are locked and do not work.
	Is the temperature inside the projector too high? When the inside temperature is too high, the protective function does not allow your projector to be turned on. Wait some time and then turn it on.
The image cannot be projected.	Check to see if the connected input has been selected.
	Check to see if a cable is properly connected to the input terminal.
	Check to see whether the douser is closed.
	Check to see if the settings are all adjusted properly.
The image is distorted.	Check to see if the projector is properly set up.
The image is blurred.	Make certain that the lens is properly focused.
	Check to see if the screen and a projector are installed at correct angles.
	The projection distance may be larger than the focusing range.
	See if the lens and other parts have condensation on them. If the projector is turned on in a warm place after storage in a cold place, the lens and other optical components inside may develop condensation. In such a case, please wait several minutes until the condensation disappears.
Video image is disturbed.	Check whether the signal cable connected to the projector is disconnected.
The rear status indicator blinks in red.	Your projector may have trouble. Please contact your dealer/distributor for instructions.

Problem	Check these items
An error code is displayed.	Please contact your dealer/distributor for instructions.

6-2. Indicator display list

See the descriptions below when the buttons on the control panel or the indicators on the rear of the projector is lit or blinking.
The projector also has a warning function that uses a buzzer.



6-2-1. Preset buttons

Indicator condition		Projector condition	Note
Off		No title is assigned to the button.	-
Steady light		A title is assigned to the button.	-
	Green	The title is being selected.	-
	White	The title is not selected.	-

6-2-2. KEY LOCK indicator

Indicator condition		Projector condition	Note
Off		The key lock is off.	-
Steady light	Orange	The key lock is on.	-

6-2-3. DOUSER indicator

Indicator condition		Projector condition	Note
Steady light	Green	The douser is closed.	-
Off		The douser is opened.	-

6-2-4. TEMP. indicator

Indicator condition		Projector condition	Note
Steady light	Red	The projector temperature rises close to the operating temperature limit.	An error message is displayed in the LCD screen. Check the content of the error.
Blinking light	Red	The projector temperature exceeded the operating temperature.	An error message is displayed in the LCD screen. Check the content of the error.

6-2-5. LIGHT indicator

Indicator condition		Projector condition	Note
Off		The light source is off.	-
Blinking light	Green	The ON/OFF of the light source cannot be operated.	-
Steady light	Green	The light source is on.	-

6-2-6. POWER indicator

Indicator condition		Projector condition	Note
Off		The projector power supply is off.	-
Blinking light	Orange	While the projector software is starting	Wait for a moment.
	Green (cycles of 1) (Note 1)	Preparing to turn power on/cooling fan rotating (State from turning the power off to entering standby mode).	Wait for a moment.
	Green (cycle of 3 seconds) (Note 2)	When the sleep timer is activated	-
Steady light	Green	The projector is turned on.	-
	Orange	The projector is in standby.	-

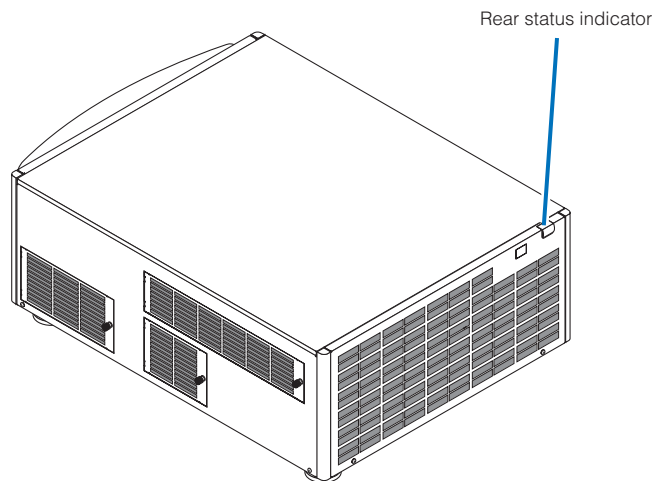
(Note 1) Repeats 0.5 seconds on → 0.5 seconds off.

(Note 2) Repeats 2.5 seconds on → 0.5 seconds off.

6-2-7. POWER (BOOT) indicator

Indicator condition		Projector condition	Note
Steady light	Blue	While the projector software is starting	Wait for a moment.
Blinking light	Blue		Wait for a moment.
Off		The projector power supply is on, or the projector is in standby.	-

6-2-8. Rear status indicator



Indicator condition		Projector condition	Note
Off		Main power is off.	-
Blinking light	Green	The projector is getting ready to turn on. The douser is closed.	Wait for a moment.
	Orange	The projector is cooling down.	Wait for a moment.
	Red (With buzzer)	Safety problem, error.	An error message is displayed in the LCD screen. Check the content of the error.
	Red (Without buzzer)	Error with possible image project under certain conditions.	
Steady light	Green	The projector is turned on.	-
	Orange	The projector is in standby.	-
	Red	Error at a level with not affect on projection.	An error message is displayed in the LCD screen. Check the content of the error.

6-3. Operation using an HTTP browser

6-3-1. Overview

The use of HTTP server functions will allow control of the projector from a web browser. Please be sure to use "Microsoft Internet Explorer 4.x" or a higher version for the web browser.

This device uses "JavaScript" and "Cookies" and the browser should be set to accept these functions. The setting method will vary depending on the version of the browser. Please refer to the help files and the other information provided in your software.

