



DLP Cinema® Projector

NC-1424/NC-1224

User's Manual

Model No. NC-1424/NC-1224

Important Information

Precautions: Please read this manual carefully before using your **NC-1424/NC-1224** and keep the manual handy for future reference.

The NC-1424/NC-1224 is called the “projector”, and the IMB (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 and Windows are either registered trademarks or trademarks of Microsoft Corporation 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 web site.



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 IEC 60825-1:2014. This product is classified as RG3 of IEC/EN 62471-5:2015.

- This product complies with performance standards for laser products under 21 CFR Part 1040 except with respect to those characteristics authorized by Variance Number 2015-V-3435 effective on April 7 2016.



CAUTION

CLASS 1 LASER PRODUCT

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

- No direct exposure to the beam shall be permitted, RG3 IEC/EN 62471-5:2015.
Operators shall control access to the beam within the hazard distance or install the product at the height that will prevent spectators’ eyes from being in the hazard distance.
- Do not look into the lens while the projector is on. Serious damage to your eyes could result.
- Do not look at operating light source. Eye injury may result.
- Direct exposure of human eyes to beam is prohibited.
- The following graphic symbol indicating that looking into the projector is prohibited is displayed on the projector cabinet.



- Do not allow to look into the projector beam at any distance from the projector. An adult should supervise the children to prevent exposure risks.
- Check that there is no one looking at the lens, when using the remote control for starting the projector.
- Do not look at the projected light using optical devices (binoculars, telescopes, magnifying glasses, reflectors, etc). Doing so could result in vision impairment.
- When performing the lens shift adjustment, make sure that you are behind or beside the projector. Doing so from the front of the projector may cause intense light to enter into your eyes, resulting in damage to them.
- This projector, which is an RG3 product, is for business use and must be installed in location where safety is assured. For this reason, installation of the projector and mounting and removal of the lens unit must be performed by professional service personnel. To do the works, be sure to consult your dealer. NEVER install the projector by end users. Doing so may cause visual impairment and other injuries.
- 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.

(for Germany only)

Machine Noise Information Regulation - 3. GPSGV,

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

WARNING

Operation of this equipment in a residential environment could cause radio interference.

Supplier's declaration of conformity

SHARP PROJECTOR, NC-1424 / NC-1224

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party: SHARP ELECTRONICS CORPORATION
100 Paragon Drive, Montvale, NJ 07645
TEL: 1-888-GO-SHARP / 1-888-467-4277
www.sharppusa.com

WARNING:

FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

U.S.A. ONLY



WARNING

THE END USER IS NOT ALLOWED TO OPEN OR MODIFY THE PRODUCT.
NO USER SERVICEABLE PARTS.
MAINTAIN AND SERVICE OF THE PRODUCT IS ONLY TO BE HANDLED BY SHARP CORPORATION 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. When moving the projector, be sure to remove the lens from the projector before moving it.
8. To carry the projector, a minimum of four persons are required.
9. Do not hold the lens part with your hand. Otherwise the projector may tumble or drop, causing personal injury.
10. Do not place heavy objects on top of the projector.
11. Turn off the projector, and disconnect the power cable before moving the projector.
12. The cooling fan settings need to be configured when using the projector in a location at an altitude of approximately 5500 feet/1600 meters or higher. Consult your dealer in advance.
13. Turn off the projector when removing and installing lenses. Failure to do so can cause loss of vision.
For mounting or replacing the lens, please contact your dealer.
14. Do not install and store the projector in the below circumstances.
Failure to do so may cause of malfunction.
 - In powerful magnetic fields
 - Outdoors
 - An environment where there are corrosive gases (sulfur dioxide, hydrogen sulfide, nitrogen dioxide, chlorine, ammonia, ozone, etc.).

Installing suspended from 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.
- To prevent the projector from falling, use fall prevention wires.
 - Use commercially available metal fittings and fall prevention wires that have sufficient strength to withstand the combined weight of the projector and the ceiling mount unit.
- Please consult your dealer for more information.

Important Information



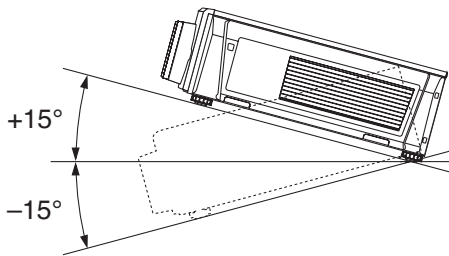
WARNING

1. Do not cover the lens with the supplied lens cap or equivalent while the projector is on. Doing so can lead to distorting or melting of the cap and burning your hands due to the heat emitted from the light output.
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.

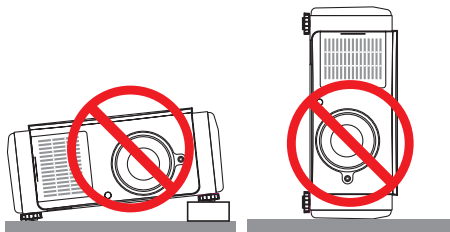
The following graphic symbol is shown on the projector cabinet.



When using the projector tilted in the forward or backward direction, use it in the range of (+15° to -15°) from horizontal. If you tilt it outside of this range or tilt it to the left or right, it may become damaged.



When installed on a floor or a desktop



Power Supply

1. The projector is so designed that it operates with the power supply voltage described below.
 - Projector
AC200–240V single phase 50/60HzEnsure 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 22) 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.
 - Do not change the arrangement of the installed power cable.

4. If the projector will not be used for an extended period of time, turn off the projector, and disconnect the power plug from the outlet.
5. 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.
6. Do not touch the projector during a thunder storm. Doing so can cause electrical shock or fire.
7. 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 19.7 inches (50cm) of space between your projector and a wall. In particular, clear a space of 27.6 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, turn off the projector, disconnect the power plug from the outlet 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. Never remove or open the projector cabinet and never modify the projector. Otherwise, fire, electric shock, or leakage of laser light may cause visual impairment or burn injuries.
5. When using a LAN cable:
For safety, do not connect to the connector for peripheral device wiring that might have excessive Voltage.
6. Do not try to touch the air outlets on the projector during normal projector operation as it is hot.
7. Do not touch the coolant.
If the projector is damaged, coolant could leak from the inside. If the coolant should leak, turn off the AC power immediately and contact your store of purchase. Do not drink or touch the leaked coolant.
If the coolant should get in your mouth or eyes, consult a physician as soon as possible. If coolant should get on your hands, rinse it off carefully.

Cleaning

1. Turn off the projector and unplug the power cable before cleaning the cabinet or replacing the laser.
2. During cleaning, turn off the projector, and disconnect the power plug from the outlet.
3. 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.
4. Use a blower or lens paper to clean the lens, and be careful not to scratch or mar the lens.
5. 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 projector has been turned off.
(The POWER button LED blinks in green while the fan is rotating, and "cooling..." is displayed on the LCD screen.)
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. Use of a wall outlet with a 20 A or more circuit breaker is recommended.
4. 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

The projector should always be carried by at least 4 people, holding the handles on the bottom. Remove the lens unit from the projector body when moving the projector.

When installing / removing a lens, shut down the AC power to the projector.

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.

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.

Cable information

Use shielded cables so as not to interfere with radio and television reception.

For details, please refer to "2. Installation and Connection" in the user's manual.

Installing the Projector

This projector is an RG3 product. The projector is for professional use and must be installed in location where safety is assured. For this reason, be sure to consult your dealer as installation and attachment/detachment of the lens unit must be performed by a professional service personnel. Never try to install the projector by yourself. This may result in visual impairment etc.

Connecting the power cord to earth

This equipment is designed to be used in the condition of the power cord connected to earth. If the power cord is not connected to the earth, it may cause electric shock. Please make sure the power cord is connected to the wall outlet directly and earthed properly.

Do not use a 2-core plug converter adapter.

Handling the power cord

- When connecting the power cord to the projector's AC IN terminal, make sure the connector is fully and firmly inserted. Be sure to fix the power cord using the power cord stopper. Loose connection of the power cord could lead to fire or electric shock.
- Do not connect or disconnect the power cord with wet hands. Doing so could result in electric shock.

Lens shift, focus and zoom operations

- When shifting the lens or adjusting the focus or zoom, do so from either behind or to the side of the projector. If adjustments are performed from the front, your eyes could be exposed to strong light and get injured.
- Keep your hands away from the lens area when performing the lens shift operation. If not, your fingers could get caught in the gap between the cabinet and the lens.

(For Customers in U.K.)

IMPORTANT

- The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW:	"Earth"
BLUE:	"Neutral"
BROWN:	"Live"

- As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:
- The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol $\equiv$ or coloured green or green-and-yellow.
- The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured black.
- The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured red.
- Ensure that your equipment is connected correctly. If you are in any doubt consult a qualified electrician.

"WARNING: THIS APPARATUS MUST BE EARTHED."



Information on the Disposal of this Equipment and its Batteries

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

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

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

This equipment contains a BATTERY which cannot be removed by the user. For battery exchange, please contact your dealer.

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

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

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

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

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

For questions relating to unclear points or repairs

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

INDIA ONLY



Information on the Disposal of this Equipment

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

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

Separate collection promotes an environment-friendly treatment, recycling of materials, and minimizing final disposal of waste. IMPROPER DISPOSAL can be harmful to human health and the environment due to contained hazardous substances! Take USED EQUIPMENT to a nearby collection center/point.

If in doubt, call us on our toll-free number: 1800-419-4322 and ask for the correct method of disposal.

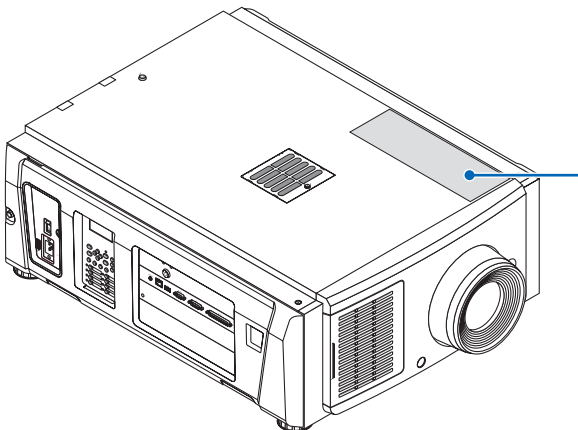
This equipment complies with the E-Waste (Management) Rule:

On restriction of the hazardous constituents as specified in rule 16 in electrical and electronic equipment.

For more information to recycle properly, please visit the website:

<https://in.sharp/b2b/environment-policy//>

Label Information



Label A

About the laser module used in the light source

- This product has a built-in laser module. Control and adjustment procedures other than those described in this document may result in exposure to hazardous laser radiation.
- This product is classified as a Class 1 of Laser Product Safety Standard JIS C 6802: 2018, IEC 60825-1:2014. This product is classified as Risk Group 3 of IEC/EN 62471-5:2015.
- This product complies with performance standards for laser products under 21 CFR Part 1040 except with respect to those characteristics authorized by Variance Number 2015-V-3435 effective on April 7 2016.

[Overview of the built-in laser]

Wave length: Red 635-647 nm, Blue 449-471 nm

Maximum power: Red 43 W, Blue 636 W

The explanatory label of the laser product is put on the top of the projector.

Label A: Laser Explanatory and Risk Group / Lamp Safety Label



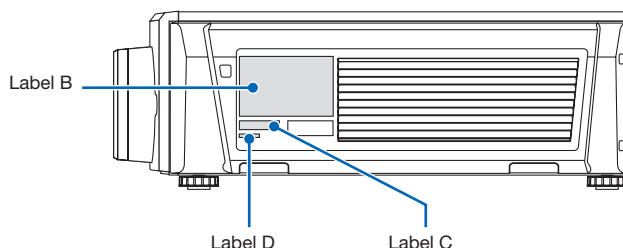
CLASS 1 LASER PRODUCT



WARNING RG3 PRODUCT

- No direct exposure to the beam shall be permitted.
- Do not look into the projector's lens. Serious damage to your eyes could result.
- Operators shall control access to the beam within the hazard distance or install the product at the height that will prevent exposures of spectators' eyes within the hazard distance.

Important Information



Label B (NC-1424)

SHARP NC-1424

PROJECTOR / PROJECTEUR / PROJEKTOR
ПРОЕКТОР / PROYEKTOR / 放映機 / 프로젝터

MODEL / МОДЕЛЬ / 型號 / 모델명 : NC-1424
VOLTS / ВОЛЬТ / 額定電壓 / 정격 전압 : 200-240V ~
AMPERES / АМПЕР / 額定電流 / 정격 전류 : 10.5A
FREQUENCY / ЧАСТОТА / 額定頻率 / 정격 주파수 : 50/60Hz

CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT OPEN TOP COVER, NO USER-SERVICEABLE PARTS INSIDE.
ATTENTION: AFIN DE PREVENIR UN CHOC ELECTRIQUE, NE PAS ENLEVER LE COUVERCLE. S'ADRESSER A UN REPARATEUR COMPETENT.
ACHTUNG: ZUR VERMEIDUNG EINES ELEKTRISCHEN SCHLAGES, OFFNEN SIE DAS GEHÄUSE NICHT SELBST. IN DIESEM GERÄT SIND KEINE TEILE ENTHALTEN, DIE VOM NUTZER GEWARTET WERDEN KÖNNEN. ZUR TRENNUNG VOM NETZ IST DER NETZSTECKER AUS DER STECKDOSE ZU ZIEHEN!
ВНИМАНИЕ: ВО ИЗБЕЖАНИЕ УДАРА ЭЛЕКТРИЧЕСКИМ ТОКОМ НЕ ОТКРЫВАЙТЕ ВЕРХНЮЮ КРЫШКУ. ВНУТРИ НЕТ ДЕТАЛЕЙ, ОБСЛУЖИВАЕМЫХ ПОЛЬЗОВАТЕЛЕМ.

PRECAUCIÓN: PARA PREVENIR DESCARGA ELÉCTRICA, NO quite el recinto, ningunas piezas del usuario servicable adentro.

Tegangan dan Frekuensi: 200-240V ~ 50/60Hz

SERIAL NO. _____

CAN ICES (A) / NMB (A)
THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRABLE OPERATION.

