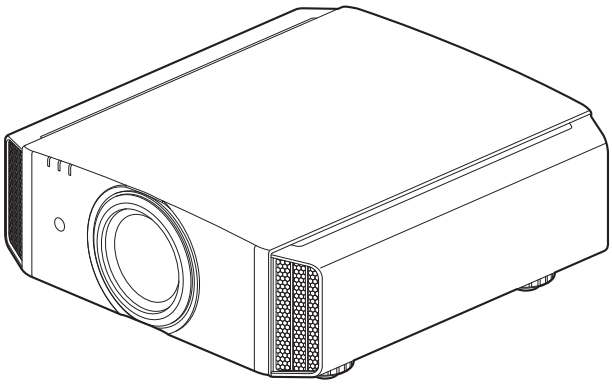
JVC

INSTRUCTIONS

D-ILA PROJECTOR

DLA-VS2400ZG
DLA-VS2400G



D-ILA®

HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

For Customer use :
Enter below the serial No. which is located on the back of the cabinet. Retain this information for future reference.

Model No. DLA-VS2400ZG
DLA-VS2400G

Serial No.

LCT2727-002A

Safety Precautions

IMPORTANT INFORMATION

This product has a High Intensity Dis-charge (HID) lamp that contains mercury.
Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information, please contact your local authorities or for USA, the Electronic Industries Alliance: http://www.eiae.org.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

WARNING:
THIS APPARATUS MUST BE EARTHED.

CAUTION:
To reduce the risk of electric shock, do not remove cover. Refer servicing to qualified service personnel.

This projector is equipped with a 3-blade grounding type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

MACHINE NOISE INFORMATION (Germany only)

Changes Machine Noise Information Ordinance 3. GSGV, January 18, 1991: The sound pressure level at the operator position is equal or less than 40 dB (A) according to ISO 7779.

For the customers in Taiwan only

廢電池請回收

WARNING
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
In case where the strong electromagnetic waves or magnetism are near the signal cable, the picture will contain noise. In such cases, please keep the cable away from the sources of the disturbance.

About the installation place

Do not install the projector in a place that cannot support its weight securely.
If the installation place is not sturdy enough, the projector could fall or overturn, possibly causing personal injury.

FCC INFORMATION (U.S.A. only)

CAUTION:
Changes or modification not approved by JVC could void the user's authority to operate the 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.

IMPORTANT SAFEGUARDS

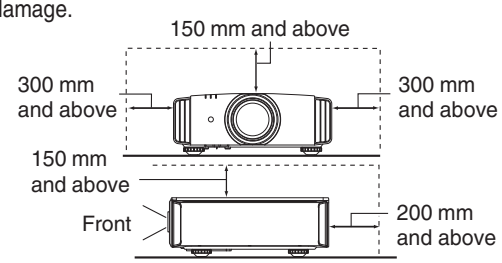
Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. But IMPROPER USE CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARD. In order not to defeat the safeguards incorporated into this product, observe the following basic rules for its installation, use and service. Please read these Important Safeguards carefully before use.

- All the safety and operating instructions should be read before the product is operated.
- The safety and operating instructions should be retained for future reference.
- All warnings on the product and in the operating instructions should be adhered to.
- All operating instructions should be followed.
- Place the projector near a wall outlet where the plug can be easily unplugged.
- Unplug this product from the wall outlet before cleaning.
- Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use attachments not recommended by the product manufacturer as they may be hazardous.
- Do not use this product near water. Do not use immediately after moving from a low temperature to high temperature, as this causes condensation, which may result in fire, electric shock, or other hazards.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. The product should be mounted according to the manufacturer's instructions, and should use a mount recommended by the manufacturer.
- When the product is used on a cart, care should be taken to avoid quick stops, excessive force, and uneven surfaces which may cause the product and cart to overturn, damaging equipment or causing possible injury to the operator.

PORTABLE CART WARNING
(symbol provided by RETAC)

S3126A

- Slots and openings in the cabinet are provided for ventilation. These ensure reliable operation of the product and protect it from overheating. These openings must not be blocked or covered. (The openings should never be blocked by placing the product on bed, sofa, rug, or similar surface. It should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to.)
- To allow better heat dissipation, keep a clearance between this unit and its surrounding as shown below. When this unit is enclosed in a space of dimensions as shown below, use an air-conditioner so that the internal and external temperatures are the same. Overheating can cause damage.



- Power source indicated on the label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.
- This product is equipped with a three-wire plug. This plug will fit only into a grounded power outlet. If you are unable to insert the plug into the outlet, contact your electrician to install the proper outlet. Do not defeat the safety purpose of the grounded plug.
- Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at doors, plugs, receptacles, and the point where they exit from the product.
- For added protection of this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the product due to lightning and power line surges.
- Do not overload wall outlets, extension cords, or convenience receptacles on other equipment as this can result in a risk of fire or electric shock.
- Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
- Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltages and other hazards. Refer all service to qualified service personnel.
- Unplug this product from the wall outlet and refer service to qualified service personnel under the following conditions:
  a) When the power supply cord or plug is damaged.
  b) If liquid has been spilled, or objects have fallen on the product.
  c) If the product has been exposed to rain or water.
  d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the Operation Manual, as an improper adjustment of controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
  e) If the product has been dropped or damaged in any way.
  f) When the product exhibits a distinct change in performance, this indicates a need for service.
- When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or with same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
- The product should be placed more than one foot away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat.
- When connecting other products such as VCR's, and DVD players, you should turn off the power of this product for protection against electric shock.

- Do not place combustibles behind the cooling fan. For example, cloth, paper, matches, aerosol cans or gas lighters that present special hazards when over heated.
- Do not look into the projection lens while the illumination lamp is turned on. Exposure of your eyes to the strong light can result in impaired eyesight.
- Do not look into the inside of this unit through vents (ventilation holes), etc. Do not look at the illumination lamp directly by opening the cabinet while the illumination lamp is turned on. The illumination lamp also contains ultraviolet rays and the light is so powerful that your eyesight can be impaired.
- Do not drop, hit, or damage the light-source lamp (lamp unit) in any way. It may cause the light-source lamp to break and lead to injuries. Do not use a damaged light source lamp. If the light-source lamp is broken, ask your dealer to repair it. Fragments from a broken light-source lamp may cause injuries.
- The light-source lamp used in this projector is a high pressure mercury lamp. Be careful when disposing of the light-source lamp. If anything is unclear, please consult your dealer.
- Do not ceiling-mount the projector to a place which tends to vibrate; otherwise, the attaching fixture of the projector could be broken by the vibration, possibly causing it to fall or overturn, which could lead to personal injury.
- Use only the accessory cord designed for this product to prevent shock.
- Once every three years, please perform an internal test. This unit is provided with replacement parts needed to maintain its function (such as cooling fans). Estimated replacement time of parts can vary greatly depending on frequency of use and the respective environment. For replacement, please consult your dealer, or the nearest authorized JVC service center.
- When fixing the unit to the ceiling, Please note that we do not take any responsibility, even during the warranty period, if the product is damaged due to use of metal fixtures used for fixation to the ceiling other than our own or if the installation environment of said metal fixtures is not appropriate. If the unit is suspended from the ceiling during use, please be careful in regard to the ambient temperature of the unit. If you use a central heating, the temperature close to the ceiling will be higher than normally expected.
- Video images can burn into the electronic component parts. Please do not display screens with still images of high brightness or high contrast, such as found in video games and computer programs. Over a long period of time it might stick to the picture element. There is no problem with the playback of moving images, e.g. normal video footage.
- Please power it on and let it run occasionally. Please avoid using the unit in a room where cigarettes are smoked. It is impossible to clean optical component parts if they are contaminated by nicotine or tar. This might lead to performance degradation.