NOTE The display's or button's response can be slowed down or operation may not be accepted depending on the settings of your network.
Should this happen, consult your network administrator.
The projector may not respond if its buttons are repeatedly pressed in rapid intervals. Should this happen, wait a moment and repeat.
Access is gained to the HTTP server functions by and specifying
`http://<the projector's IP address>/index.html`
in the entry column of the URL.

6-3-2. Preparation before use

Make network connections and set up the projector and confirm that it is complete before engaging in browser operations. Operations with a browser that uses a proxy server may not be possible depending on the type of proxy server and the setting method. Although the type of proxy server will be a factor, it is possible that items that have actually been set will not be displayed depending on the effectiveness of the cache, and the contents set from a browser not be reflected in operation. It is recommended that a proxy server not be used unless it is unavoidable.

6-3-3. URL when connecting to an HTTP server

Although you normally specify “http://<IP Address of Projector>/index.html” as the URL when connecting to an HTTP server (Example 2), you can also connect by specifying the host name as the URL if the following conditions are met (Example 1).

- The host name of the projector is registered with the domain name server
- The IP address and host name of the projector have been added to the “HOSTS” file on the PC

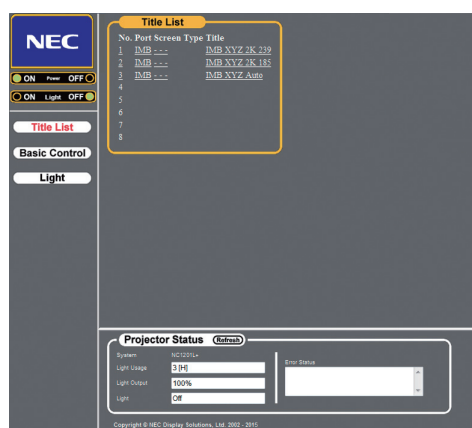
(Example 1) When the host name of the projector has been set to “pj.nec.co.jp”

http://pj.nec.co.jp/index.html is specified for the address or the entry column of the URL to access HTTP server functions.

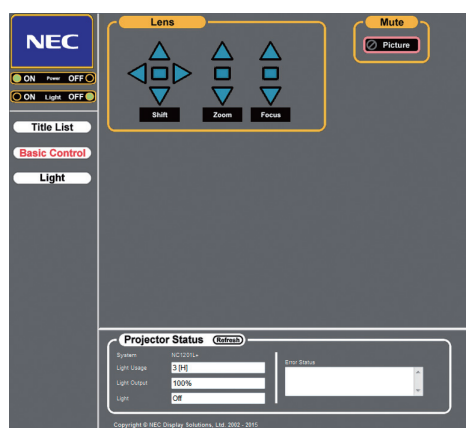
(Example 2) When the IP address of the projector is “192.168.10.10”

http://192.168.10.10/index.html is specified for the address or the entry column of the URL to access HTTP server functions.

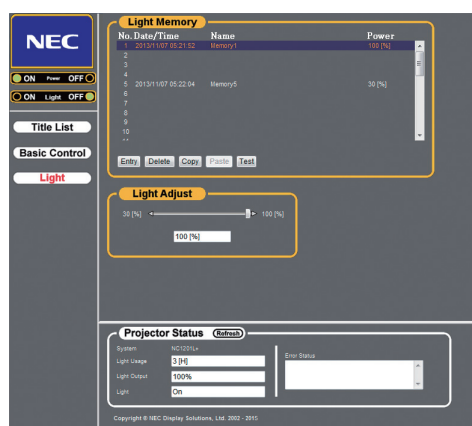
6-3-4. Structure of the HTTP server



<Title List screen>



<Basic Control screen>



<Light screen>

6. Appendix

Power		Controls the power to your projector. <ul style="list-style-type: none"> • On: Turns the power on. • Off: Turns the power off.
Light		Turn the light source on/off. <ul style="list-style-type: none"> • On: Turns the light source on. • Off: Turns the light source off.
Title List		Displays titles set in the projector (such as input port, screen type, and title). Check, and the title will be changed.
Basic Control		Displays the basic control items.
	Lens	Controls the lens operation.
	Shift	<ul style="list-style-type: none"> ▲ : Shifts the projected screen upward. ▼ : Shifts the projected screen downward. ◀ : Shifts the projected screen leftward. ▶ : Shifts the projected screen rightward. ■ : Stops the shifting. Shifting can also be stopped by clicking the same button one more time.
	Zoom	<ul style="list-style-type: none"> ▲ : Zooms up the lens. ▼ : Zooms down the lens. ■ : Stops the zooming. Zooming the can also be stopped by clicking the same button one more time.
	Focus	<ul style="list-style-type: none"> ▲ : Focuses up the lens. ▼ : Focuses down the lens. ■ : Stops the focusing. Focusing can also be stopped by clicking the same button one more time.
	Mute	Picture Click and the douser closes and the projected picture disappears. Click once again and the picture will be projected again.
Light		Edits or loads the light memory and sets the brightness of the light source.
Projector Status		Displays the condition of the projector. <ul style="list-style-type: none"> • System: Displays the model name of the projector. • Light Usage: Display of the usage time of the light source. • Light Output: Displays light source output (%). • Light: Displays the status of the light source (On: Lights / Off: Off). • Error Status: Displays the status of errors occurring within the projector. • Refresh: Updates the display of the following conditions.

6-4. Writing of the log file (Save Information)

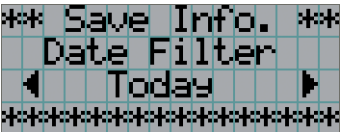
Log files saved on the main unit can be written to USB memory connected to the USB port of the main unit. To perform the writing of the log file, use the following procedure.