Brand Owner: SHARP CORPORATION
1 Takumi-cho, Sakai-ku, Sakai-City, Osaka 590-8522, Japan

THIS CABINET IS CONSTRUCTED OF METAL (AL) AND PLASTIC (PC/ABS)

警告: 請勿打開頂蓋，小心高壓電擊，機內並無用戶配件。
警告: 為避免電磁干擾，本產品不應安裝或使用於住宅環境。
주의: 전기충격 방지를 위해 캐비닛을 열지 마십시오.
내부에는 사용자를 위한 서비스가능 부품이 들어있지 않습니다.

This product complies with performance standards for laser products under 21 CFR Part 1040 except with respect to those characteristics authorized by Variance Number 2015-V-3435 effective on April 7, 2016.

Contact address for UK
Sharp Electronics (Europe) Limited
4 Furzground Way, Stockley Park, Uxbridge, Middlesex, UB11 1EZ, United Kingdom
Contact address for EU
Sharp Display Solutions Europe GmbH
Landshuter Allee 12-14, 80637 Munich, Germany
https://sharpdisplays.eu

이동통신: 080-022-1155 (휴먼티엑스주식회사)
*본 국별과 전화번호는 국내 규정 내에서 적절한 목적으로만 사용되어야 합니다.

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

使用上の注意
イ。通風孔をふさがないでください。
内部温度の上昇を招き故障の原因になります。
ロ。温度の高い場所や湿気の多い場所での使用はさけてください。

警告 高圧注意
サービスマン以外の方は外装パネルをあけしないでください。内部には高電圧部分が多くあり、万一さわると危険です。

MADE IN CHINA
HERGESTELLT IN CHINA
СДЕЛАНО В КИТАЕ
生產國別：中國
FABRIQUE EN CHINE
PRODUKTS CHINA
FABRICADO EN CHINA
중국에서 만든

Label B (NC-1224)

SHARP NC-1224

PROJECTOR / PROJECTEUR / PROJEKTOR
ПРОЕКТОР / PROYEKTOR / 放映機 / 프로젝터

MODEL / МОДЕЛЬ / 型號 / 모델명 : NC-1224
VOLTS / ВОЛЬТ / 額定電壓 / 정격 전압 : 200-240V ~
AMPERES / АМПЕР / 額定電流 / 정격 전류 : 10.5A
FREQUENCY / ЧАСТОТА / 額定頻率 / 정격 주파수 : 50/60Hz

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Brand Owner: SHARP CORPORATION
1 Takumi-cho, Sakai-ku, Sakai-City, Osaka 590-8522, Japan

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주의: 전기충격 방지를 위해 캐비닛을 열지 마십시오.
내부에는 사용자를 위한 서비스가능 부품이 들어있지 않습니다.

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Contact address for UK
Sharp Electronics (Europe) Limited
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*본 국별과 전화번호는 국내 규정 내에서 적절한 목적으로만 사용되어야 합니다.

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

使用上の注意
イ。通風孔をふさがないでください。
内部温度の上昇を招き故障の原因になります。
ロ。温度の高い場所や湿気の多い場所での使用はさけてください。

警告 高圧注意
サービスマン以外の方は外装パネルをあけしないでください。内部には高電圧部分が多くあり、万一さわると危険です。

MADE IN CHINA
HERGESTELLT IN CHINA
СДЕЛАНО В КИТАЕ
生產國別：中國
FABRIQUE EN CHINE
PRODUKTS CHINA
FABRICADO EN CHINA
중국에서 만든

Label C



Label D



Laser radiation range/No entry range (HD: Hazard distance)

- The below table describes the radiation range of emitted light by the projector that is classified as Risk Group 3 (RG3) of IEC/EN 62471-5:2015.
- Please keep within bounds for installing the projector.
- Install a barrier for preventing human eyes from entering the RG3 area. For the barrier installation position, keep horizontal safety zone over 1 m from the RG3 area. In case to install the projector over head, keep at least 2 m (2.5 m for USA) distance between the floor surface and the RG3 area.
- This projector must be installed at a height that will prevent your eyes from being exposed within the RG3 zone. The equipment administrator (operator) must control the entry of viewers into the RG3 zone.

NC-1424/NC-1224 (IEC/EN 62471-5 First edition 2015)

Lens		RG3 HD(m)	Screen size(m)	
			H	V
NC-12ZSA1	Wide	1.3	1.09	0.57
NP-9LS12ZM1	Tele	1.8	1.08	0.57
NC-13ZSA1	Wide	1.4	1.09	0.57
NP-9LS13ZM1	Tele	2.2	1.09	0.57
NC-16ZSA1	Wide	1.7	1.09	0.57
NP-9LS16ZM1	Tele	2.9	1.09	0.57
NC-20ZSA1	Wide	2.2	1.03	0.54
NP-9LS20ZM1	Tele	4.2	1.06	0.56

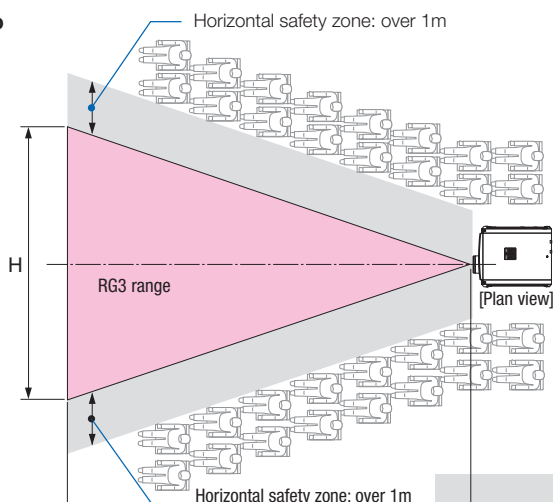
RG3 region when not using the “NFK” attachment.

NC-1424/NC-1224 (IEC/EN 62471-5 First edition 2015)

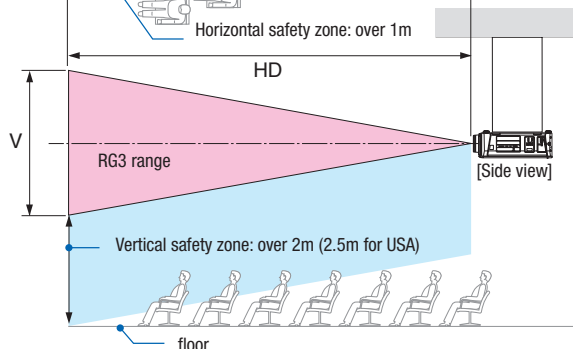
Lens		RG3 HD(m)	Screen size(m)	
			H	V
NC-12ZSA1	Wide	1.1	0.92	0.49
NP-9LS12ZM1	Tele	1.6	0.92	0.49
NC-13ZSA1	Wide	1.2	0.92	0.49
NP-9LS13ZM1	Tele	1.9	0.92	0.49
NC-16ZSA1	Wide	1.4	0.93	0.49
NP-9LS16ZM1	Tele	2.5	0.93	0.49
NC-20ZSA1	Wide	1.9	0.86	0.46
NP-9LS20ZM1	Tele	3.6	0.89	0.47

Important Information

When installed on a floor or a desktop



When installed on a ceiling



* If lens shift is utilized, please consider the shift of projected image according to the volume of lens shift.



CAUTION

Please heed all precaution for safety.

To install the projector

- For planning the layout of the projector, make sure to take safety measures instructed on the installation manual.
- In order to refuse danger, install either a wall outlet within easy reach for pulling out the power plug in emergency or a device as a breaker to shut down the power supply to the projector.
- Take safety measures preventing human eyes from entering the RG3 area.
- Considering the installation place, select an appropriate lens and secure safety zone that is determined for each lens. For operation on the powered projector as light adjustment, make sure appropriate safety measures have been taken.
- Check the validity of taken security measures if appropriate safety zone based on the installed lens is secured. Periodically check the validity and keep these results.
- Educate the administrator of the projector (operators) about safety before starting to operate the projector.
- This projector is an RG3 product. The projector is for professional use and must be installed in location where safety is assured. For this reason, be sure to consult your dealer as installation and attachment/detachment of the lens unit must be performed by a professional service personnel. Never try to install the projector by yourself. This may result in visual impairment etc.

To use the projector

- Instruct the administrator of the projector (operators) to perform inspections before powering on the projector. (Including the safety check against emitted light by the projector)
- Instruct the administrator of the projector (operators) to be in circumstances able to control the projector whenever the projector is powered on for an emergency.
- Instruct the administrator of the projector (operators) to keep the installation manual, user's manual and inspection records to a place where they can take these documents out easily.
- Instruct them to clarify if the projector is conformed to standards of each country and region.

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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. 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, 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.

- **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).

- **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 (Refer to "6-9. Related products list" (page 78) for details on the lenses that support the lens memory function).

- (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) V2.

- **Advanced Dust Protection**

A dust control shield is arranged between each DMD chip of R, G and B, and the spectroscopic/condenser prism. It prevents dust and dirt in the air, and oily particles in smoke associated with event halls from coming into contact with the face of the DMD and causing operating problems.

- **Reduced running cost thanks to the use of metal filters**

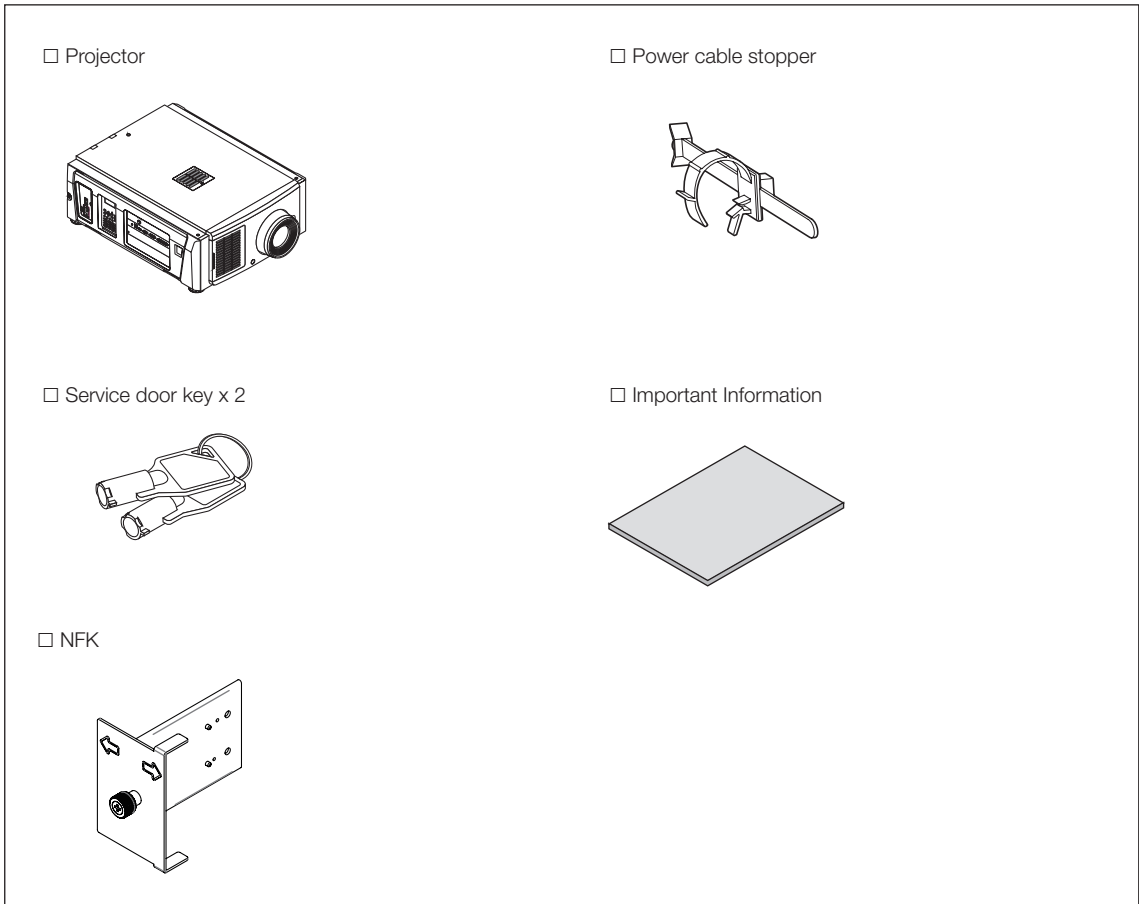
The filters are made of metal, so they can be used repeatedly and do not have to be replaced when performing periodic cleaning.

This not only reduces running costs, but also contributes to preserving the environment since no spent filters are discarded.

1-2. What's in the Box?

Check the content of the accessories.

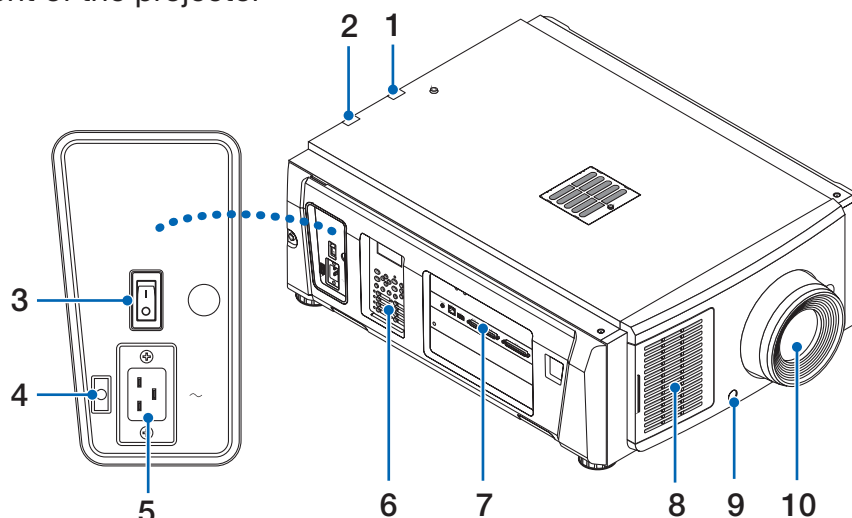
1-2-1. Projector



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. LIGHT status 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 (page 61).

2. SYSTEM status indicator

These indicate 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. (page 61)

3. 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.

4. Power cable stopper

Prevents the power plug from falling out from the projector.

5. 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.

6. 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. (page 19)

7. Connection terminals

Various image signal cable are to be connected here. (page 18)

You can expand signal input terminals by installing the optional board.

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

8. Air inlet

The air inlet for cooling inside the projector. Do not cover. An air filter is attached over the air inlet to prevent dust.