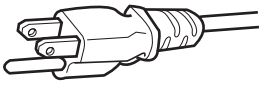
*** DO NOT allow any unqualified person to install the unit.**

Be sure to ask your dealer to install the unit (e.g. attaching it to the ceiling) since special technical knowledge and skills are required for installation. If installation is performed by an unqualified person, it may cause personal injury or electrical shock.

POWER CONNECTION

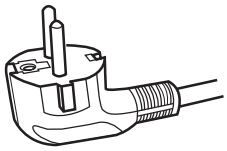
For USA and Canada only
Use only the following power cord.

Power cord



The power supply voltage rating of this product is AC110V – AC240V. Use only the power cord designated by our dealer to ensure Safety and EMC. Ensure that the power cable used for the projector is the correct type for the AC outlet in your country. Consult your product dealer.

Power cord



For European continent countries

WARNING:
Do not cut off the main plug from this equipment.

If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or adapter or consult your dealer. If nonetheless the mains plug is cut off, dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the main supply. If a new main plug has to be fitted, then follow the instruction given below.

WARNING:
THIS APPARATUS MUST BE EARTHED.

IMPORTANT (Europe only):
The wires in the mains lead on this product are colored Vert et jaune in accordance with the following cord:

Green-and-yellow	: Earth
Blue	: Neutral
Brown	: Live

As these colors may not correspond with the colored making identifying the terminals in your plug, proceed as follows:
The wire which is colored green-and-yellow must be connected to the terminal which is marked M with the letter E or the safety earth or colored green or green-and-yellow. The wire which is colored blue must be connected to the terminal which is marked with the letter N or colored black.
The wire which is colored brown must be connected to the terminal which is marked with the letter L or colored red.

Dear Customer,

This apparatus is in conformance with the valid European directives and standards regarding electromagnetic compatibility and electrical safety.

European representative of JVC KENWOOD Corporation is:
JVC Technical Services Europe GmbH
Konrad-Adenauer-Allee 1-11
61118 Bad Vilbel
Germany

ENGLISH

Information on Disposal of Old Electrical and Electronic Equipment and Batteries (applicable for countries that have adopted separate waste collection systems)

Products and batteries with the symbol (crossed-out wheeled bin) cannot be disposed as household waste.
Old electrical and electronic equipment and batteries should be recycled at a facility capable of handling these items and their waste byproducts.
Contact your local authority for details in locating a recycle facility nearest to you.
Proper recycling and waste disposal will help conserve resources whilst preventing detrimental effects on our health and the environment.
Notice: The sign “Pb” below the symbol for batteries indicates that this battery contains lead.

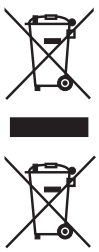
DEUTSCH

Entsorgung von gebrauchten elektrischen und elektronischen Geräten und Batterien (anzuwenden in Ländern mit einem separaten Sammelsystem für solche Geräte)

Das Symbol (durchgestrichene Mülltonne) auf dem Produkt oder seiner Verpackung weist darauf hin, dass dieses Produkt nicht als normaler Haushaltsabfall behandelt werden darf.
Die betreffenden Produkte müssen an einer Annahmestelle für das Recycling von elektrischen und elektronischen Geräten und Batterien abgegeben werden.
Weitere Informationen über das Recycling dieses Produktes erhalten Sie von Ihrer Gemeinde oder den kommunalen Entsorgungsbetrieben.
Unsachgemäße oder falsche Entsorgung gefährden Umwelt und Gesundheit.
Zur Beachtung: Das Zeichen „Pb“ unter dem Symbol für Batterien zeigt an, dass diese Batterie Blei enthalt.

FRANÇAIS

Information sur l’élimination des anciens équipements électriques et électroniques et piles électriques (applicable dans les pays de qui ont adopté des systèmes de collecte sélective)



Les produits et piles électriques sur lesquels le pictogramme (poubelle barrée) est apposé ne peuvent pas être éliminés comme ordures ménagères.
Les anciens équipements électriques et électroniques et piles électriques doivent être recyclés sur des sites capables de traiter ces équipements et leurs déchets par produit.
Contactez vos autorités locales pour connaître le site de recyclage le plus proche.
Un recyclage adapté et l’élimination des déchets aideront à conserver les ressources et à nous préserver des leurs effets nocifs sur notre santé et sur l’environnement.
Avis: Le symbole “Pb” ci-dessous sur des piles électrique indique que cette pile contient du plomb.

NEDERLANDS

Informatie over het weggooien van oude elektrische en elektronische apparaten en batterijen (voor landen die gescheiden afvalverzamelsystemen gebruiken)

Producten en batterijen met het (afvalcontainer met x-teken) symbool mogen niet als normaal huisvuil worden weggegooid.
Oude elektrische en elektronische apparaten en batterijen moeten worden gerecycled door een faciliteit die geschikt is voor het verwerken van dergelijke voorwerpen.
Raadpleeg de betreffende lokale instantie voor details aangaande in de buurt zijnde recylingfaciliteiten.
Het juist recyclen en weggooien van afval spaart natuurlijke bronnen en reduceert schadelijke invloed op uw gezondheid en het milieu.
Opmerking: De ”Pb” aanduiding onder het batterijsymbool betekent dat deze batterij lood bevat.

ESPAÑOL / CASTELLANO

Información acerca de la eliminación de equipos eléctricos, electrónicos y baterías al final de la vida útil (aplicable a los países de la que hayan adoptado sistemas independientes de recogida de residuos)

Los productos y las baterías con el símbolo (contenedor con ruedas tachado) no podrán ser desechados como residuos domésticos.
Los equipos eléctricos, electrónicos y baterías al final de la vida útil, deberán ser reciclados en instalaciones que puedan dar el tratamiento adecuado a estos productos y a sus subproductos residuales correspondientes.

Póngase en contacto con la autoridad local competente para obtener información sobre el centro de reciclaje más cercano.
El reciclaje y la disposición adecuada de los desechos ayuda a conservar los recursos naturales y a reducir los efectos perjudiciales en la salud y el medio ambiente.
Nota: El símbolo “Pb” debajo del símbolo en baterías indica que dicha batería contiene plomo.