1 Connect the USB memory to the USB port of the main unit.

Wait until the USB memory is recognized, and it enters the condition in which it can be used (5 or more seconds). For details, refer to the instruction guide of the USB memory.

2 Simultaneously press the UP button and ENTER button.

The "Save Info." screen is displayed.



TIP If you press the EXIT button during operation, operation is stopped and the display returns to the normal screen.

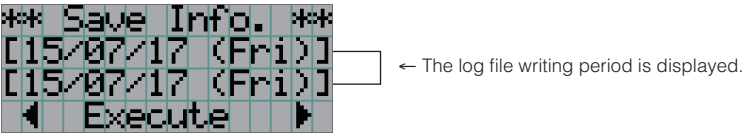
3 Press the LEFT/RIGHT button, and select the log file writing period.

The items that can be selected are as follows.

Today	Writes today's log files.
7days	Writes 7 days' log files from today.
30days	Writes 30 days' log files from today.
Manual	Writes the specified period's log files.

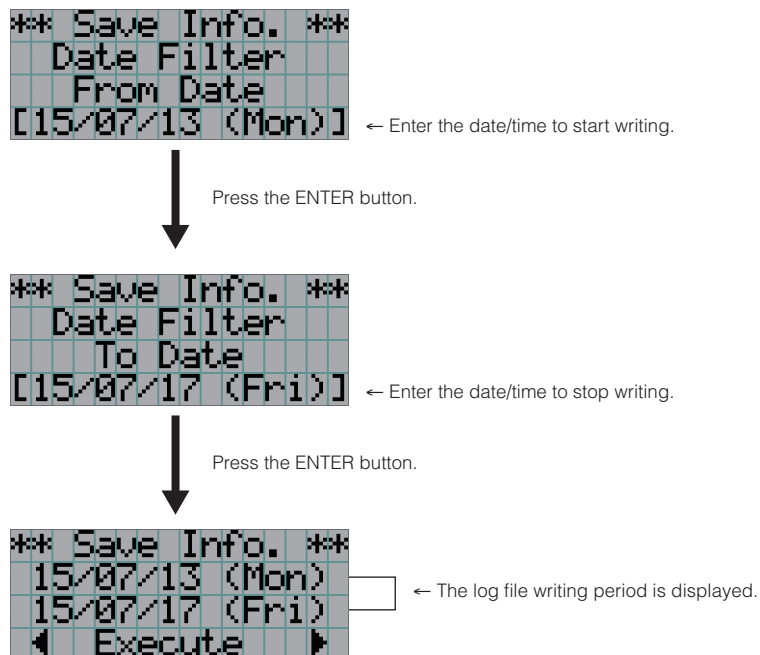
4 Press the ENTER button.

When "Today", "7days", or "30days" is selected, the log file writing period is displayed.



6. Appendix

When "Manual" is selected, specify the log file writing period. For how to enter numerals, refer to "4-1-3. How to enter alphanumeric characters" (See page 39). If you press the ENTER button, the display advances to the following screen.



- 5** Confirm the log file writing period, press the LEFT/RIGHT button to select "Execute," and press the ENTER button.

The log files of the specified period are written to the USB device. When writing completes, the following screen is displayed.

```
** Save Info. **
Complete(USB1)
< OK >
*****
```

TIP If you select "Cancel" and press the ENTER button, the writing of log files is stopped, and the display returns to the normal screen.

- 6** Press the ENTER button.

The display returns to the normal screen.

```
Light 100H
80%
Title
IME
```

- 7** Remove the USB from the USB port of the main unit.