9. Remote interlock connector (inside front of projector)

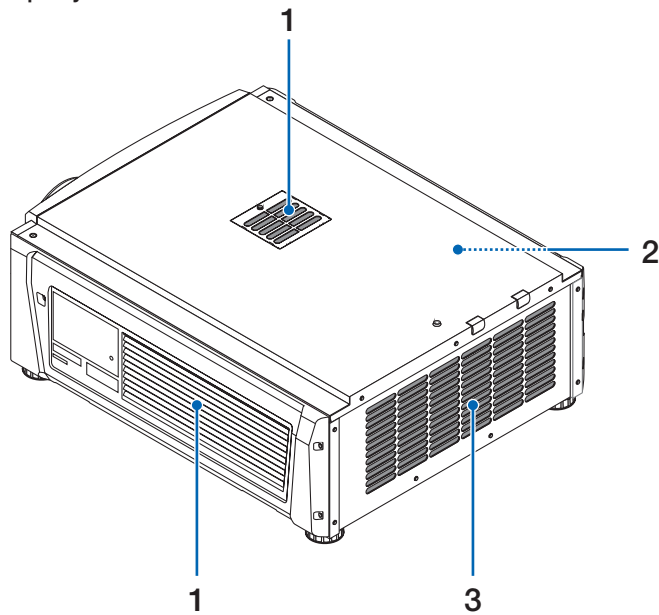
This port is for safely using the laser in this device. It is used to externally control the laser illumination in the projector. Consult with your dealer/distributor about using this.

10. 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

The air inlet for cooling inside the projector. Do not cover. Air filters are attached over the air inlet to prevent dust.

2. Buzzer (inside rear of projector)

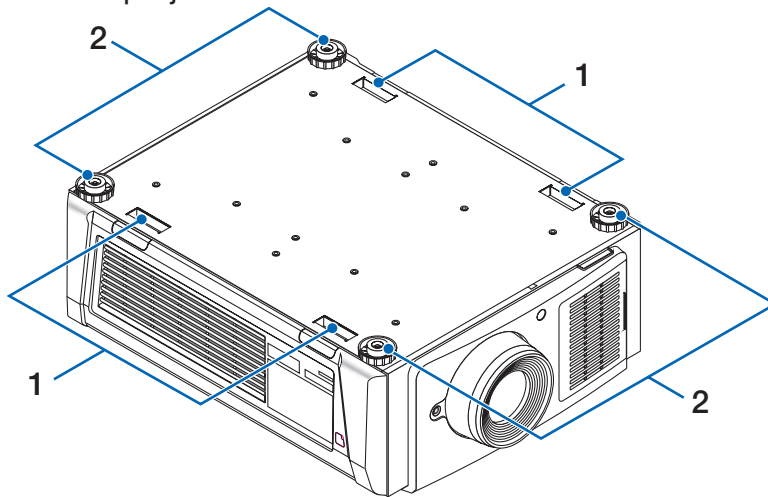
The buzzer rings when the power is turned on or an error has occurred.

3. Air outlet

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

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



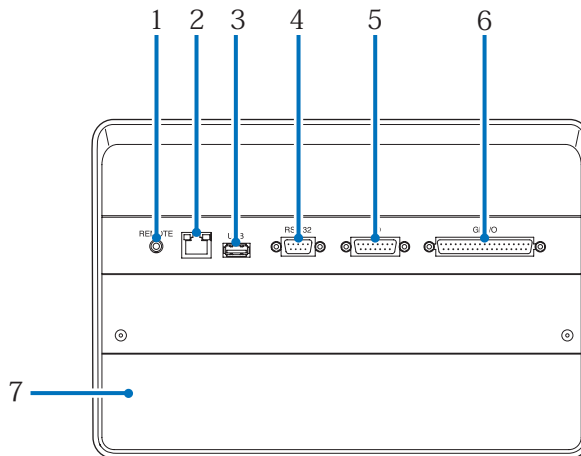
1. Handle (4 locations)

Handles for moving the projector.

2. Level adjusters (in 4 positions)

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

1-3-4. 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. (page 77)

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

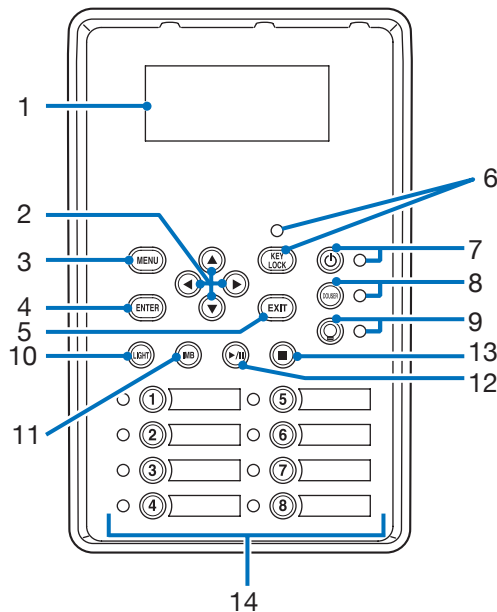
The terminal for externally controlling the projector or connecting a 3D image system to the projector. (page 72)

7. Slot

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. LCD screen

The LCD screen displays menus and setting values for the projector operations.

2. ▲/▼/◀/▶ (UP/DOWN/LEFT/RIGHT) buttons

Press these buttons to select a menu item while a menu is displayed.

3. MENU button

Press this button to display the menu for various settings and adjustments. (page 43)

4. ENTER button

Press this button to select the menu item.

5. EXIT button

Press this button to return to the previous menu item.

6. 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. (page 35)

NOTE KEY LOCK becomes automatically on if no control panel operation takes place in the standby state for 30 seconds by default. (page 35)

7. ⏻ button (POWER button)

Press this button for more than three seconds to turn on or off (standby) the projector. (page 60)

In order to start up the projector, turn on the main power switch for the projector to set the projector in the standby state. (page 28)

8. DOUSER button

Press this button to open and close the douser. (page 60)

9. ⏻ button (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. (page 36)

10. LIGHT button

Press this button to display the light source adjustment menu. (page 34)

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

11.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.

12.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.

13.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.

14.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. (page 59)

.....

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. (page 22)

- **Step 3**

Connect cables to the image input terminals. (page 26)

Connect cables to the various control terminals. (page 26)

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 69), 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.

If the power cord is not connected to the earth, it may cause electric shock. Please make sure the power cord is connected to the wall outlet directly and earthed properly. Do not use a 2-pin plug converter adapter.



CAUTION

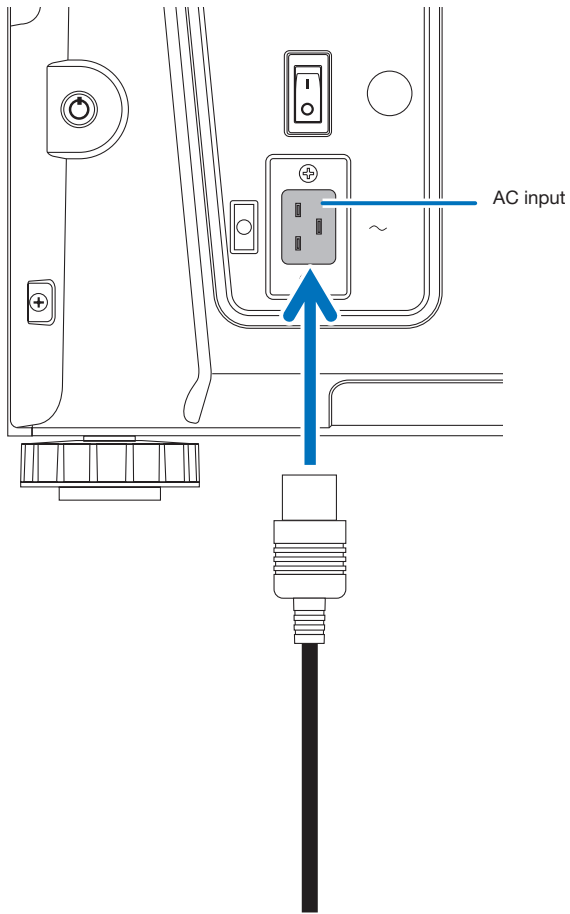
- This equipment is designed to be used in the condition of the power cord connected to earth. If the power cord is not connected to the earth, it may cause electric shock. Please make sure the power cord is earthed properly.

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

Using the supplied 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

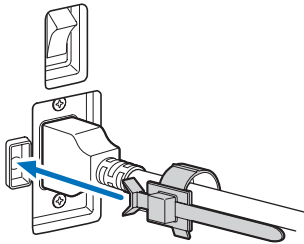
- To prevent the power cable from coming loose, make sure that all the prongs of the power cable are fully inserted into the AC IN terminal of the projector before using the power cable stopper to fix the power cable. A loose contact of the power cable may cause a fire or electric shock.
- Do not bundle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

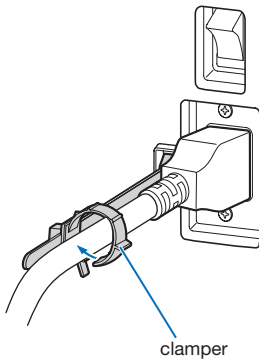
Attaching the power cable stopper

- 1** Insert the end of band of the power cable stopper into the slot next to the AC IN on the terminal panel.

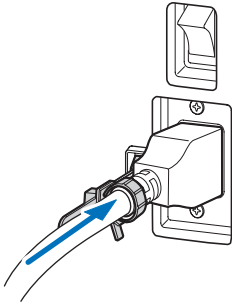


- 2** Use the power cable stopper to clamp the power cable.

Push the clasper to lock it.



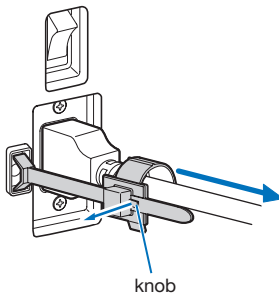
- 3 Slide the clammer to the hilt of the power cable.



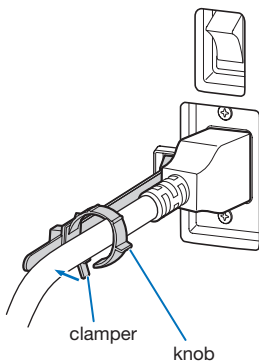
This completes the attachment of the power cable stopper.

Removing the power cable from the power cable stopper

- 1 Push the clammer of the power cable stopper to unclasp it.



- 2 Push the power cable clammer to open it wide enough to pull out the power cable.



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.

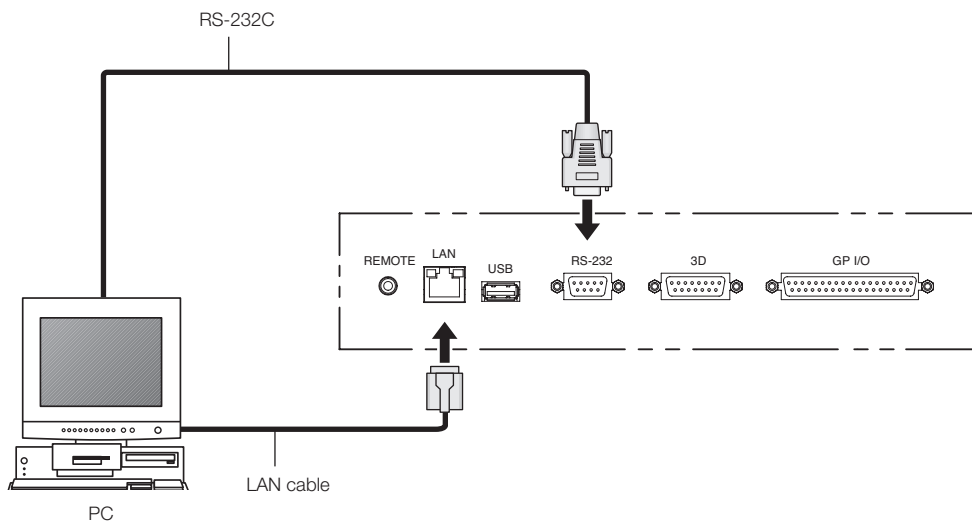
2-3. Connecting the image input terminals

Refer to the instruction manual of the IMB for details on connecting the video input ports with external equipment.

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. (page 28)

- **Step 2**

Select the title of input signal. (page 30)

- **Step 3**

Adjust the position and size of the projected screen. (page 31)

- **Step 4**

Turn off the power to the projector. (page 37)

3-2. Turning your projector on

WARNING

The projector produces a strong light. When turning on the power, operate from the side or rear of the projector (outside the Restriction Zone (HD)). Also, when turning on the power, make sure no one within the projection range is looking at the lens.

- Preparation:**
- Connect the power cable to the projector (page 22).
 - Supply AC power to the projector.

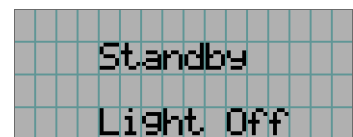
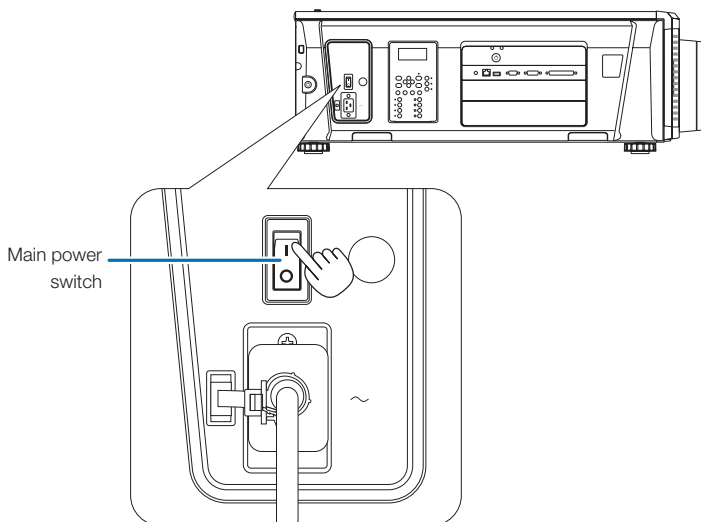
NOTE

- 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. (page 37)
 - [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 Remove the lens cap.