ITALIANO

Informazioni sull’eliminazione dei prodotti elettrici ed elettronici e delle batterie (per i Paesi che adottano la raccolta differenziata dei rifiuti)

I prodotti e le batterie recanti questa icona (bidone carrellato della spazzatura con il simbolo della croce) non devono essere eliminati come rifiuti solidi urbani.
I prodotti elettrici ed elettronici e le batterie devono essere riciclati presso centri idonei alla loro gestione e a quella dei rispettivi sottoprodotti.
Per informazioni sul centro di riciclaggio più vicino si suggerisce di rivolgersi alle autorità locali.

Se eseguiti adeguatamente, l’eliminazione e il riciclaggio dei rifiuti aiutano a conservare le risorse e al contempo impedire gli effetti nocivi sulla salute e l’ambiente.
Avviso: Il contrassegno “Pb” che appare sotto il simbolo delle batterie significa che contengono piombo.

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Symbols used in this manual

ZG indicates a function that is supported by DLA-VS2400ZG.

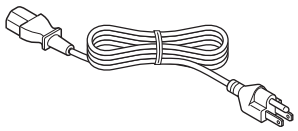
G indicates a function that is supported by DLA-VS2400G.

Items not marked with any of the above symbols are supported by all models.

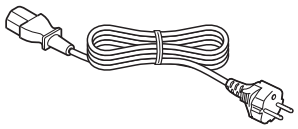
Accessories/Optional Accessories

Check the Accessories

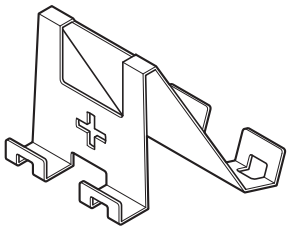
Power cord (for USA) (about. 2 m) ..... 1 piece



Power cord (for EU) (about. 2 m) ..... 1 piece



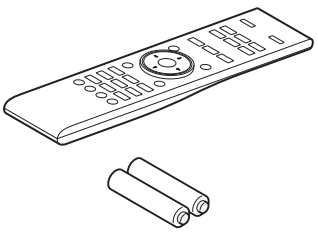
Lamp attachment “UPPER 45-90 & REVERSE” (Use Area: B, Refer to p. 15) and Installation verification sticker ..... 1 piece



- INSTRUCTIONS (this book), warranty card, and other printed material are also included.

Optional Accessories

- Remote control: Model no. RM-MH13G

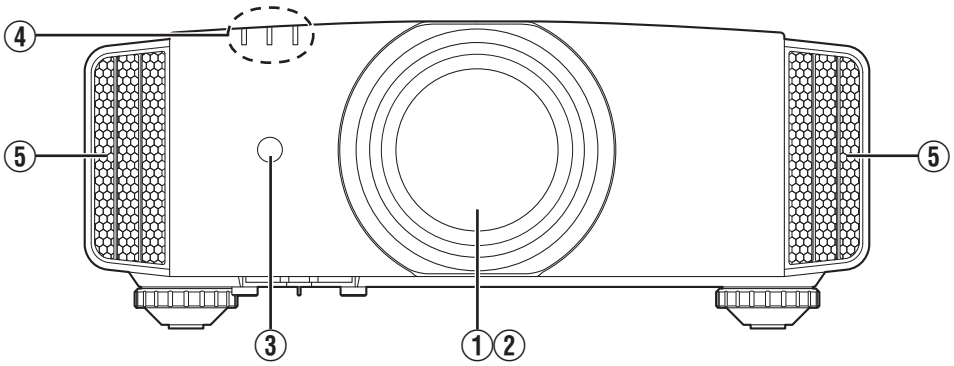


- AAA-size battery

- Replacement lamp: model PK-L2313U

Controls and Features

Main Unit - Front



① Lens ZG

This is a projection lens. Do not look through the lens while an image is projected.

- For G, the lens is sold separately.

② Lens sheet

The lens comes attached with a protective sheet when you purchase this product.

③ Remote Sensor (front)

Please aim the remote control (sold separately) at this area when using it.

* There is also a remote sensor at the rear.

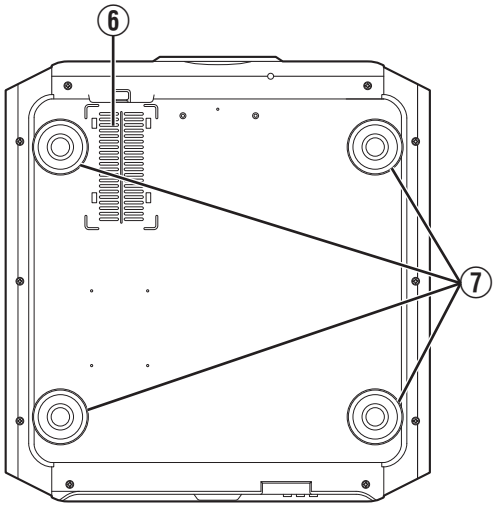
④ Indicator

Refer to “Indicator Display on the Main Unit”p. 59.

⑤ Exhaust vent

Warm air is discharged to cool down the internal temperature.
Do not block the vents.

Main Unit - Bottom



⑥ Inlets (at 3 points on the rear/bottom)

The inlets take in air to cool down the internal temperature.
Do not block or prevent the outflow of hot air. Doing so may cause the unit to malfunction.

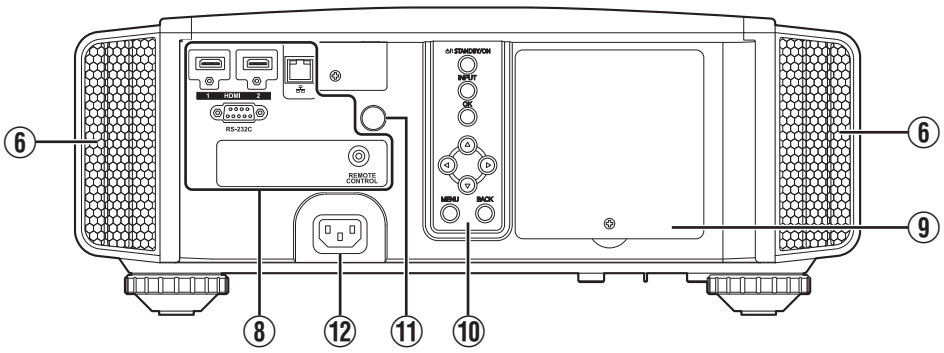
* There are two inlets on the right and left sides at the rear of the unit.

⑦ Feet

The height and angle of the projector can be adjusted by turning the foot. (0 to 5 mm) (p. 18)

When the foot is removed, it can be used as the mounting holes for the ceiling mount bracket.

Main Unit - Rear



⑧ Input terminals

For details on the terminals. refer to “Main Unit - Input Terminals”p. 12.

⑨ Lamp cover

When replacing the light source lamp, remove this cover.

⑩ Operation panel

For more details, please refer to the “Operation panel” in the diagram below.