6-4-1. Names of log files

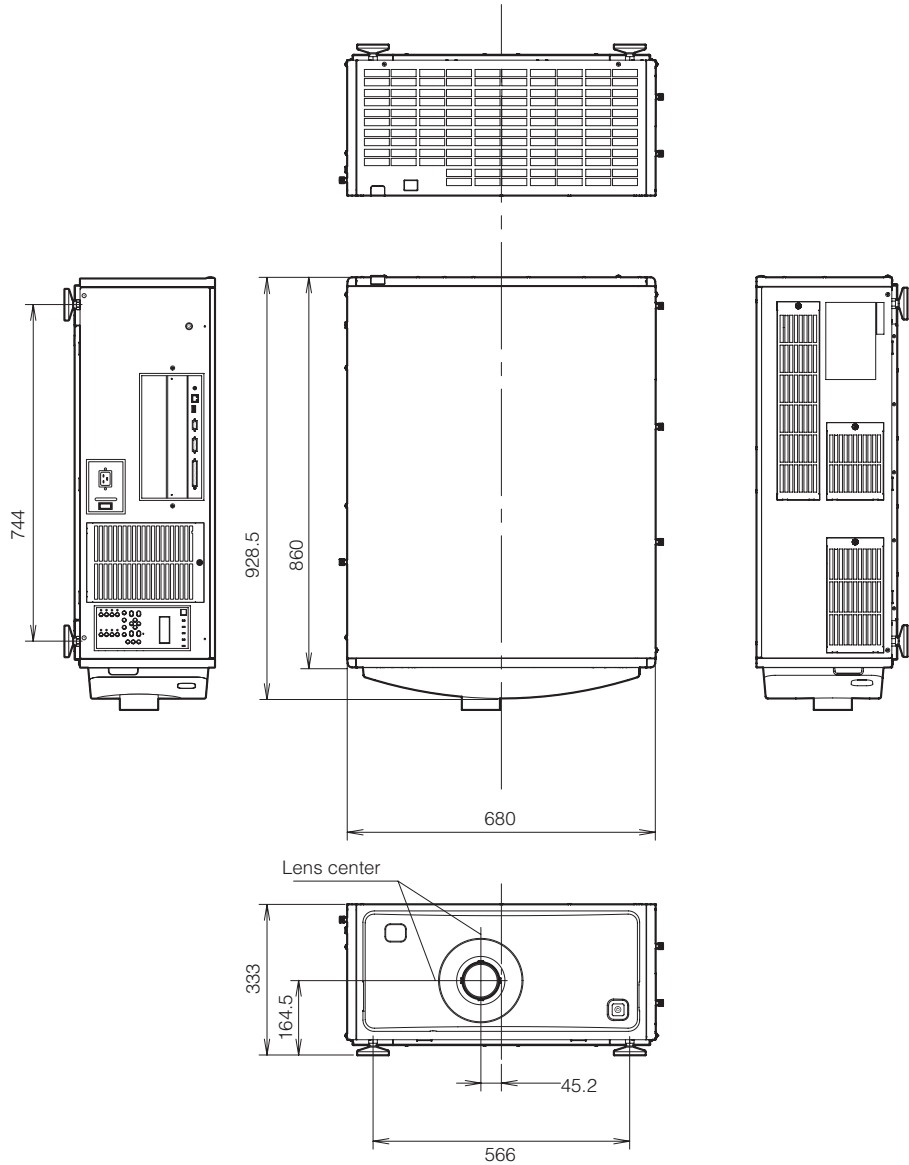
Written log files are saved with the following file names.

(Model name)_(Serial Number)_YYMMDDHHmm.txt

(Model name)	This shows the model of projector.
(Serial Number)	This shows the serial number of projector.
YYMMDDHHmm	Shows the date/time when written. YY: Year (lower 2 digits) MM: Month (2 digits) DD: Date (2 digits) HH: Hour (2 digits) mm: Minute (2 digits)

For example, if NC1201L-A log file is written at 14:05 on June 1, 2015, it is saved with the "NC1201L-A_abcd1234_1506011405.txt" file name.

6-5. Outline Drawing



Units: mm

6-6. Specifications

Model name	NC1201L-A	
Projection method	3 chip DLP Cinema® method	
	0.69-inch DC2K chip	
Panel resolution	2048 x 1080	
Light source	Laser Diode	
Screen sizes	Max. 12 m @14ft-L / Screen Gain 1.8 (Depends on setup conditions)	
Contrast ratio	1650:1 with DCI specified color representation	
Lens adjustment function	Motorized lens shift (vertical/horizontal), motorized zoom, motorized focus	
Signal input ports	When shipped from factory: Empty (for mounting optional components) (Note 1)	
External Control	RS-232C (D-sub 9pin) x 1 GPIO port (D-sub 37 pin) x 1 Service terminal (stereo mini jack) x 1 3D CTL (D-sub 15 pin) x 1 USB (Type A) x 1 Remote interlock port x 1 Ethernet port (RJ-45) x 1	
Power supply voltage	AC 200 to 240 V, 50/60 Hz single phase	
Input current	9.2 A	
Power consumption	1304 W (Note 2)	
Cooling method	Cooling air system	
Noise level	Less than 47 dB	
Installation	Orientation: Desktop/front, Desktop/rear, Ceiling/front, Ceiling/rear	
Net weight	66 kg (Excluding lens)	
Dimensions	680 mm (W) x 860 mm (D) x 333 mm (H) (Does not including protruding portions, includes foot.)	
Environment	Operating temperature: 10 to 35°C Operating humidity: 20 to 80% (non-condensing) Storage temperature: -10 to 50°C Storage humidity: 20 to 80% (non-condensing) Operating altitude: 0 to 2600m/8500 feet	
Regulations (Note 3)	<Safety>	
	Europe	EN60950-1
	Russia Belarus Kazakhstan	EAC, IEC60950-1
	Oceania	IEC60950-1
	Asia	IEC60950-1
	Korea	K60950-1
	Saudi Arabia	SASO
	Japan	J60950-1
<EMC>		EN55022 Class A, EN55024, EN61000-3-2/-3-3
		EN55022 Class A, EN55024, EN61000-3-2/-3-3
		RCM, AS/NZS CISPR. 22 Class A
		EN55022 Class A, EN55024, EN61000-3-2/-3-3
		K00022 ClassA, K00024 K61000-3-11
		EN55022 Class A, EN55024, EN61000-3-2/-3-3
		VCCI Class A, JIS C 61000-3-2

(Note 1) The video input slots are empty when the device is shipped. Input ports can be added by mounting option boards, which are sold separately. (See page 77)

(Note 2) The value is typical.

(Note 3) Certificated by latest edition as of 2014. Described the certification standard for laser products in "Important Information" of this manual. (See page 2)

* Note that these specifications and design can change without prior notice.

6-7. Power Cable

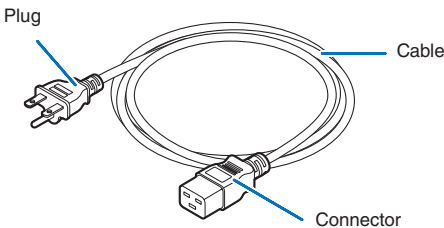
NOTE Ask your dealer for the power cable to select and purchase.