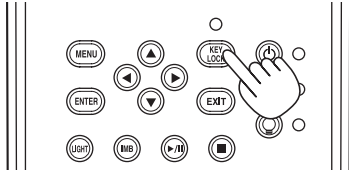
2 Turn on the main power switch on the side of the projector.

A buzzer will ring on the projector. The POWER button indicator will blink green and the SYSTEM status indicator will light 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. (page 35)



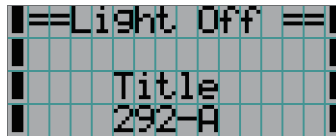
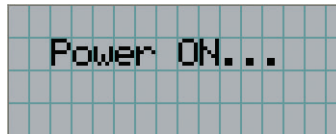
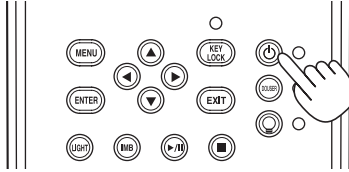
5 If KEY LOCK is on, press the KEY LOCK button for one second or longer.

KEY LOCK becomes off. The KEY LOCK button indicator turns off and buttons on the control panel become operable. (page 35)



6 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 button, DOUSER button, LIGHT ON/OFF button, and preset button (button <1> to <8>) changes as follows.

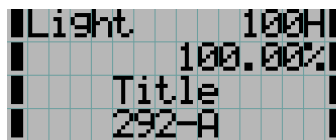
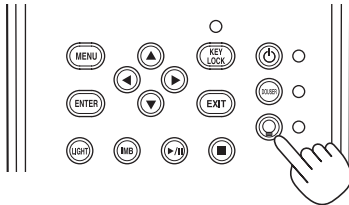
POWER button	Lit green
DOUSER button	Initial settings: Off (douser is off)
LIGHT ON/OFF button	Initial settings: Blinking green (light source is off)
Button <1> to <8>	The preset button which was last selected is lit green

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

The light source is turned on and the screen glows light about 15 seconds later.

The LIGHT ON/OFF button indicator blinks in cycles of 2 (and changes to steady green light 90 seconds later).

The douser is closed until the screen glows light (the DOUSER button indicator lights green). When the douser is open, the DOUSER button indicator turns off.



NOTE

- While your projector is on, be sure to have the lens cap and glass protector cap removed from the lens. Otherwise, the lens cap or glass protector 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 SYSTEM 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.
- When turning on the projector, ensure that nobody is facing towards the lens in the path of the light emitted from the laser.

3-3. Selecting the title of input signal

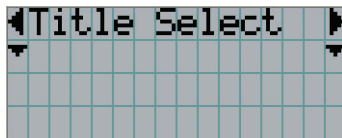
This projector allows you to select pre-registered title (input signal) using the preset buttons on the control panel (up to 16 titles). Request your dealer/distributor for details on registering and changing titles. This section explains the steps for selecting registered titles.

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.

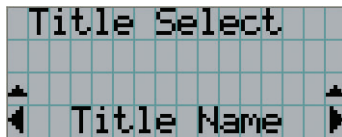
At each press of the LEFT/RIGHT buttons, the display will cycle as “Title Select” ↔ “Configuration” ↔ “(Title Setup)” ↔ “Information.”



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.

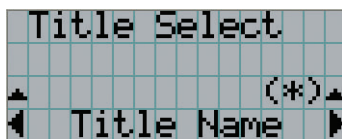


5 Press the LEFT/RIGHT buttons to display “Title of Signal to be Projected” on the LCD screen.

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.

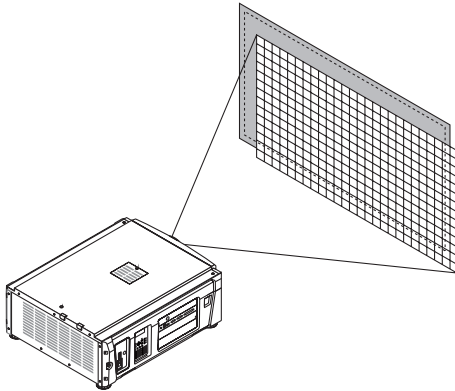


3-4. Adjusting the position and the size of projected screen

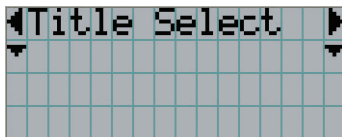
3-4-1. Displaying the test pattern

- 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 (page 30)”.

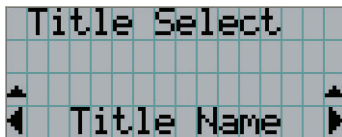


- 2** Press the LEFT/RIGHT button to display “Title Select” on the LCD screen.



- 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.

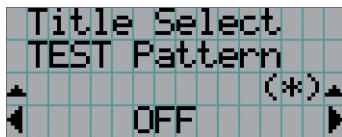
3. Projection of Images (Basic Operation)

- 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.



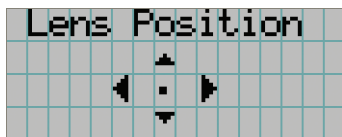
3-4-2. Adjusting the position of the projected screen (Lens shift)

CAUTION

- Perform the adjustment from behind or from the side of the projector. If adjustments are performed from the front, your eyes could be exposed to strong light and get injured.

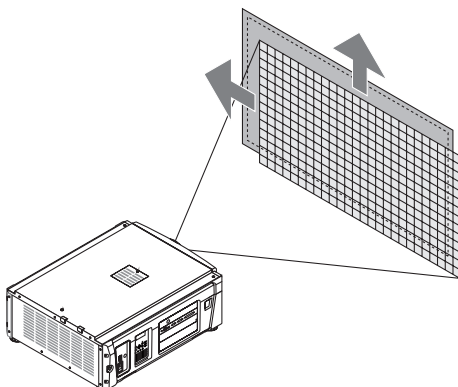
- 1 Press the MENU button.
- 2 Press the LEFT/RIGHT button to display "Configuration" on the LCD screen.
- 3 Press the DOWN button.
- 4 Press the LEFT/RIGHT button to display "Lens Control" on the LCD screen.
- 5 Press the DOWN button.

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.



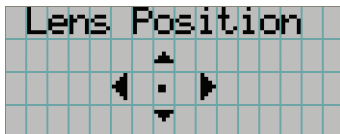
- 7 Press the EXIT button when adjustment is complete.

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

3-4-3. 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.

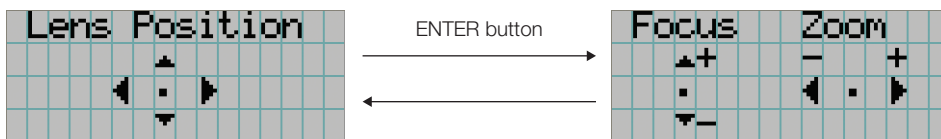
The screen (“Lens Position”) to adjust the position of the projected screen is displayed.



- 6** Press the ENTER button.

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

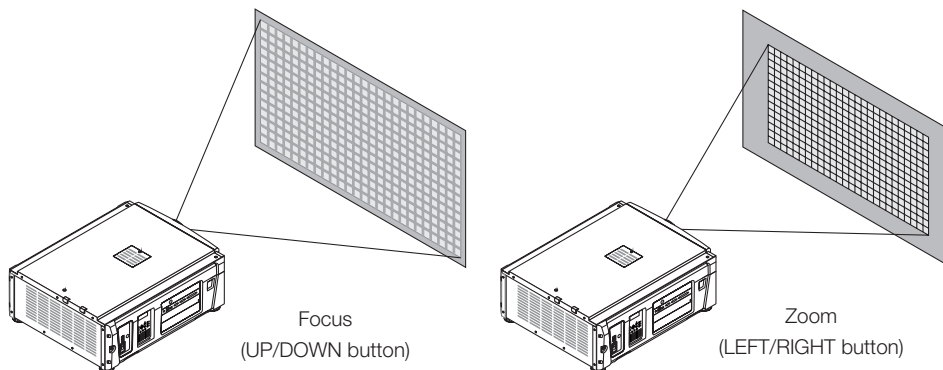
Press the ENTER button to switch the display between “Lens Position” and “Focus Zoom” adjustments.



- 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).

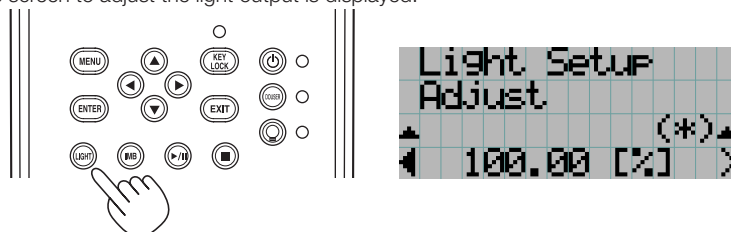
3. Projection of Images (Basic Operation)

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.

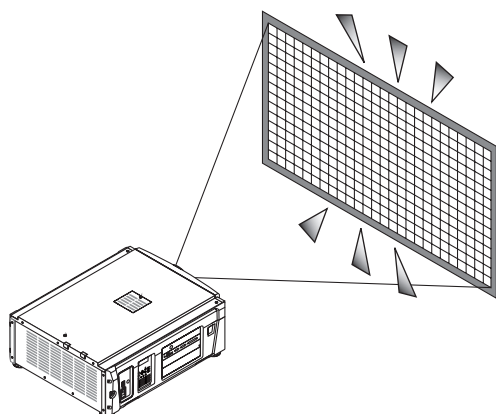
1 Press the LIGHT button.

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.

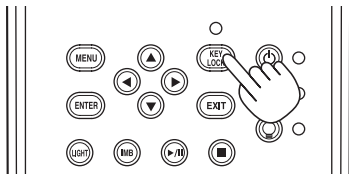
NOTE

- 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. (page 39)



3-5-2. Turning KEY LOCK off

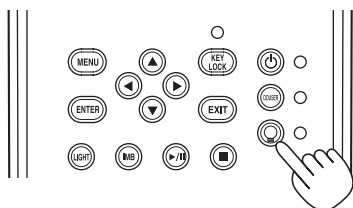
- Press the KEY LOCK button for one second or longer while KEY LOCK is on.

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

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

3-6-1. Turning off the light

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



3-6-2. Turning on the light

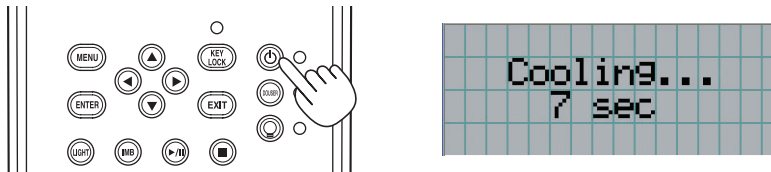
- Press the LIGHT ON/OFF button on the control panel for three seconds or longer.

3-7. Turning your projector off

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

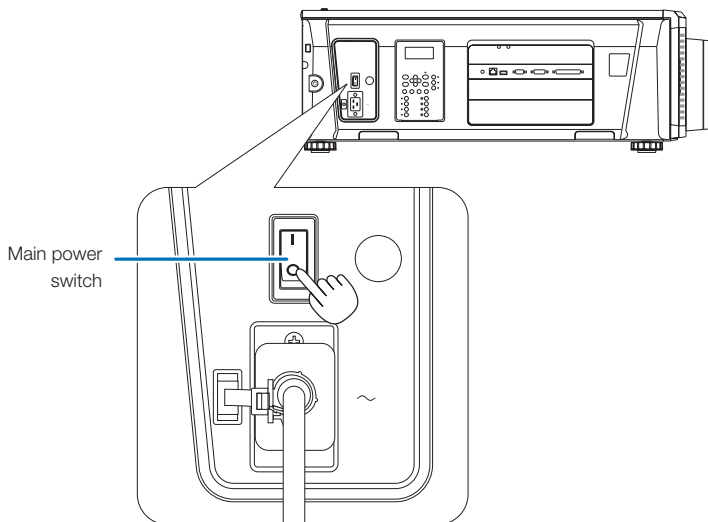
The light is turned off, the POWER button indicator blinks green, and the STATUS indicator blinks orange (cooling state). The fan will continue to rotate while cooling, and the amount of time remaining for cooling is displayed on the LCD screen. The cooling-off time is 90 seconds.

When the cooling is finished, the POWER button indicator turns off and the 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. (page 35)



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

The POWER button 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 fan is running after the power is turned off
 - While the projector is cooling down after the power was turned off.
 - When using the IMB: 90 seconds
 - During IMB operation (when the projector is not in the standby mode)

4.

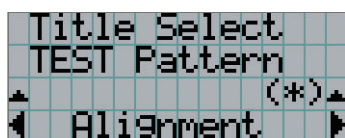
Using Menus

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).



← Displays the main menu or submenu.

← Displays submenus or selection items.

← Displays settings and selection status.

← Displays settings, selected items and information on selected menus.

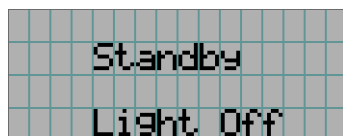
The meanings of symbols in the menu display screen are outlined below.

	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.

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

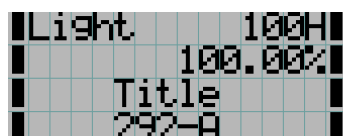
When in standby

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 light mode and light output (%).

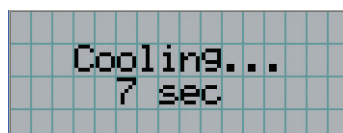
← Displays the light usage time.

← Displays the selected title.

← Displays the selected video input port.

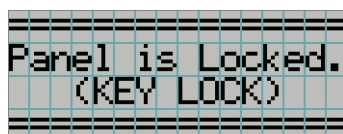
When the power is turned off

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.



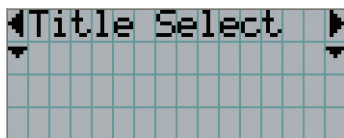
4. Using Menus

4-1-2. Operating menus

Preparation: Turn your projector on. (page 28)

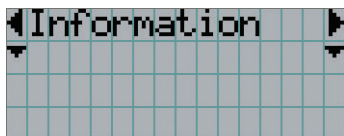
- 1 Press the MENU button on the control panel of your projector.

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."

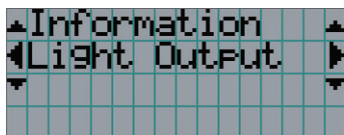


- 3 Press the DOWN button.