⑪ Remote Sensor (rear)

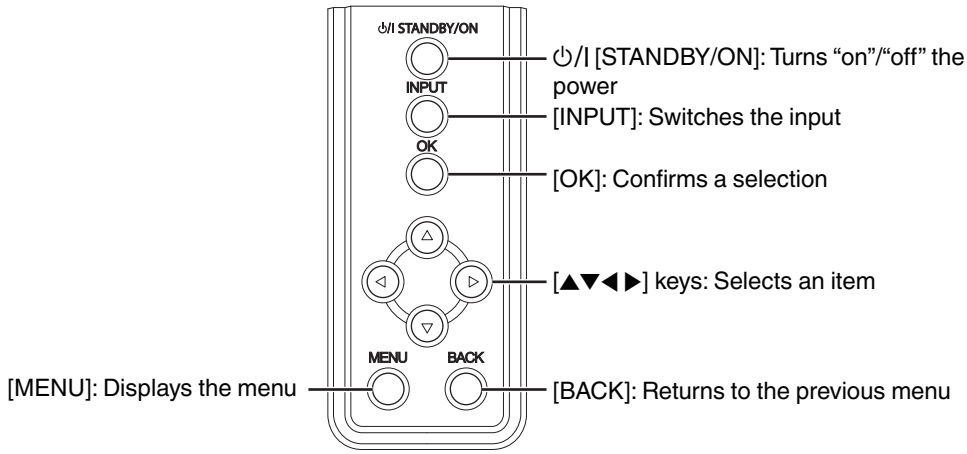
Please aim the remote control (sold separately) at this area when using it.

* There is also a remote sensor at the front.

⑫ Power input terminal

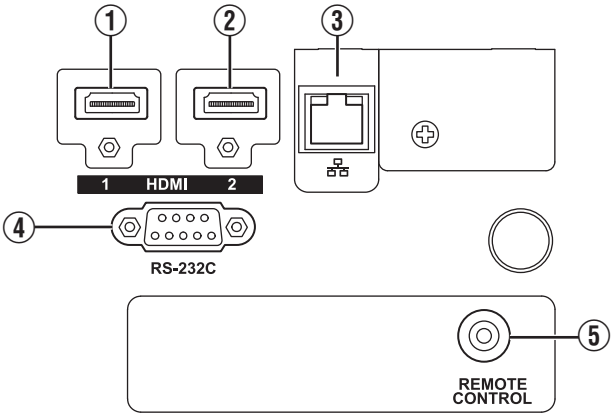
Connect the supplied power cord to this terminal.

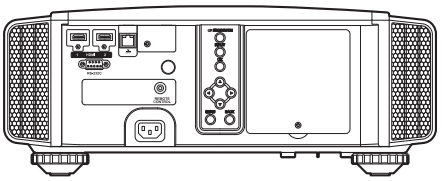
Operation panel



Main Unit - Input Terminals

Enlarged View of Rear Face





① [HDMI 1] input terminal

② [HDMI 2] input terminal

For connecting to devices that support HDMI output. (p. 19)

It is fitted to the M3 lock hole. The depth of the screw hole is 3 mm.

③ [LAN] terminal (RJ-45)

The projector can be controlled by connecting it to a PC through the computer network for control commands to be sent to the projector.

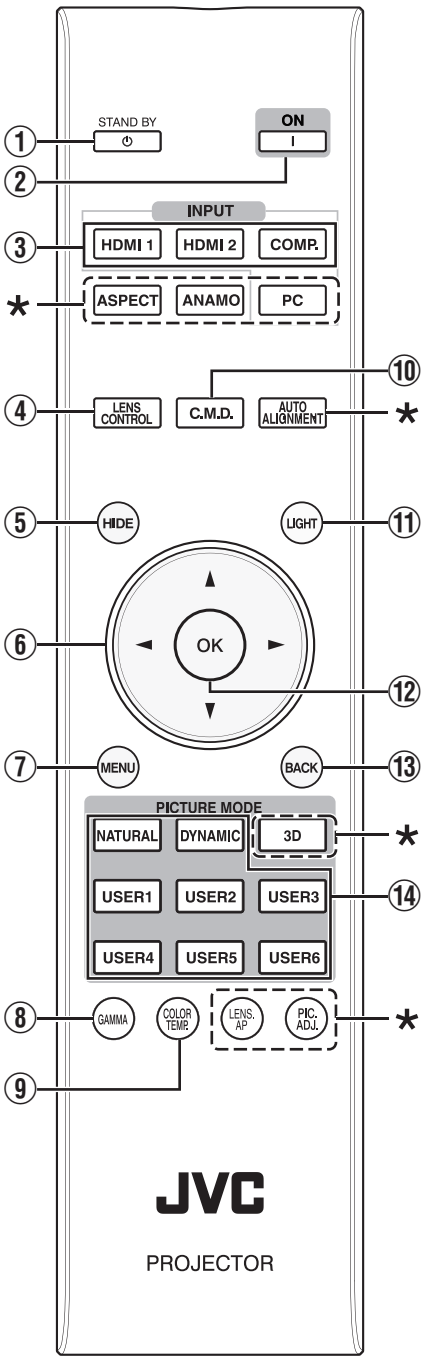
④ [RS-232C] terminal (D-sub 9-pin male)

The projector can be controlled by connecting a PC to this terminal.

⑤ [REMOTE] terminal (stereo mini jack)

This terminal is used to connect the remote control directly to the projector with the cable.

Remote control (sold separately, model no. RM-MH13G)



① ⏻ [STAND BY]

Turns off the power. (p. 23)

② I [ON]

Turns on the power. (p. 22)

③ [INPUT]

Select an input from [HDMI 1], [HDMI 2], and [Dual]. (p. 22)

④ [LENS CONTROL]

ZG

For adjusting focus, zoom, and shift. (p. 31)

⑤ [HIDE]

Hides the image temporarily. (p. 22)

⑥ [▲▼◀ ▶] keys

For selecting an item.

⑦ [MENU]

Displays the menu, or hides the menu if it is displayed.

⑧ [GAMMA]

For setting the gamma level. (p. 27)

⑨ [COLOR TEMP]

For setting the color temperature. (p. 27)

⑩ [C.M.D.]

For setting frame interpolation. (p. 28)

⑪ [LIGHT]

Illuminates the buttons on the remote control.

⑫ [OK]

Confirms a selected item.

⑬ [BACK]

Returns to the previous menu.

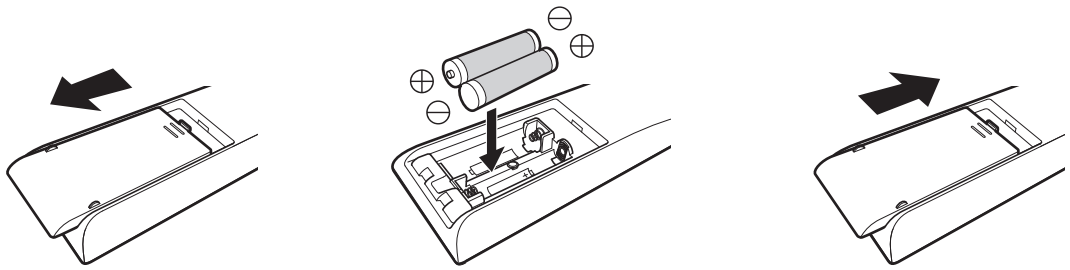
⑭ [PICTURE MODE]

Switches the Picture mode to [NATURAL], [DYNAMIC], [USER1] to [USER6]. (p. 25)

CAUTION

- Buttons indicated with a * mark are not usable on this unit.
  However, the [LENS AP.] and [PIC. ADJ.] buttons can be used during pixel adjustment.