Power Cable Electrical Specification

The projector is equipped with an IEC60320 C20 inlet to connect an AC power supply cable. Use an IEC60320 C19 compliant AC power cable connector and ensure that the connector has the current capacity as shown below.

Power supply voltage	Projector input current	Power cable current capacity
AC 200–240V	9.2 A	250V 15A or higher

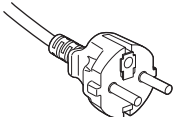

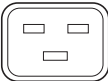
Type of Power Cable



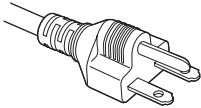

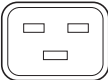
Use plugs, cables, and connectors that are suitable for the regulations of the country of installation, as shown in the following table.

- NOTE**
- For users in North America
Use a power cable no longer than 4.5m/14.76 ft according to National Electrical Code.
 - For UK only: In UK, a BS approved power cord with moulded plug has a Black (15 Amps) fuse installed for use with this equipment. If a power cord is not supplied with this equipment please contact your supplier.

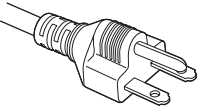

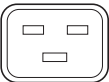
Germany

Plug	Cable	Connector
CEE 7 	H05VV-F 3G1.5 	IEC 320 C19 

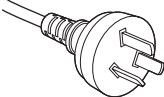

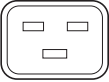
USA

Plug	Cable	Connector
NEMA 6-15P 	SJT 3 x AWG 14 	IEC 320 C19 

Japan

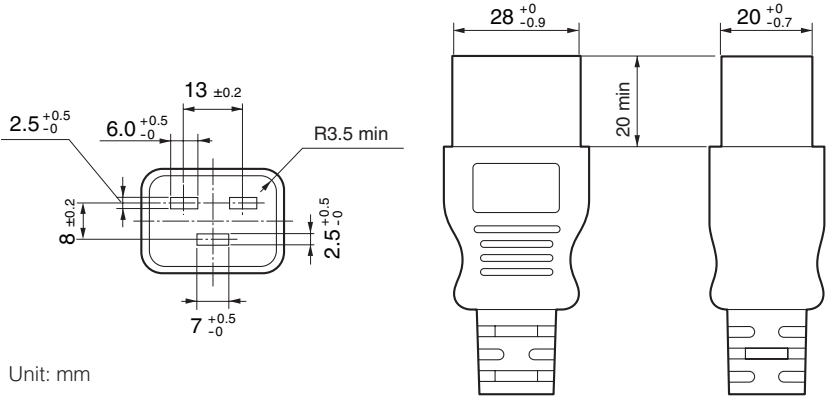
Plug	Cable	Connector
JIS C 8303	VCTF 3 x 2.0mm	IEC 320 C19
		

China

Plug	Cable	Connector
GB2099	RVV 300/500	GB17465.1
		

Connector

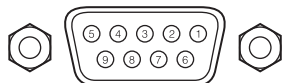
Dimensions of the connector of the power cable are shown below.



6-8. Pin Assignment and Functions of Terminal

6-8-1. PC CONTROL terminal (RS-232) (D-sub 9 pin)

This is an RS-232C interface for controlling the projector from a PC. The projector operates as a DCE (Data Communication Equipment), so use a straight cable when connecting to a PC.



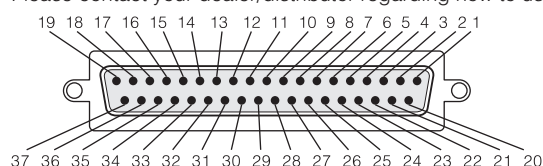
Pin No.	RS-232C Signal Name	Functions as RS-232C	Projector Connector Operation
1	CD	Carrier detection	Not used (N.C.)
2	RXD	Reception data	Data transmission to an external device
3	TXD	Transmission data	Data reception from an external device
4	DTR	Data Terminal ready (Note)	Connection to 6 pins
5	GND	Signal GND	Signal GND
6	DSR	Data set ready (Note)	Connection to 4 pins
7	RTS	Transmission request	SYSTEM: Hi-Z (Not used) CINEMA: Hi-Z (Used)
8	CTS	Transmission available	SYSTEM: Fixed at -6.5 V (Not used) CINEMA: ± 10.5 V (Used: Depends on communication status)
9	RI	Ring indicator	Not used (N.C.)

(Note) Do not use DTR and DSR signals when communicating.

6-8-2. External control terminal (GP I/O) (D-sub 37 pin)

It is possible to control the projector with an external device and to control the external device from the projector using an external control terminal (GPIO: General Purpose I/O Ports). Each pin is electrically separated from the projector internal circuits by a photo-coupler. 8 port input and 8 port output are available.

Please contact your dealer/distributor regarding how to use and to operate them.