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

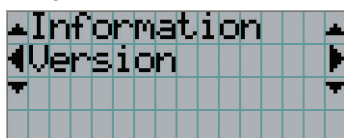
The menu item can be selected by pressing the ENTER button instead of the DOWN button.

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



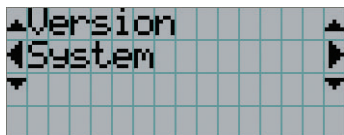
- 4 Press the LEFT/RIGHT button to select the submenu "Version."

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



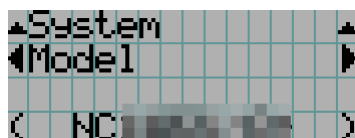
- 5 Press the DOWN button.

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

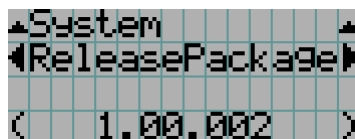


6 Press the DOWN button.

The submenu “BIOS” another rank lower than “Model” is displayed.

**7** Press the LEFT/RIGHT button to select the submenu “Release Package.”

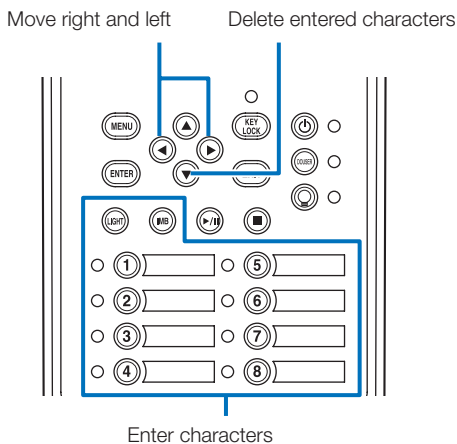
At each press of the LEFT/RIGHT button, the display will cycle as “Model” ↔ “Serial No.” ↔ “Release Package” ↔ “Kernel” ↔ “U-Boot” ↔ “System Files” ↔ “Cinema Firmware” ↔ “Cinema Data” ↔ “ICP Firmware” ↔ “ICP ConfigFile” ↔ “FMT FPGA” ↔ “Secure Processor” ↔ “Slave BIOS” ↔ “Slave Firmware” ↔ “Opt MCUFirmware” ↔ “LD Interface” ↔ “LD Driver1” ↔ “LD Driver2” ↔ “LD Driver3” ↔ “LD Driver4” ↔ “LD Driver5” ↔ “LD Driver6” ↔ “Lens Firmware” 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. (page 64)
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.	44
	TEST Pattern		Selects the test pattern to be projected.	44
Configuration	Light Setup	Adjust	Adjusts light brightness.	45
	Lens Control	Lens Position	Adjusts the position of the projected screen.	45
		Focus Zoom	Adjusts the size and focus of the projected screen.	45
	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).	46
		(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.	-
		(Pump)	Reset the pump usage time.	-
		(Douser Count)	Resets the number of times the douser has been used.	-
	(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 Reference	Sets the signal input terminal for a 3D image system (3D terminal or GPI/O terminal). Sets the video input port for 3D video systems.	-
		Off Timer	Sets the time until the projector power is turned off automatically.	-
		Message	Sets the time to display the message indicating the light replacement cycle, air filter replacement cycle, and air filter cleaning cycle.	-
		Silent Mode	Selects whether to use the status indicator, buzzer, indicators on the control panel and backlight.	-
	Installation (Note)	(Option Slot)	Configures the device installed in slot (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.	-
		Lens Calibrate (Note)	Performs calibration on lens that support the lens memory function (only when the projector power is turned on).	-
		Lens Center (Note)	Moves the lens shift position to the center (only when the projector power is turned on).	-
		(Baudrate)	Sets the PC control connector (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)	(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).	47
Information	Light	Light Output	Displays the light module's brightness (output) setting value.	47
		Model	Displays the light module's model name.	47
		S/N	Displays the serial number of the light module.	47
	Lens Type		Displays the lens type setting.	47
	Preset Button	Preset Button 1–16	Displays the titles which are assigned to the preset buttons (<1> to <8> buttons).	48
	Usage		Displays information related to projector usage.	48
	Error Code		Displays the currently occurring error.	48
	Version	System	Displays the model name and various version information about the projector.	49
		IMB	Displays the vendor name and version information about the media block (IMB).	49
	IP Address	System	Displays the IP address of the projector.	49
	Setup Date		Displays the date when the projector was set up (starting date of the warranty period).	50
	Option Status		Displays the link status of the device mounted in slot and projector.	50

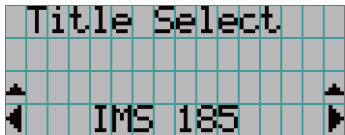
4-3. Title Select

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.

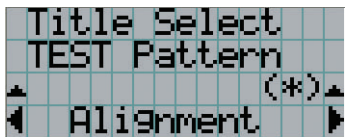


← Displays the currently selected item with asterisk (*).

← 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

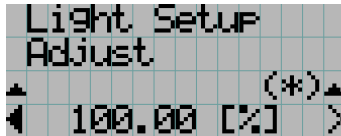
4-4. Configuration

Please request your dealer/distributor to perform the settings.

4-4-1. Light Setup

Adjust

Adjusts the light output (brightness).



← Displays the current output power value (%) when the light rated output is 100%.

4-4-2. Lens Control

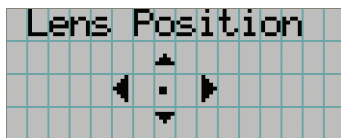
Adjust the position, size, and focus of the projected screen.

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.

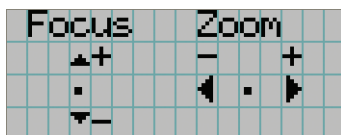


Focus Zoom

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.

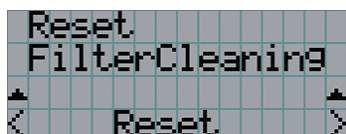


4-4-3. Reset

Filter Cleaning

Resets the air filter usage time (for confirming the filter cleaning time).

- [1] Press the ENTER button, the confirmation screen will appear.
- [2] Select "Yes" in the confirmation screen, and then press the ENTER button to reset the filter usage time.



← Press the ENTER button to display the confirmation screen.

4-5. Title Setup

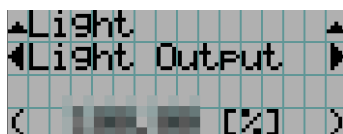
Sets the title to be assigned to the preset buttons (<1> to <8> buttons) (up to 16 titles).
Request your dealer/distributor to perform the settings.

4-6. Information

Displays the hours of light use, the version information and error codes.

4-6-1. Light

Displays the light source information.

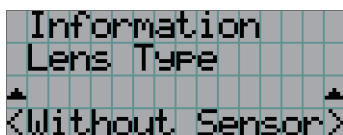


← Displays the current setting (%).

Light Output	Displays the output setting value (%).
Model	Displays the model name of the light module
S/N	Displays the serial number of the light module.

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 45).



← 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. Using Menus

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.

▲Preset Button▲

◀PresetButton1▶

Title No.8

(Logo)

← 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, air filters, and fan, and information about the light replacement cycle.

▲Usage▲

◀Projector▶

Total 0 [H]

(0 [H])

← Selects the item to display.

← Displays information about the selected item.

Projector	Displays the usage time of the projector. The upper row shows the usage time including standby mode while the lower row shows the usage time not including standby mode.
Light	Displays the usage time of the light.
Light Strike	Displays the number of times the light has been turned on.
Phosphor	Display of the usage time of the phosphor and the value that is displayed is the amount of usage time remaining (approximate).
Diffuser	Display of the usage time of the diffuser and the value that is displayed is the amount of usage time remaining (approximate).
Pump	Displays the pump usage time.
Filter Cleaning	Displays the usage time of the air filter.
Fan Usage	Displays the usage time of the fan.
Douser Count	Displays the number of times the douser has been used.

4-6-5. Error Code

Displays the error code when an error occurs.

▲Error Code▲

◀No Error▶

(—)

← Displays the code of the error currently occurring.

← Displays the name of the error currently occurring.

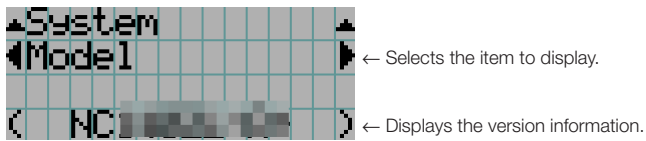
When multiple errors occur, you can display them by pressing the LEFT/RIGHT buttons.

4-6-6. Version

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

System

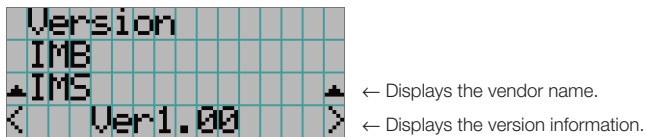
Displays the version information of the projector.



- Model
- Serial No.
- Release Package
- Kernel
- U-Boot
- System Files
- Cinema Firmware
- Cinema Data
- ICP Firmware
- ICP ConfigFile
- FMT FPGA
- Secure Processor
- Slave BIOS
- Slave Firmware
- Opt MCUFirmware
- LD Interface
- LD Driver1
- LD Driver2
- LD Driver3
- LD Driver4
- LD Driver5
- LD Driver6
- Lens Firmware

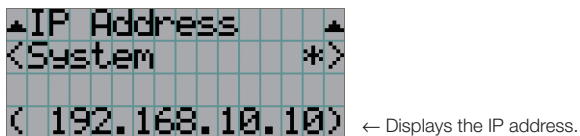
IMB

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 "---".



4-6-7. IP Address

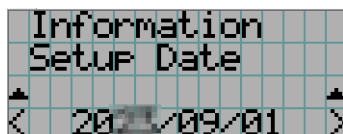
Displays the IP address set in the projector.



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

4-6-8. Setup Date

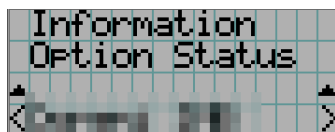
Displays the date when the projector was set up (starting date of the warranty period).



← Displays the date when the projector was set up (starting date of the warranty period).

4-6-9. Option Status

Displays the link status of the device mounted in slot 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.

- <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

Pull out the power plug from the power outlet before 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.

- 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 nozzle 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

Pull out the power plug from the power outlet before cleaning the lens.

⚠ WARNING

- Do not look into the light module 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 provided on the projector's air intakes to prevent dust from entering the projector. Clean the air filters regularly to maintain the performance of the projector.

The air filters of the unit are metal air filters. They can be used over and over again if properly cleaned.

- The usage time of the air filters can be checked at “Information” - “Usage” (page 52) on the adjustments menu.

⚠ WARNING

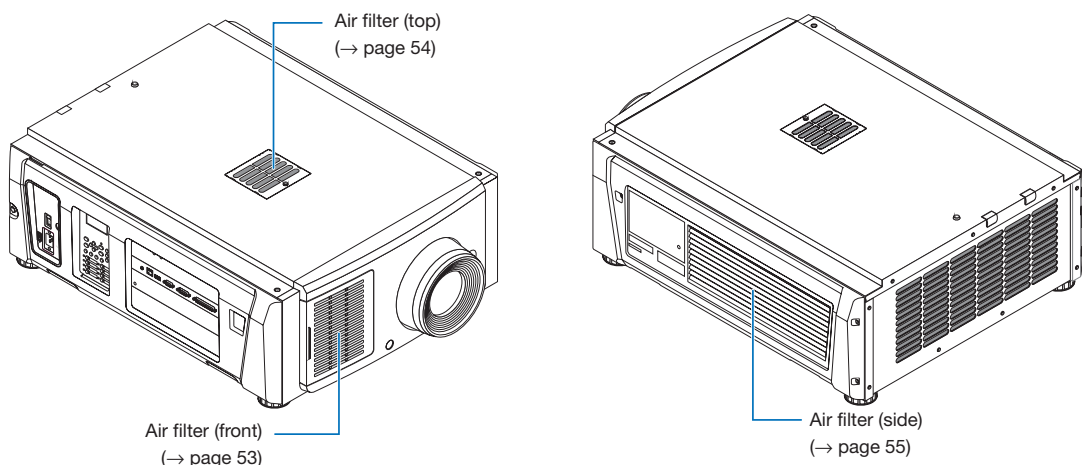
Pull out the power plug from the power outlet before cleaning the air filters.

⚠ WARNING

- If dust accumulates on the air filters, air intake to the projector will be insufficient and the internal temperature will rise, leading to fire or malfunction.
- Do not use a flammable gas spray to remove dust from the filters. Doing so may lead to fire.

⚠ CAUTION

- Before cleaning the air filters, turn off the power, wait for the cooling fan to come to a complete stop, turn off the projector power switch and the light power switch, interrupt the AC power supply, and make sure that the projector has cooled sufficiently. Removing the filter units during operation may cause burns or electric shock if the inside is touched.



There are 3 air filters, each of which is removed differently.

NOTE

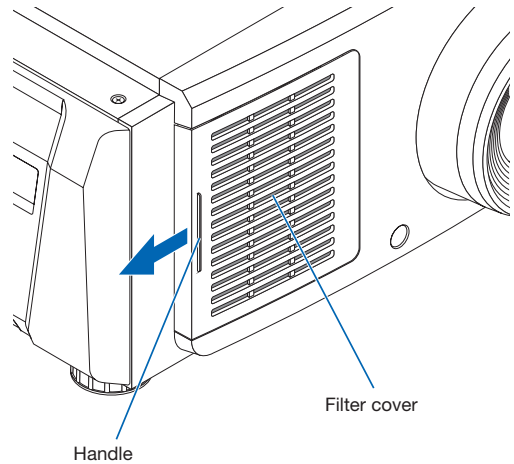
- Do not wash the air filter in water. Doing so will cause the dust to clog the holes, reducing intake performance.
- Do not bend the air filter. Doing so could damage it, rendering it unusable.
- Clean the air filter at three locations at the same time. If you clean only one or two places, the correct filter usage time will not be displayed on the adjustments menu.

Cleaning the Air Filter (Front)

1. Remove the filter cover.

Place your finger on the handle, and slide the cover to the left to remove it.

- The filter cover cannot be removed even if you pull it towards you.