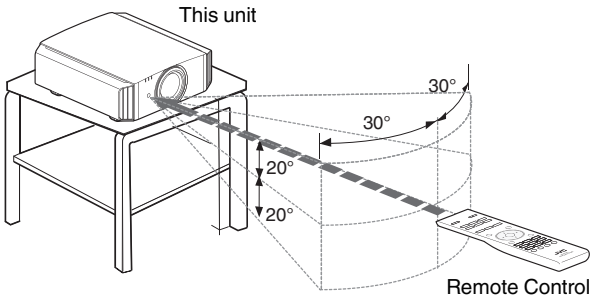
Loading Batteries into the Remote Control (Sold Separately)



- If the remote control has to be brought closer to the projector to operate, it means that the batteries are wearing out. Replace the batteries with new ones (AAA).
- Insert the batteries according to the ⊕ ⊖ marks. Be sure to insert the ⊖ end first.
- If an error occurs while using the remote control, remove the batteries and wait for five minutes. Load the batteries again and operate the remote control.

Effective Range of Remote Control (Sold Separately)

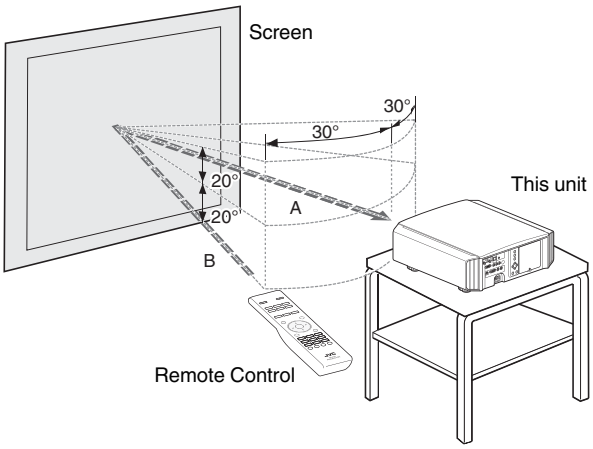
When aiming the remote control toward the sensor on this unit (front or rear), ensure that the distance to the sensor is within 7 m.
If the remote control fails to work properly, move closer to this unit.



Control through reflection off a screen, etc.

Ensure that the total of distance A (between this unit and the screen) and distance B (between the remote control and the screen) is within 7 m.

* As the efficiency of signals reflected from the remote control unit varies with the type of screen used, the operable distance may decrease.



CAUTION

- Do not put the remote control in a place with an exposure to direct sun light or high temperature.

Installing the Projector

Precautions during Installation

Please read the following carefully before installing this unit.

Do not install at the following

This unit is a precision device. Please refrain from installing or using it at the following locations. Otherwise, it may cause fire or malfunction.

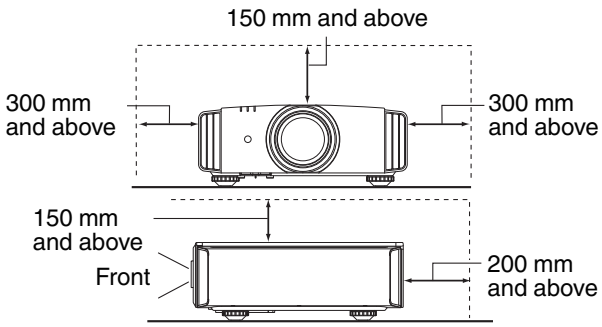
- Dusty, wet and humid places
- Places subject to oily smoke or cigarette smoke
- On top of a carpet or bedding, or other soft surfaces
- Places exposed to direct sunlight
- Places with a high or low temperature
- Do not install this unit in a room that is oily or subject to cigarette smoke. Even a small quantity of smoke or oiliness can have a long-term impact on this unit.

* This unit produces a great amount of heat, and is designed to take in cool air to cool its optical components. Using the unit at the above locations may cause dirt to attach to the light path, thereby resulting in dark images or dull colors.

* Dirt that sticks to the optical components cannot be removed.

Maintain clearance from the wall, etc.

As the unit discharges a large amount of heat, install it with adequate clearance from the surroundings as shown below.



Leave the front area of the unit unblocked.
If there is any obstructing object in front of the exhaust vent, hot air will flow back to the unit and cause it to heat up. Hot air flowing out of the unit may cast shadows on the screen (heat haze phenomenon).

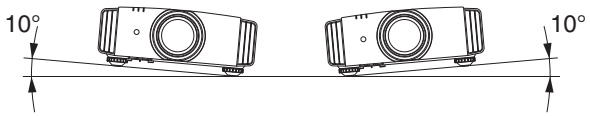
Using the projector

This unit uses a projection lamp, which will heat up when in use.
Please refrain from projecting in the following circumstances. Otherwise, it may cause fire or malfunction.

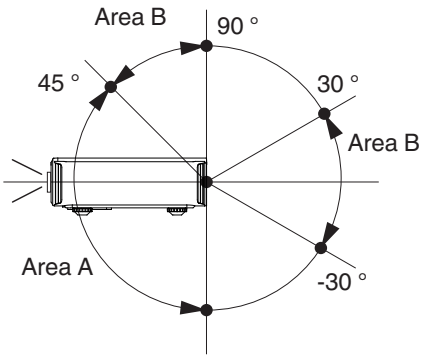
- Projection with the unit stood vertically

- Projection with the unit inclined at an angle

Install the unit such that the tilt in the horizontal direction (left or right) is within ±10°.



As shown in the illustration, this unit can be installed with a tilted angle, but for some areas there might be other conditions. Moreover, depending on the angle of installation, it may be necessary to have a hanging metal mount and secure installation base depending on the angle of the installation.

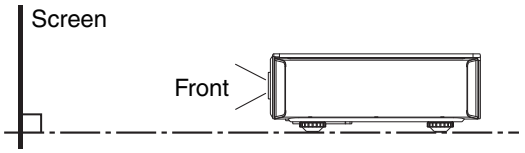


Area A : Use the factory-installed lamp. The lamp is attached to the Area A attachment (○ mark and “0°” marking).

Area B : Replace with the supplied attachment (+ mark and “90°” marking).
Refer to p. 42 on the replacement procedures.

Installing the screen

Install the unit and the screen such that they are perpendicular to each other.