Pin view of female connector

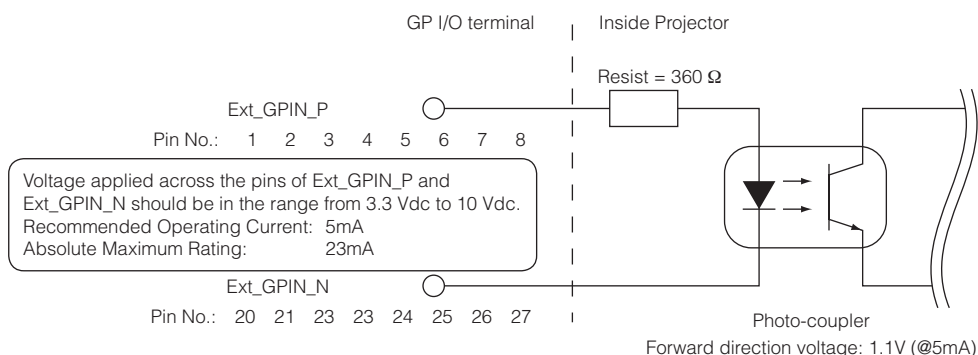
Pin No.	Signal Name	I/O	Pin No.	Signal Name	I/O
1	GPIN1+ (3D L/R Input Reference +)	IN	20	GPIN1- (3D L/R Input Reference -)	IN
2	GPIN2+ (3D L/R Display Reference +)	IN	21	GPIN2- (3D L/R Display Reference -)	IN
3	GPIN3+ (system reserved)	IN	22	GPIN3- (system reserved)	IN
4	GPIN4+ (system reserved)	IN	23	GPIN4- (system reserved)	IN
5	EXT_GPIN1+ (Control and Title Selection +)	IN	24	EXT_GPIN1- (Control and Title Selection -)	IN
6	EXT_GPIN2+ (Control and Title Selection +)	IN	25	EXT_GPIN2- (Control and Title Selection -)	IN
7	EXT_GPIN3+ (Control and Title Selection +)	IN	26	EXT_GPIN3- (Control and Title Selection -)	IN
8	EXT_GPIN4+ (Control and Title Selection +)	IN	27	EXT_GPIN4- (Control and Title Selection -)	IN
9	GPOUT1+ (External 3D L/R Output Reference +)	OUT	28	GPOUT1- (External 3D L/R Output Reference -)	OUT
10	GPOUT2+ (system reserved)	OUT	29	GPOUT2- (system reserved)	OUT
11	GPOUT3+ (system reserved)	OUT	30	GPOUT3- (system reserved)	OUT
12	GPOUT4+ (Internal 3D L/R Output Reference +)	OUT	31	GPOUT4- (Internal 3D L/R Output Reference -)	OUT
13	EXT_GPOUT1+ (Projector Ready/Busy +)	OUT	32	EXT_GPOUT1- (Projector Ready/Busy -)	OUT
14	EXT_GPOUT2+ (Projector Error Status +)	OUT	33	EXT_GPOUT2- (Projector Error Status -)	OUT
15	EXT_GPOUT3+ (IMB Play/End Status +)	OUT	34	EXT_GPOUT3- (IMB Play/End Status -)	OUT
16	EXT_GPOUT4+ (Projector Heartbeat +)	OUT	35	EXT_GPOUT4- (Projector Heartbeat -)	OUT
17	NC (not connected)	-	36	NC (not connected)	-
18	GND	PWR	37	GND	PWR
19	GND	PWR	-	-	-

EXT_GPIN1 - EXT_GPIN4: You can control the projector externally by combinations of input signals (high/low).
(Projector power supply/turning the light source on or off/image mute/title selection)

EXT_GPOUT1 - EXT_GPOUT4: Functions in the above table are default settings. You can change the assigned functions.

6. Appendix

Input terminal



• Using GPIO Control

Momentary “ON” pulse enables you to control projector. To enable “ON” pulse, hold it for at least 500 ms. Hold “OFF” for at least 500 ms before “ON”. (See page 73)

Here is function list to control projector by using GPIO port.

Pin No.	Photo-coupler ON/OFF				Function
1-20	ON/OFF				3D L/R timing signal input ON/OFF
2-21	ON/OFF				3D L/R display timing signal input ON/OFF
3-22	-				System reserved (used internally)
4-23	-				System reserved (used internally)
5-24 6-25 7-26 8-27	8-27	7-26	6-25	5-24	The following functions apply depending on the combination of input terminals.
	OFF	OFF	OFF	ON	Power ON
	OFF	OFF	ON	OFF	Power OFF
	OFF	OFF	ON	ON	Light source ON
	OFF	ON	OFF	OFF	Light source OFF
	OFF	ON	OFF	ON	Image douser ON
	OFF	ON	ON	OFF	Image douser OFF
	OFF	ON	ON	ON	System reserved (used internally)
	ON	OFF	OFF	OFF	Selects the title registered to the preset button 1
	ON	OFF	OFF	ON	Selects the title registered to the preset button 2
	ON	OFF	ON	OFF	Selects the title registered to the preset button 3
	ON	OFF	ON	ON	Selects the title registered to the preset button 4
	ON	ON	OFF	OFF	Selects the title registered to the preset button 5
	ON	ON	OFF	ON	Selects the title registered to the preset button 6
	ON	ON	ON	OFF	Selects the title registered to the preset button 7
	ON	ON	ON	ON	Selects the title registered to the preset button 8

Example for dousing image: Input ON to 5-24 and 7-26 while 6-25 and 8-27 are OFF.