2. Remove the air filter.

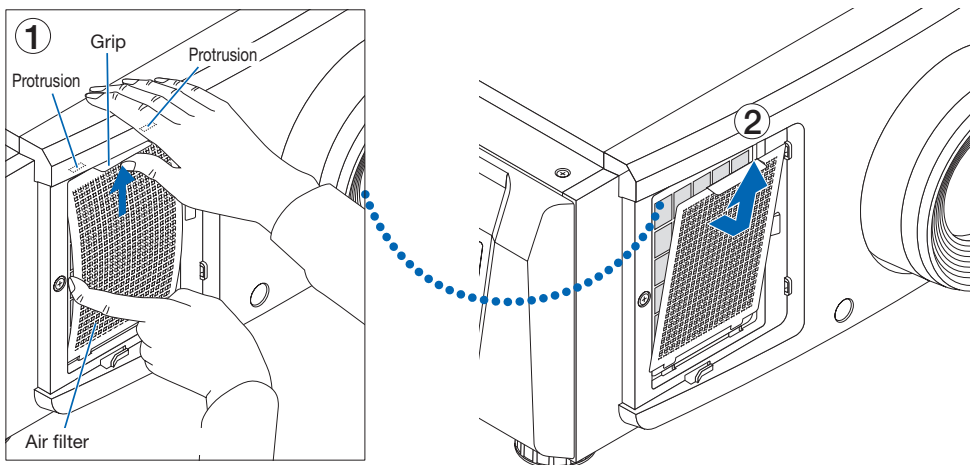
(1) Push up the tip of the air filter grip strongly to bow the air filter slightly. Place your finger around the center of the air filter and pull it toward you until the top of the air filter is unhooked from the protrusions.

Note: Be very careful not to bend the air filters when removing them.

(2) Pinch the top of the air filter and lift it upward to remove the air filter.

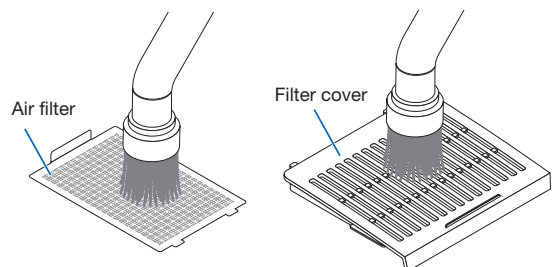
Note: Pulling it too much could bend the catches on the bottom beyond repair. Take care when removing the air filter.

⚠ Do not get your fingers caught in the gap.



3. Use a vacuum cleaner to remove the dust.

Use a vacuum cleaner to suck up the dust from both sides of the air filter and the filter cover.



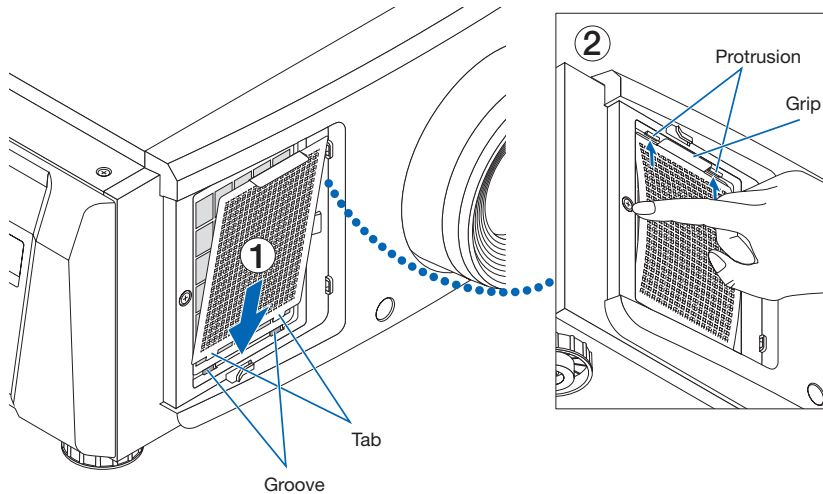
5. Maintenance of Your Projector

4. Attach the air filter to the main unit.

(1) Insert the tabs of the air filter into the grooves on the main unit.

(2) Bow the center of the air filter by using your fingers and pinch the grip to insert the top of the air filter into the protrusions.

Note: When doing so, be careful not to bend the air filter beyond repair.

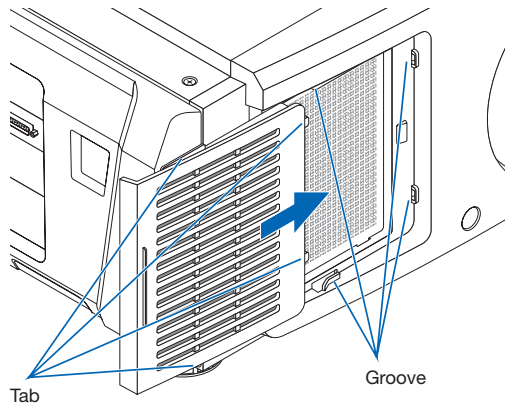


5. Attach the filter cover to the main unit.

There are tabs at the top and bottom and 2 locations on the right end of the filter cover.

There are grooves at the top and bottom and 2 locations on the right end of the main unit.

Slide the filter cover to the right and push it in while keeping the filter cover in close contact with the main unit. Each tab will go into the groove.



Cleaning the Air Filter (Top)

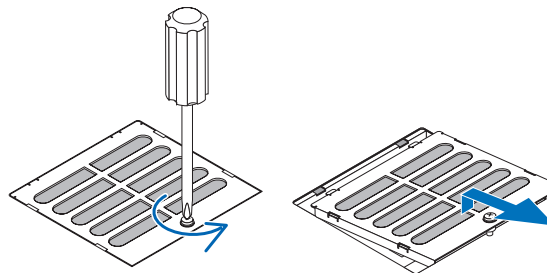
1. Remove the filter panel.

Turn the screw counterclockwise until it is loose, then lift up the filter panel slightly to remove it.

- The screw cannot be removed.

CAUTION

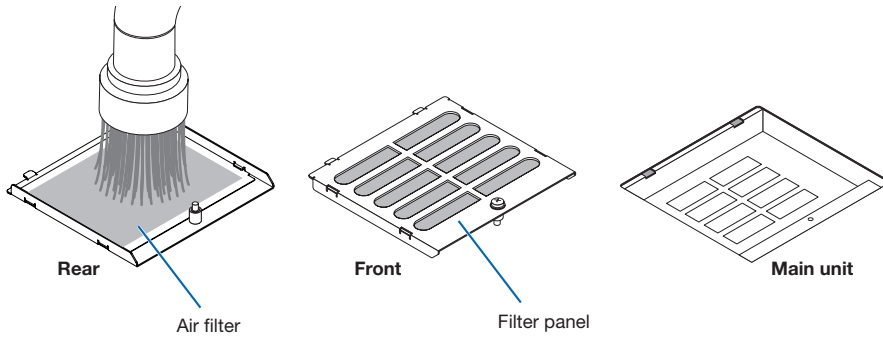
- Do not touch, tighten, loosen, or remove any screws other than those shown in the diagram.



2. Use a vacuum cleaner to remove the dust.

Use a vacuum cleaner to suck up the dust on the front and rear of the filter panel (air filter) and the main unit.

Caution: Do not remove the air filter. It may get bent and broken, thus becoming unusable.



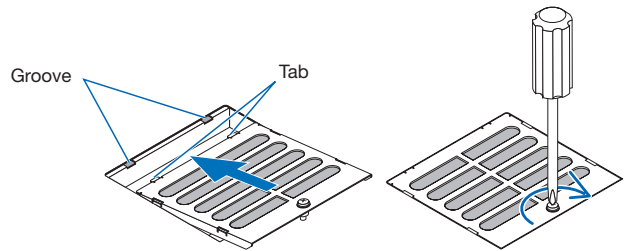
3. Attach the filter panel to the main unit.

(1) Insert the tabs of the filter panel into the grooves on the main unit.

(2) Turn the screw clockwise to tighten it.

CAUTION

- Do not touch, tighten, loosen, or remove any screws other than those shown in the diagram.



Cleaning the Air Filter (Side)

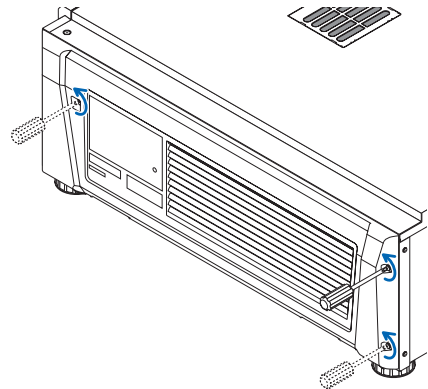
1. Remove the side cover.

(1) Turn the screws at the 3 locations counterclockwise until they are loose.

- The screws cannot be removed.

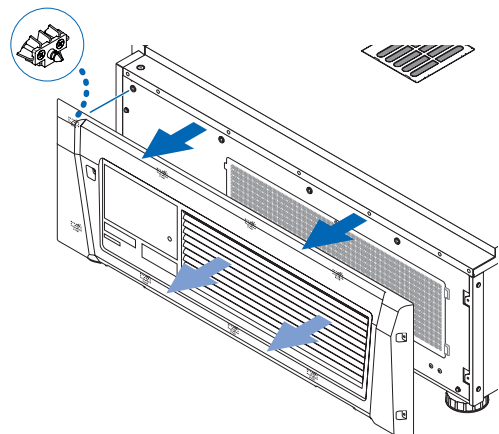
CAUTION

- Do not touch, tighten, loosen, or remove any screws other than those shown in the diagram.



(2) Pull the side cover towards you to remove it from the main unit.

- The side cover is fixed to the main unit with 8 tabs. Pull the side cover towards you to remove it. Remove in sequence starting from the end.



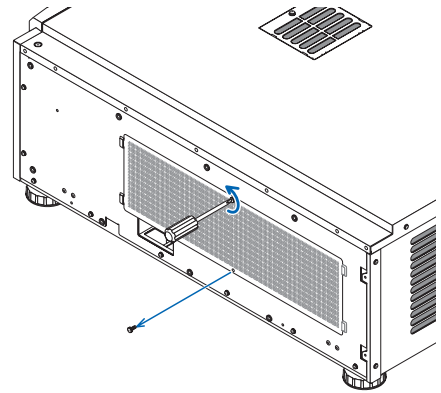
5. Maintenance of Your Projector

2. Remove the air filter.

- (1) Turn the screws at the 2 locations counterclockwise to remove them.

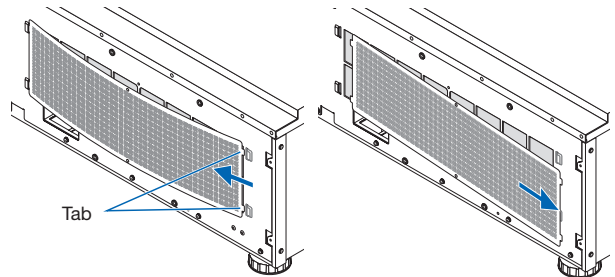
CAUTION

- Do not touch, tighten, loosen, or remove any screws other than those shown in the diagram.



- (2) Bend the air filter slightly to detach the 2 tabs from the grooves on the main unit before removing the air filter.

Caution: If you bend the metal filter too much with a strong force, it may bend and break, thus becoming unusable. Be very careful and bend it just a little.

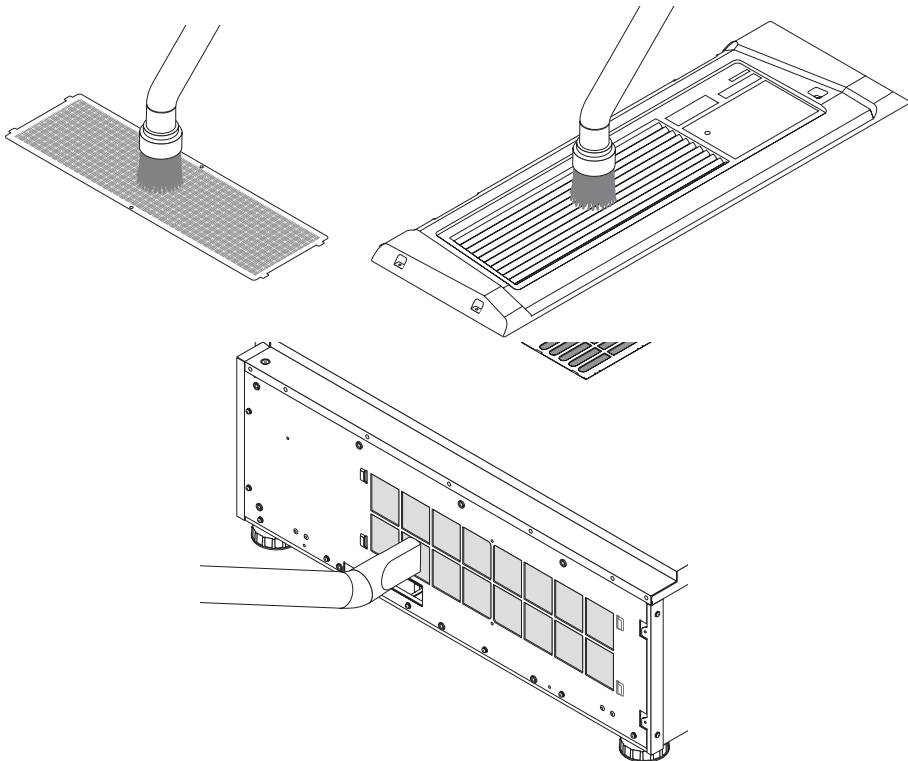


3. Use a vacuum cleaner to remove the dust.

Use a vacuum cleaner to suck up the dust from both sides of the air filter and the front and back of the side cover.

Air filters are also provided on the projector. They cannot be removed. Use a vacuum cleaner with a nozzle attachment to clean dust from the air filters.

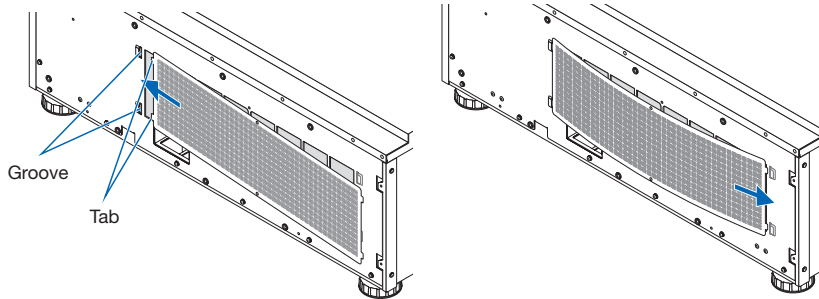
Note: Do not press the nozzle of the vacuum cleaner strongly against the projector. Doing so could damage the wings of the radiator.