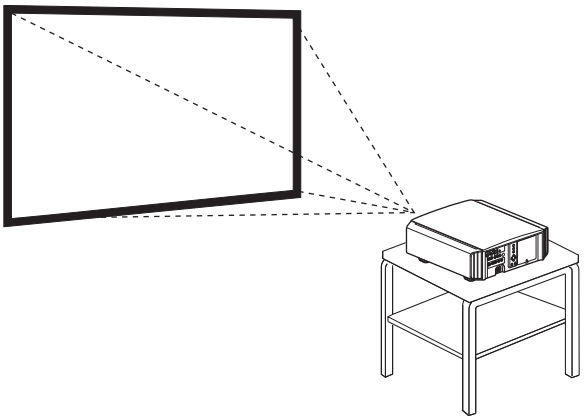
- Please choose a screen material with non-uniform patterns. Uniform patterns such as checks may cause interference patterns to occur.
- In this case, you can change the size of the screen to make the interference patterns less noticeable.

Using the projector at a high altitude

When using this unit at a location that is higher than 900 m above sea level (low air pressure), set the “High Altitude Mode” to “On”. (p. 36)

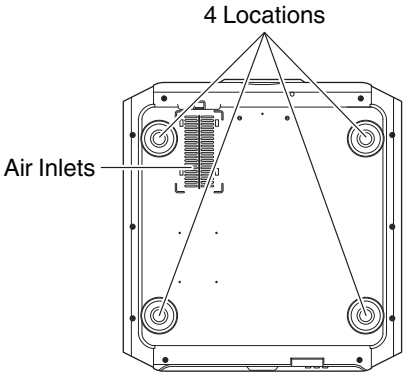
Precautions during Mounting

Securing (mounting) the projector



- Make sure to secure the main unit to prevent accidents such as during an earthquake.

Securing with screws

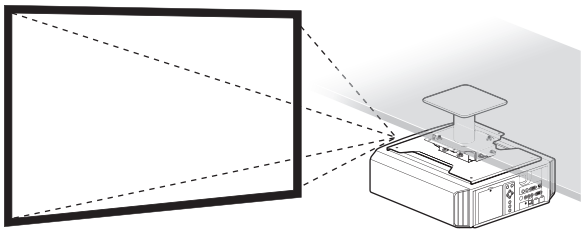


Remove the four feet at the bottom, and fasten using the screws (M5 screws, 13 to 23 mm).

* Using screws other than those designated may cause the unit to break down.

* Leave a clearance of at least 10 mm from the bottom surface of the unit to allow it to take in cool air.

Securing the projector (ceiling mount)

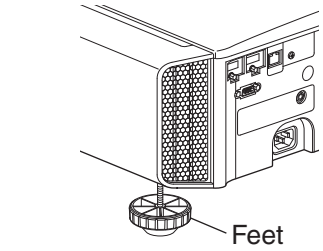


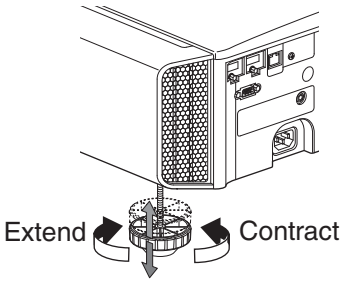
- Be sure to ask your dealer to install the unit for you. Installing the unit on your own may cause the unit to fall resulting in injury.
- Take the necessary actions to prevent the main unit from falling off such as during an earthquake.
- Regardless of the warranty period, JVC is not liable for any product damage caused by mounting the unit with non-JVC ceiling fittings or to an environment that is not suited for ceiling mount.
- When using the unit with it suspended from a ceiling, pay attention to the surrounding temperature. When a heater is in use, the temperature around the ceiling may be higher than expected.
- To attach the unit to the ceiling mount bracket, set the torque between the range of 1.5N m to 2.0N m. Tightening with torque exceeding the above range may cause damage to the unit, which may result the unit to fall.

Adjusting the Position

Adjusting the elevation angle of the projector

The height and inclination of the unit (0 to 5 mm) can be adjusted by turning the feet.
Lift the unit and adjust the four feet.



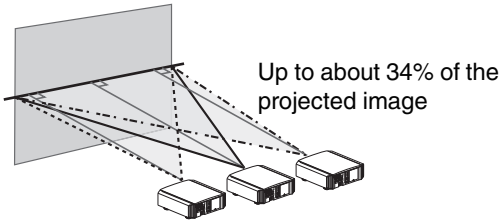


Adjusting the position of the image

By using the lens shift feature of this unit, you can shift the image upward/downward or to the left/right. Set it to your preferred position.

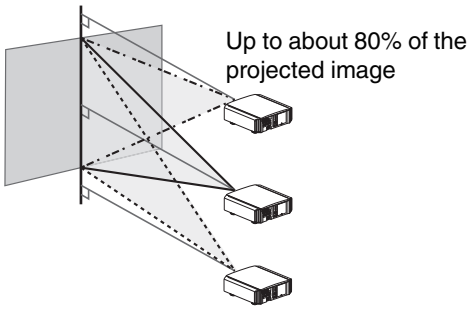
■ Horizontal Position

Vertical Position: 0% (Center)

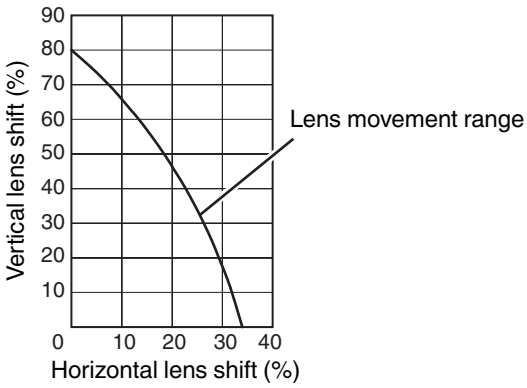


■ Vertical Position

Horizontal Position: 0 % (Center)



■ Lens shift Range



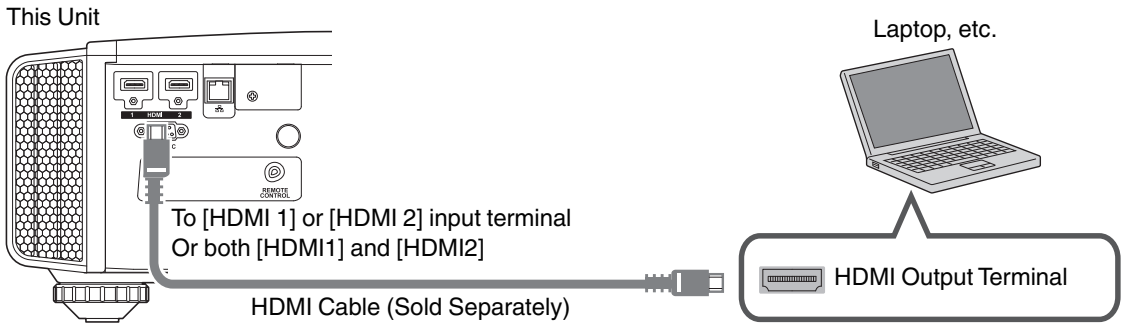
- The maximum vertical shift varies with the amount of horizontal shift. Similarly, the maximum horizontal shift also changes with the amount of vertical shift.
- The values on the graph are intended as a guide. Use them for reference during installation.
- To adjust the screen position, it is recommended to wait till the position becomes stable after projection before adjusting. The position may changed after projection depending on the attitude of the projector.