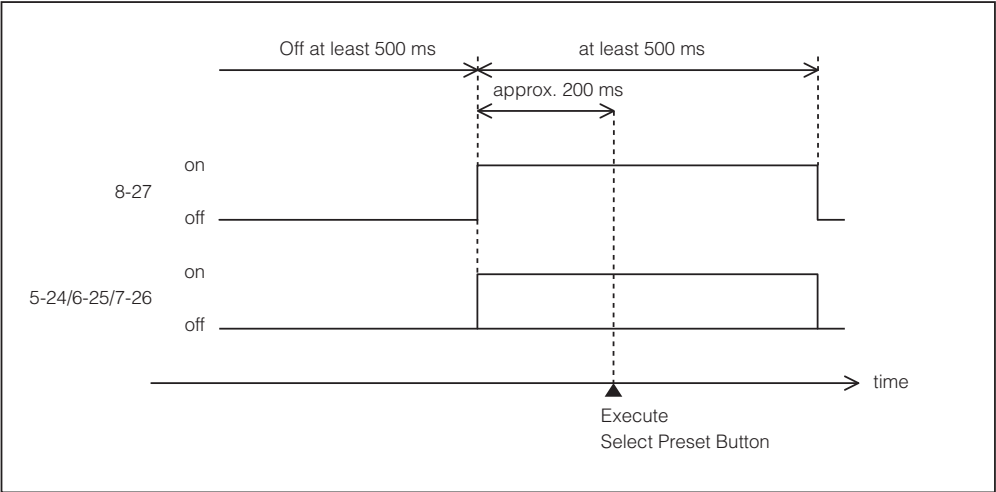
Example for selecting the preset button 2: Input ON to 5-24 and 8-27 while 6-25 and 7-26 are OFF.

NOTE

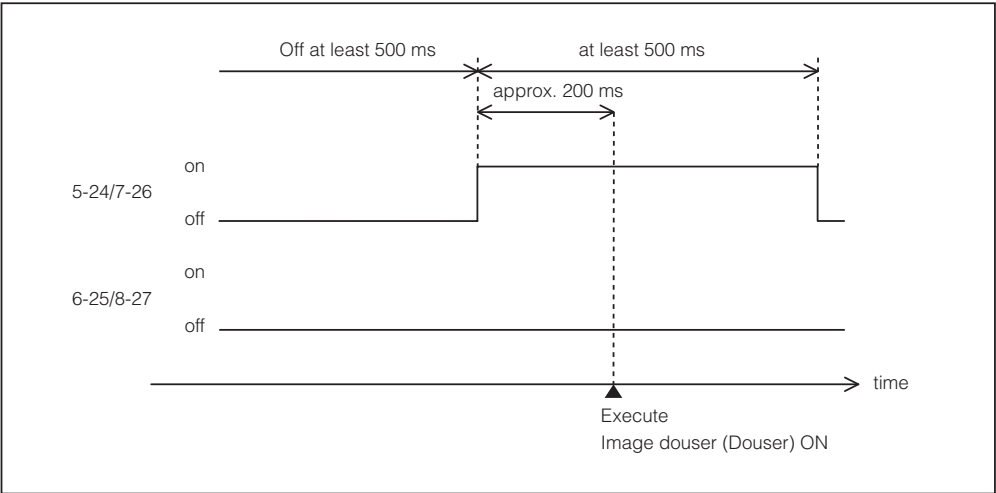
- The operation command coming from GPI/O port will be canceled when the projector is processing other tasks, such as light source cooling and switching title.
- Set all other pins than those in use to “OFF”.
- The operation command is executed upon continuous input of the “ON” pulse for approximately 200 ms.