4. Attach the air filter to the main unit.

- (1) Insert the 2 tabs on the air filter into the 2 grooves on the main unit, bend the air filter slightly and insert the tabs on the opposite side into the grooves on the main unit.

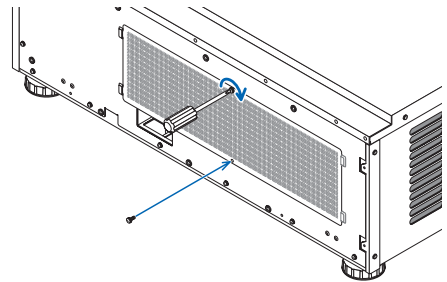
⚠ Do not get your fingers caught in the gap.



- (2) Turn the 2 screws clockwise to secure the air filter to the main unit.

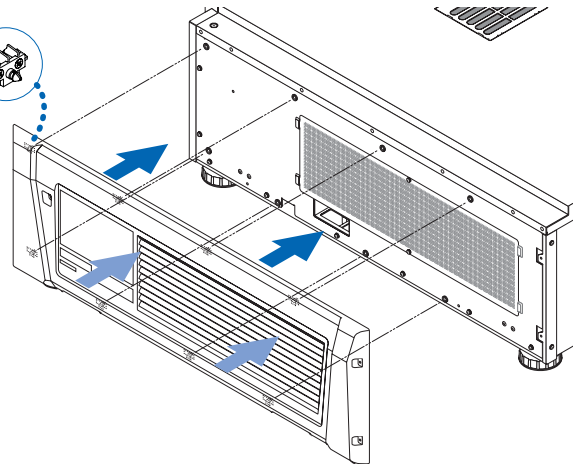
⚠ CAUTION

- Do not touch, tighten, loosen, or remove any screws other than those shown in the diagram.



5. Attach the side cover.

- (1) Align the 8 tab positions on the main unit with the side cover and push them in sequentially starting from the end.

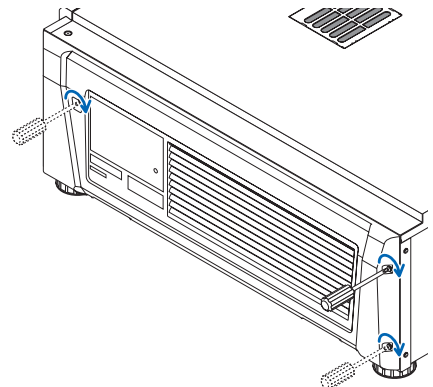


- (2) Turn the screws at the 3 locations clockwise to secure them.

⚠ CAUTION

- Do not touch, tighten, loosen, or remove any screws other than those shown in the diagram.

After completing cleaning the filters at three locations, select Configuration → Reset from the adjustments menu to reset Filter Cleaning. (page 46)



6.

Appendix

6-1. Troubleshooting

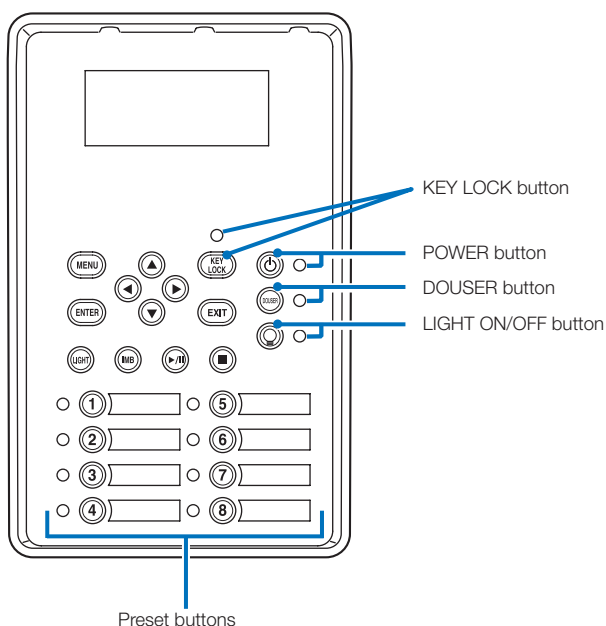
Before asking for repair, please check your connection, settings and operation once again. If the trouble cannot be corrected, please contact your dealer/distributor for instructions or repair.

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 STATUS indicator blinks in red.	Your projector may have trouble. Please contact your dealer/distributor for instructions.
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 STATUS indicator 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 button

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

6. Appendix

6-2-3. POWER button

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.

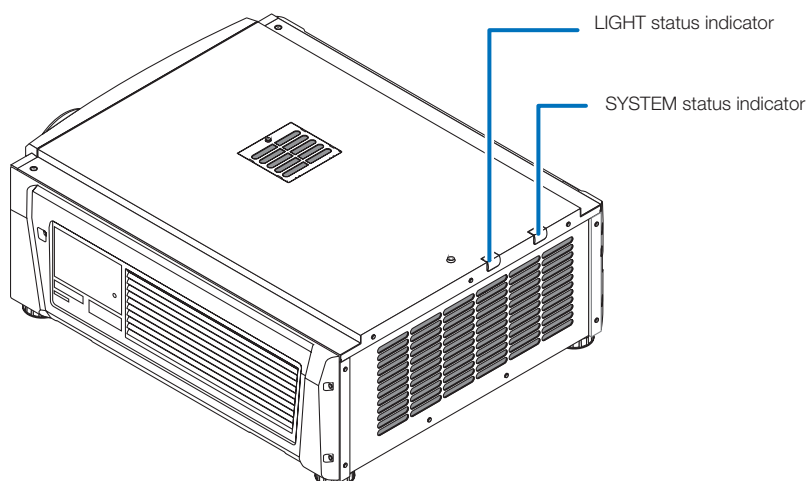
6-2-4. DOUSER button

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

6-2-5. LIGHT ON/OFF button

Indicator condition		Projector condition	Note
Off		The light is off.	-
Steady light	Green	The light is on.	-

6-2-6. STATUS indicator



SYSTEM 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. The light is off.	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.

LIGHT status indicator

Indicator condition		Projector condition	Note
Off		The light source is off.	-
Steady light		The light source is on.	-

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.

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. Handling of the address for operation via a browser

Regarding the actual address that is entered for the address or entered to the URL column when operation of the projector is via a browser, the host name can be used as it is with the host name corresponding to the IP address of the projector has been registered in the domain name server by a network administrator, or the host name corresponding to the IP address of the projector has been set in the “HOSTS” file of the computer being used.

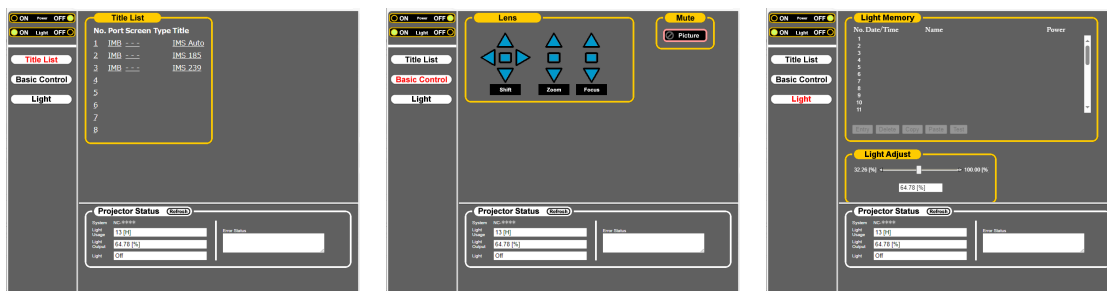
(Example 1) When the host name of the projector has been set to “pj.sharp.co.jp”

`http://pj.sharp.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



Power		Controls the power to your projector. - On: Turns the power on. - Off: Turns the power off.
Light		Turn the light on/off. - On: Turns the light on. - Off: Turns the light 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	Shift	Controls the lens operation. ▲ : 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	▲ : 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	▲ : 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.
Projector Status		Displays the condition of the projector. - Light Usage: Displays the hours of light use. - Light Power: Displays light output (%). - Light Status: Displays the status of the light (On: Lights / Off: Off). - Error Status: Displays the status of errors occurring within the projector. - Refresh: Updates the display of the following conditions.
Light Memory	Entry	Saves the current light output value in the memory.
	Delete	Deletes the memory selected in the list from the Light Memory.
	Copy	Copies the memory selected in the list.
	Paste	Saves/overwrites the copied memory to the selected memory in the list.
	Test	Tests the adjustment value of the memory selected in the list.

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.

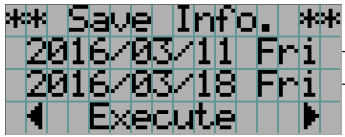
3 Press the LEFT/RIGHT button, and select the log file writing period.

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.
2years	Writes 2 years' log files from today.
Manual	Writes the specified period's log files.

4 Press the ENTER button.

When "Today", "7days", "30days" or "2years" is selected, the log file writing period is displayed.



☐ ← The log file writing period is displayed.

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" (page 42). If you press the ENTER button, the display advances to the following screen.

```

** Save Info. **
Date Filter
From Date
[2016/03/18 Fri]

```

← Enter the date/time to start writing.

Press the ENTER button.

```

** Save Info. **
Date Filter
To Date
[2016/12/21 Wed]

```

← Enter the date/time to stop writing.

Press the ENTER button.

```

** Save Info. **
2016/03/18 Fri
2016/12/21 Wed
◀ Execute ▶

```

← The log file writing period is displayed.