Connecting the Projector

- Do not turn on the power until connection is complete.
- The connection procedures differ according to the device used. For details, please refer to the instruction manual of the device to be connected.
- This projector is used for projecting images. To output the audio of connected devices, please connect a separate audio output device, such as an amplifier or speaker.
- The images may not be displayed depending on the devices and cables to be connected.
  Use only HDMI cables (sold separately) that are HDMI-certified.
- Some cables cannot be connected to this unit due to the size of their connector cover.

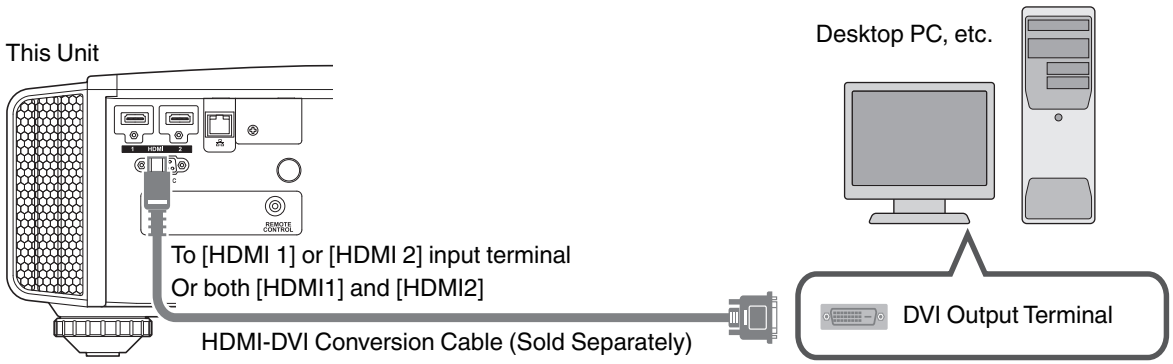
Connecting to the HDMI Input Terminal (Digital Input)

Connecting via HDMI cable



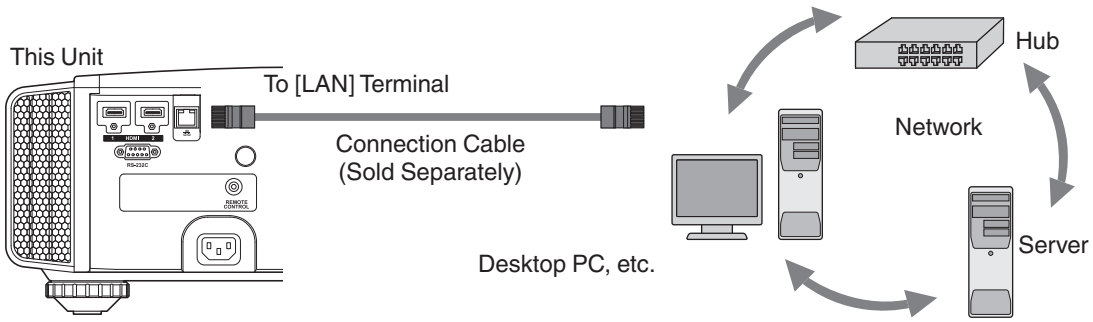
- If noise occurs, move the laptop away from this unit.
- For a transmission bandwidth in compliance with the HDMI standard, a 340 MHz cable is recommended.
- If the video is not displayed, try to reduce the length of the cable.

Connecting via HDMI-DVI conversion cable



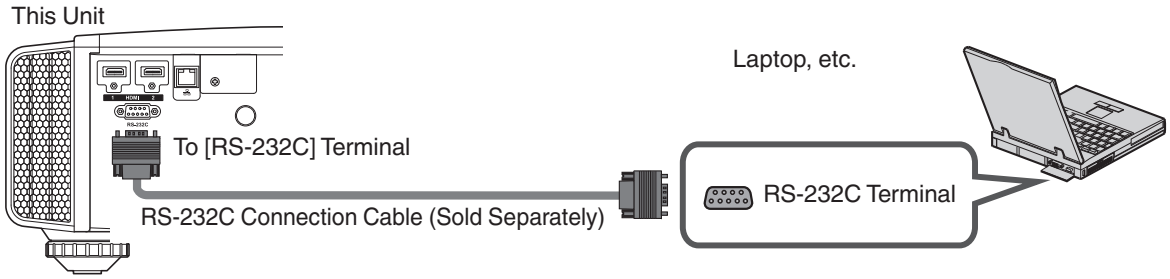
- If noise occurs, move the desktop PC away from this unit.
- If the video is not displayed, try to reduce the length of the cable.

Connecting to the LAN Terminal



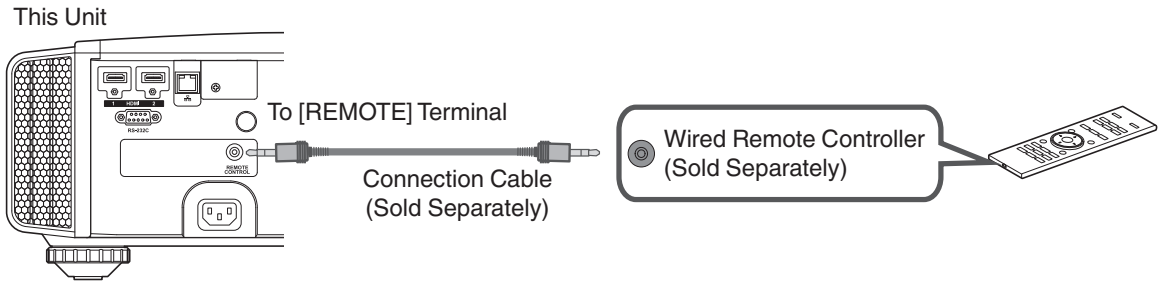
- The network is used to control this unit. It is not used for sending or receiving video signals.
- Please contact your network administrator for information concerning the network connection.
- For more information on control, please refer to “External Control” (p. 52).

Connecting to the RS-232C Terminal



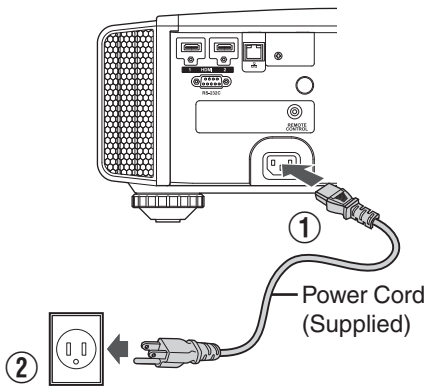
- For more information on control, please refer to “External Control” (p. 52).

Connecting to the REMOTE Terminal



- For more details on the wired remote controller and connection cable, please consult your dealer.