•Timing chart of GPIO control

Example of Select Preset Button

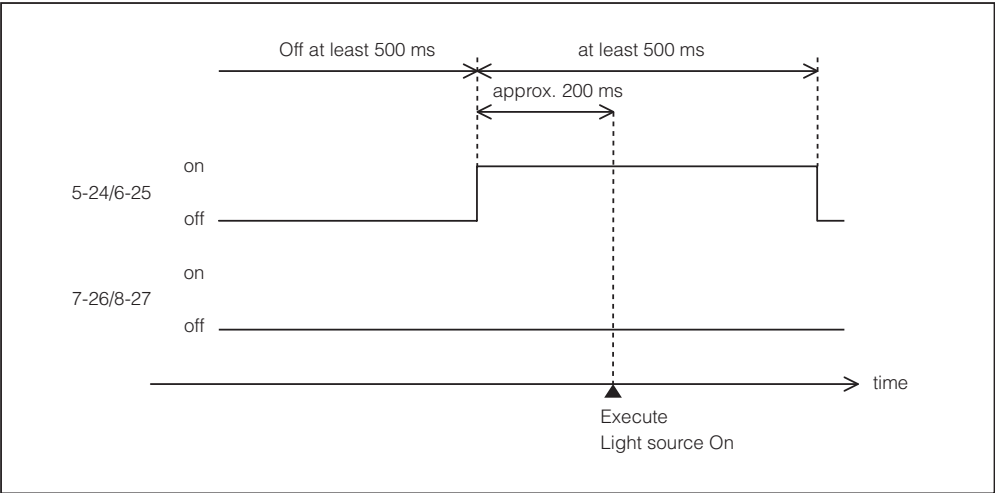


Example for turning the image douser (Douser) on

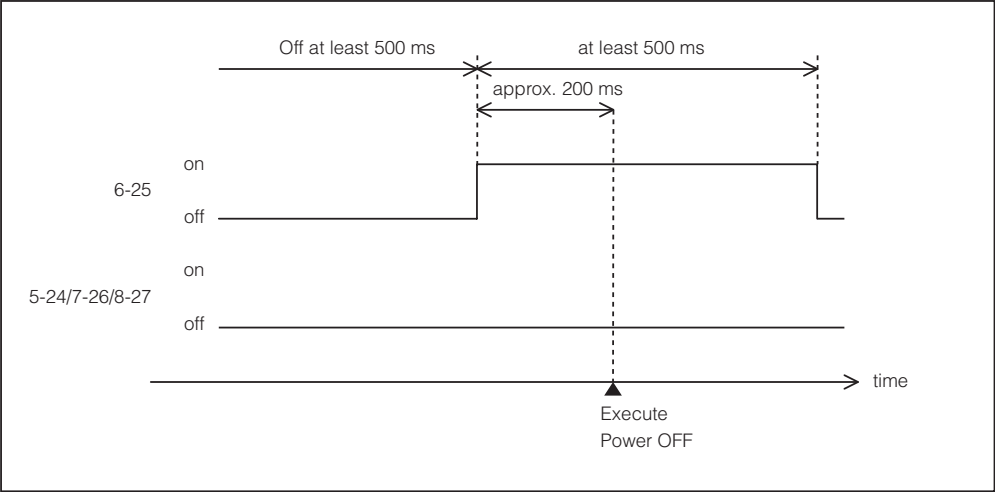


6. Appendix

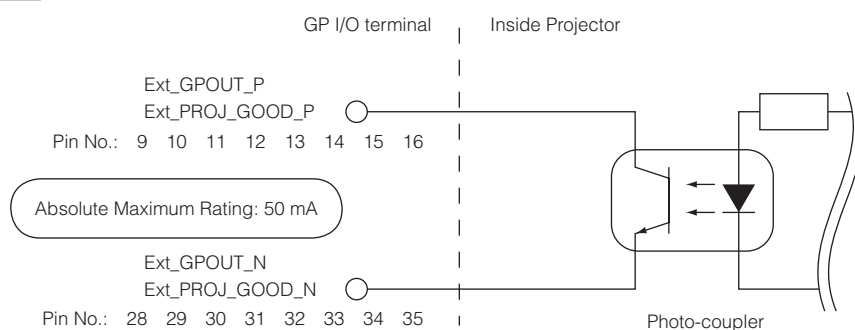
Example of Light source On



Example for turning the power off



Output terminal



• Using GPIO Control

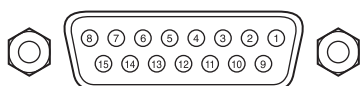
You can use GPIO control for the projector's health check and error check. Also, you can use the output as the trigger to control external devices.

The following functions are assigned to the pin number 13-32, 14-33, 15-34, and 16-35 (EXT_GPOUT1 - EXT_GPOUT4) as the default. You can change the assigned functions.

Pin No.	Photo-coupler ON/OFF	Function
9-28	ON/OFF	External 3D L/R timing signal output ON/OFF
10-29	–	System reserved (used internally)
11-30	–	System reserved (used internally)
12-31	ON/OFF	Internal 3D L/R timing signal output ON/OFF
13-32	ON/OFF	GPIO control status check ON: GPIO control (input) is unavailable. OFF: GPIO control (input) is available.
14-33	ON/OFF	Error check ON: Error OFF: No error
15-34	ON/OFF	IMB status check ON: The content is being played. OFF: The content is stopped/paused.
16-35	ON/OFF	Health check (heart beat) ON and OFF are alternately output when operations are normal.

6-8-3. 3D terminal (D-sub 15 pin)

This is used to connect a 3D image system to the projector.



Pin view of a female connector

Pin No.	Signal Name	I/O	Function
1	+12V	PWR	Supplies power (+12V) to the 3D image system
2	GNDC	GND	Ground
3	GNDC	GND	Ground
4	RS232_RX	IN	Data transmission from the 3D image system (1200 Baud, 8 bits, No Parity)
5	RS232_TX	OUT	Data transmission to the 3D image system (1200 Baud, 8 bits, No Parity)
6	CONN_3D_MODE+	OUT	3D mode status (+) (Connects to the collector of the output transistor of the photo coupler inside the projector)
7	CONN_SYNC+	OUT	3D L/R switching timing signal (+) (Connects to the collector of the output transistor of the photo coupler inside the projector)
8	3D_INPUT_REFERENCE+	IN	3D L/R timing signal (+) (Connects to the anode of the input diode of the photo coupler inside the projector)
9	+12V	PWR	Supplies power (+12V) to the 3D image system
10	3D_INPUT_REFERENCE-	IN	3D L/R timing signal (-) (Connects to the cathode of the input diode of the photo coupler inside the projector)
11	3D_DISPLAY_REFERENCE+	IN	3D L/R display timing signal (+) (Connects to the anode of the input diode of the photo coupler inside the projector)
12	3D_DISPLAY_REFERENCE-	IN	3D L/R display timing signal (-) (Connects to the cathode of the input diode of the photo coupler inside the projector)
13	CONN_3D_MODE-	OUT	3D mode status (-) (Connects to the emitter of the output transistor of the photo coupler inside the projector)
14	CONN_SYNC-	OUT	3D L/R switching timing signal (-) (Connects to the emitter of the output transistor of the photo coupler inside the projector)
15	N/C	-	Unused

6-9. Related products list

Product name		Model name
Lens	Zoom lens 1.2 to 1.72	NP-9LS12ZM1
	Zoom lens 1.33 to 2.1	NP-9LS13ZM1
	Zoom lens 1.62 to 2.7	NP-9LS16ZM1
	Zoom lens 2.09 to 3.9	NP-9LS20ZM1
	Zoom lens 4.07 to 6.34	NP-9LS40ZM1
Integrated Media Server	Integrated Media Server	NP-90MS02