- 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(USB)
<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
100.00%
Title
292-A

```

- 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.

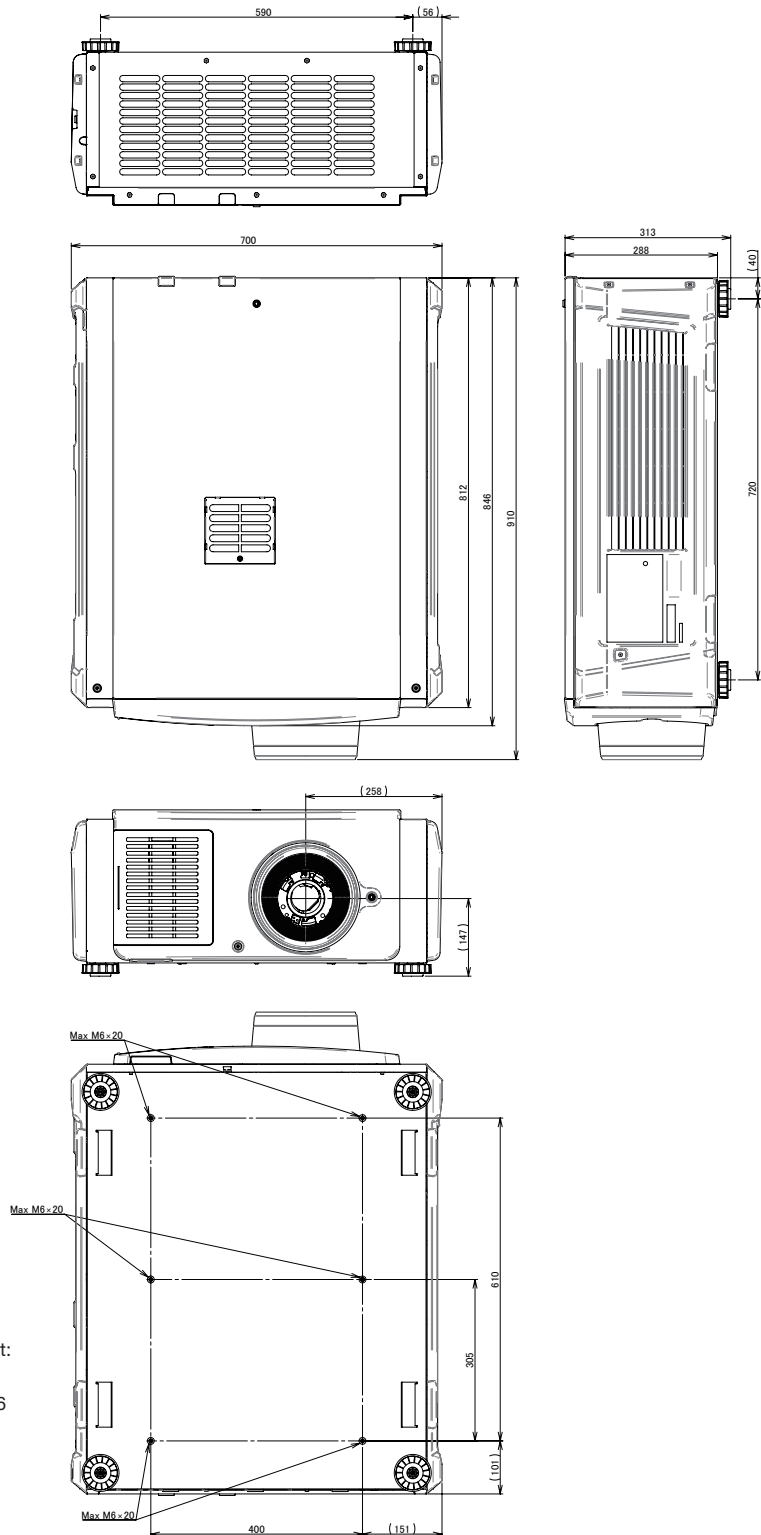
(Model name)_(Serial Number)_YYMMDDHHmm.txt

(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 NC-1424 log file is written at 14:05 on November 10, 2016, it is saved with the “NC-1424_abcd1234_1611101405.txt” file name.

6-5. Outline Drawing

6-5-1. Projector



The screws specifications for Ceiling Mount:
 Screw type : M6
 Screw hole dimension on the projector : M6
 with the maximum depth 20mm

Units: mm

6-6. Specifications

Model name	NC-1424	NC-1224
Projection method	3 chip DLP Cinema® method	
	0.69-inch DC2K chip	
Panel resolution	2048 x 1080	
Light type	Laser diode	
Screen sizes	Max. 16.9 m @14ft-L / Screen Gain 1.8 (Depends on setup conditions)	Max. 15.6 m @14ft-L / Screen Gain 1.8 (Depends on setup conditions)
Contrast ratio	1600:1 with DCI specified color representation	
Lens adjustment function	Motorized lens shift (vertical/horizontal), motorized zoom, motorized focus, douser	
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 Interlock port x 1 Ethernet port (RJ-45 10/100Base-T) x 1	
Power supply voltage	AC 200 to 240 V, 50/60 Hz single phase	
Input current	10.5 A (Note 3)	10.5 A (Note 3)
Power consumption	1,837 W (230V) (Note 2)	1,587 W (230V) (Note 2)
Cooling method	Air cooling system and liquid cooling system	
Noise level	50 dB (Note 2)	
Installation	Orientation: Desktop/front, Desktop/rear, Ceiling/front, Ceiling/rear	
Net weight	68 kg (Excluding lens)	
Dimensions	700 mm (W) x 812 mm (D) x 288 mm (H) (Does not include protruding portions and feet.)	
Environment	Operating temperature: 10 to 35°C Operating humidity: 10 to 85% (non-condensing) Storage temperature: -10 to 50°C Storage humidity: 10 to 85% (non-condensing) Operating altitude: 0 to 3000 m/9800 feet	

(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.

(Note 2) The value is typical.

(Note 3) This product conforms to the harmonic current standard "EN 61000-3-2".

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

- For additional information visit:

US: <https://business.sharpusa.com/>

Europe: <https://sharpdisplays.eu>

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

For information on our optional accessories, visit our website or see our brochure.

The specifications are subject to change without notice.

6-7. Power Cable

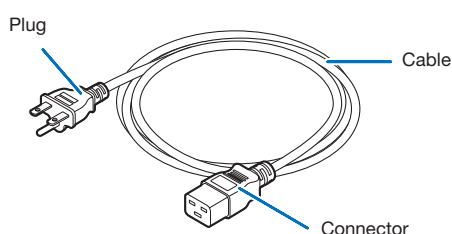
NOTE Ask your dealer for the power cable to select and purchase.

Power Cable Electrical Specification

The projector is equipped with an IEC 60320 C20 Inlet to connect an AC power supply cable. Ensure that the AC power cables that connect the connectors built into the projector to the AC power maintains the current capacities as shown below.

Power supply voltage	Projector input current	Power cable current capacity
AC 200–240V	10.5 A	250V 16A or higher

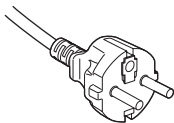
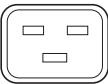
Type of Power Cable



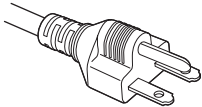
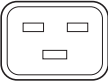
Use plugs, cables, and connectors that are suitable for the regulations of the country of installation, as shown in the following table.

NOTE For users in North America
Use a power cable no longer than 4.5m/14.76 ft according to National Electrical Code.

Germany

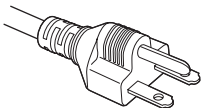
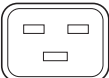
Plug	Cable	Connector
CEE 7 	H05VV-F 3G1.5 	IEC 60320 C19 

USA

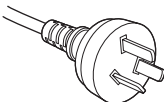
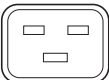
Plug	Cable	Connector
NEMA 6-15P 	SJT 3 x AWG 14 	IEC 60320 C19 

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Japan

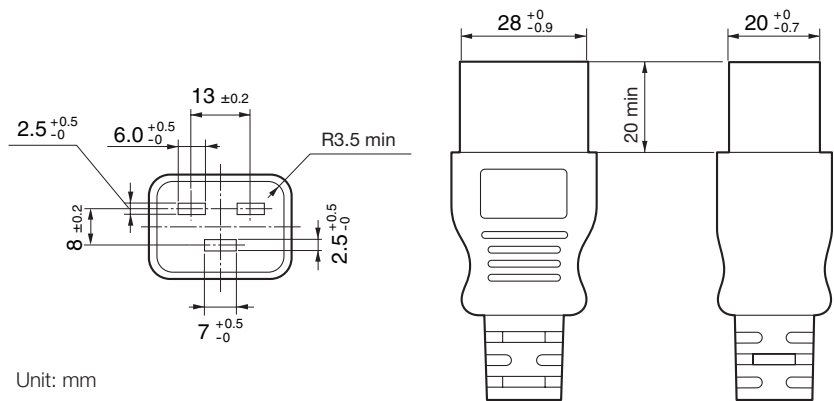
Plug	Cable	Connector
JIS C 8303	VCTF 3 x 2.0mm	IEC 60320 C19
		

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 connector (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.)

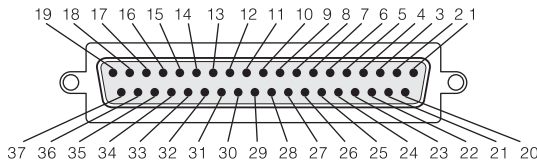
(Note) Do not use DTR and DSR signals when communicating.

6. Appendix

6-8-2. External control connector (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 connector (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.



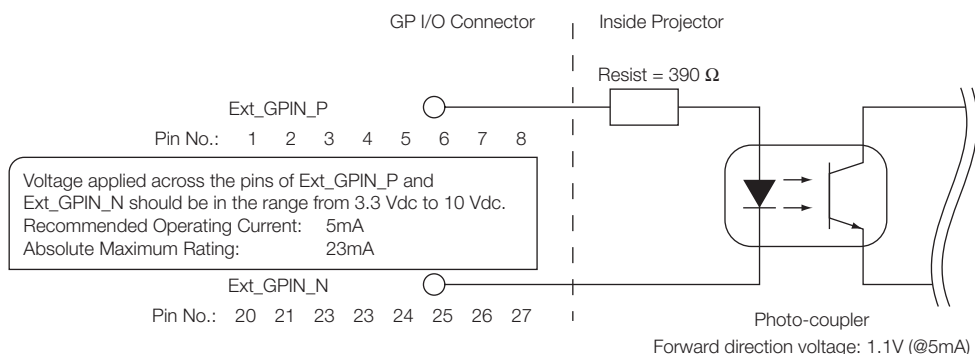
Pin view of female connector

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.

Input Connector



• 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”. (page 74)

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.

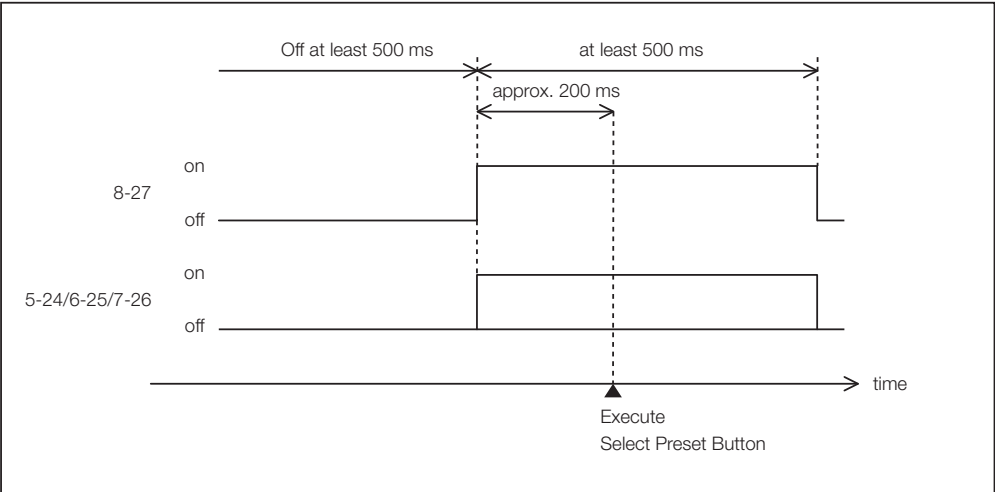
NOTE

- 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.

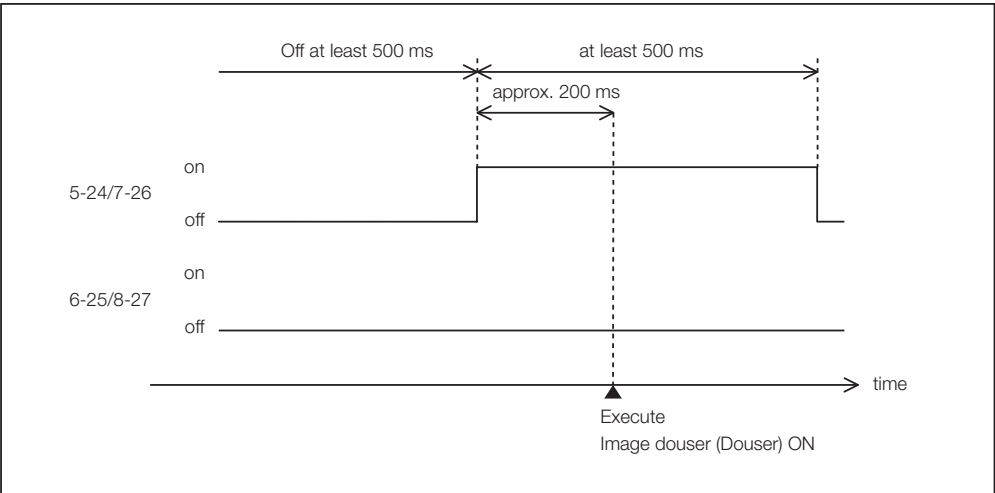
6. Appendix

- Timing chart of GPIO control

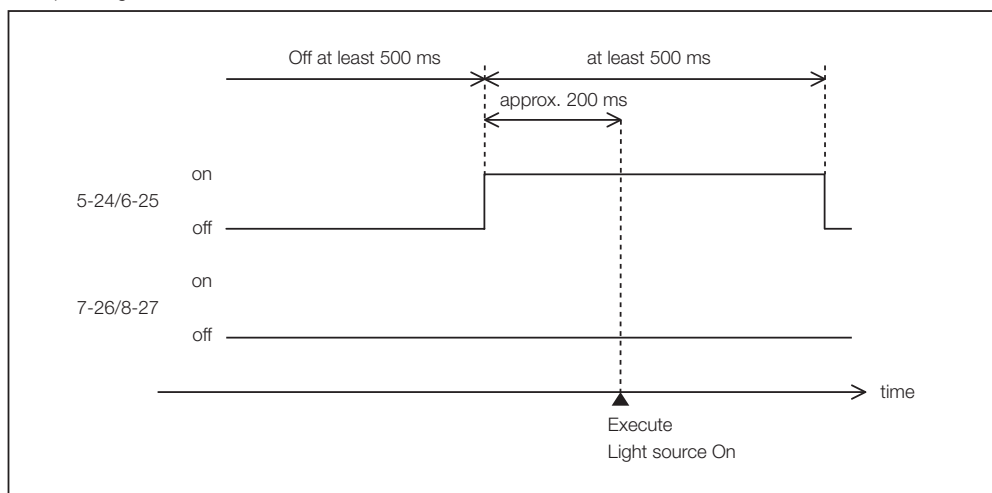
Example of Select Preset Button



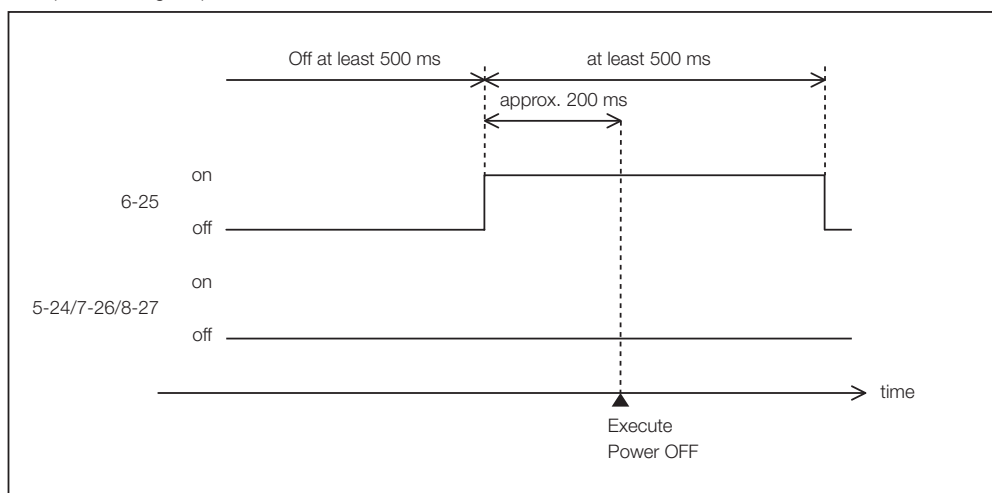
Example for turning the image douser (Douser) on



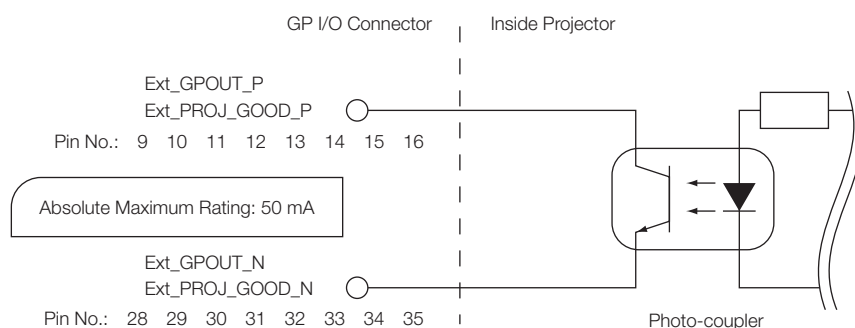
Example of Light source On



Example for turning the power off



Output Connector



• Using GPIO Control

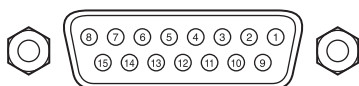
You can use GPIO control for the projector's health check and error check. Also, you can use the output as the trigger to control external devices.

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 connector (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		Lens memory support	Model name
Lens	Zoom lens 1.2 to 1.72	○	NC-12ZSA1 NP-9LS12ZM1
	Zoom lens 1.33 to 2.1	○	NC-13ZSA1 NP-9LS13ZM1
	Zoom lens 1.62 to 2.7	○	NC-16ZSA1 NP-9LS16ZM1
	Zoom lens 2.09 to 3.9	○	NC-20ZSA1 NP-9LS20ZM1