Connecting the Power Cord (Supplied Accessory)



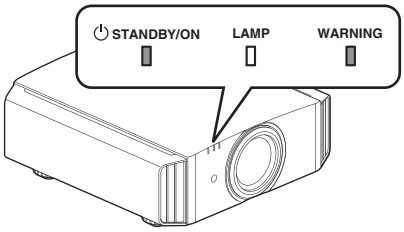
① Connect the power cord supplied to the power input terminal on the main unit

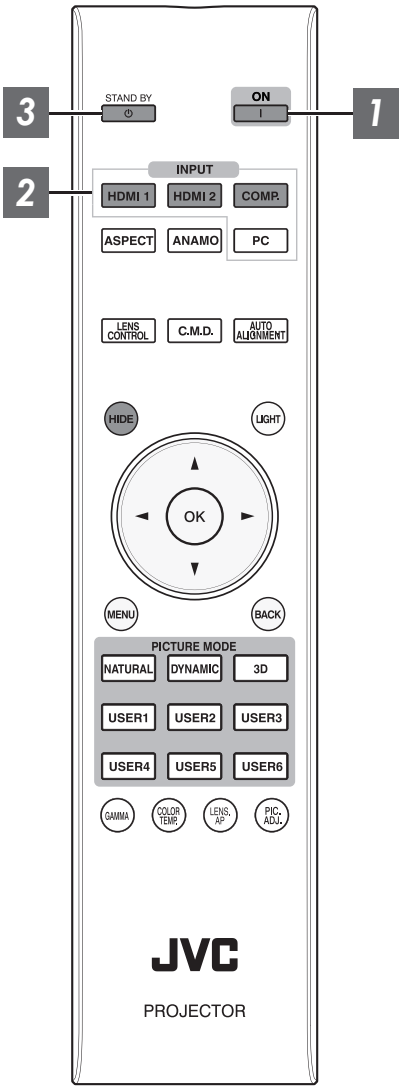
② Insert the supplied power plug into the wall outlet.

Precautions to prevent fire and electric shock

- The power consumption of this unit is large. Please connect it directly to the wall outlet.
- When you are not using the projector, please unplug the power cord from the outlet.
- Connect it using only the power cord supplied.
- Do not use a voltage other than the indicated power voltage.
- Do not damage, break or modify the power cord. Do not place a heavy object on the power cord, or heat or pull it. Doing so may damage the power cord.
- Do not unplug the power cord with wet hands.

Viewing Videos





MEMO

- When you are using this unit, be sure to remove the lens sheet.
- Connect the power cord, and ensure that the “STANDBY/ON” indicator lights up in red.

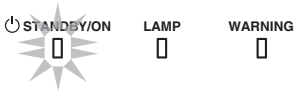
1 Turn on the power

Projector unit: press the ⏻/I [STANDBY/ON] button

Remote control (sold separately): press the I [ON] button

- The “STANDBY/ON” indicator light switches from red to green (light goes off after the unit starts up).

“STANDBY/ON” lights up (red)
In standby state



“STANDBY/ON” lights up (green)
During lamp startup

2 Choose the image to project

Projector unit: press the [INPUT] button (pressing the button each time switches the mode)

HDMI 1 → HDMI 2 → Dual

Remote control (sold separately):

Button	Terminal
[HDMI 1]	HDMI1
[HDMI 2]	HDMI2
[COMP.]	Dual

- Play back the selected device to project the image.

To hide the image temporarily

Press the [HIDE] button on the projector unit or remote control (sold separately)

- The “STANDBY/ON” indicator light starts to blink in green.
- Press the [HIDE] button again to resume display of the image.
- The power cannot be turned off when the image is temporarily hidden.

Operate

3 Turn off the power

Projector unit: press the ⏻/I [STANDBY/ON] button

Remote control (sold separately): press the ⏻ [STAND BY] button

- While the “Are you sure you want to turn off?” message is displayed, press the button again.
- The lamp turns off, and the “STANDBY/ON” indicator switches from a green light to a red blinking light.
- After the light goes off, the fan will run for about 120 seconds to cool down the lamp (Cool-down mode). Do not disconnect the power cable while cooling is in progress.
- After about 120 seconds, the “STANDBY/ON” indicator switches from a blinking red to a solid red light.

“STANDBY/ON” blinking (red)
In the Cool-down mode

“STANDBY/ON” lights up (red)
In standby state

CAUTION

- The power cannot be turned off within approximately 60 seconds after it has been turned on.
- After the light goes off, the fan will run for about 120 seconds to cool down the lamp (Cool-down mode). Do not disconnect the power cable while cooling is in progress.
- The power cannot be turned on again while cooling is in progress (120 seconds).
- Pull out the power plug when the unit is not to be used for a prolonged period of time.

Adjustments and Settings in the Menu

Pressing the [MENU] button displays the menu.
Press the [▲▼◀▶] keys to select an item, followed by pressing the [OK] button to confirm the selection.

List of Menu Items

Picture Adjust

▶Picture Mode ..... p. 25
↳ Sharpness ..... p. 25
↳ Lamp Power ..... p. 25
↳ Aperture ..... p. 25
▶Color Management ..... p. 26
▶Color Temp. ..... p. 27
▶Gamma ..... p. 27
▶4K e-shift ..... p. 27
▶Clear Motion Drive ..... p. 28
▶Contrast ..... p. 28
▶Brightness ..... p. 28
▶Color ..... p. 28
▶Tint ..... p. 28
▶Reset ..... p. 28

Input Signal

▶Input Level ..... p. 29
▶Color Space ..... p. 29
▶Hide ..... p. 29
▶Mask ..... p. 30
▶Picture Position ..... p. 30

Installation

▶Lens Control ..... p. 31
↳ Focus ..... p. 31
↳ Zoom ..... p. 31
↳ Shift ..... p. 31
↳ Image Pattern ..... p. 31
↳ Lock ..... p. 31
↳ Lens Center ..... p. 31
▶Pixel Adjust ..... p. 32
▶Installation Style ..... p. 36
▶High Altitude Mode ..... p. 36

Display Setup

▶Back Color ..... p. 36
▶Menu Position ..... p. 36
▶Signal Display ..... p. 36
▶Logo ..... p. 36

Function

▶Off Timer ..... p. 37
▶Network ..... p. 37
▶Remote Code ..... p. 37
▶Lamp Reset ..... p. 41

Information

▶Information ..... p. 38

Picture Adjust

Picture Mode

You can adjust the image quality according to the type of video image you are viewing.

Item	Description
Natural	Image quality that focuses on natural color and gradation reproduction. Suitable for displaying video images in general.
Dynamic	This is the picture setting best suited for viewing the picture in a room that cannot be made completely dark.
User 1 to User 6	Enables user-defined image quality data to be saved and retrieved.

Sharpness

Emphasizes the outline of the video image.

- Setting range: 0 (not adjusted) to +50 (sharp)

Lamp Power

The brightness of the lamp can be set to “Low” or “High”.

- The factory setting varies with the “Picture Mode”.
- Continuous use at the “High” setting may cause the lamp to darken faster.

Aperture

For adjusting the amount of opening of the optical iris.

- Stopping down the iris reduces the brightness, while opening it up increases the contrast.
- Setting range: -15 (stops down) to 0 (opens up) ZG
- Setting range: -7 (stops down) to 0 (opens up) G

Color Management

Each of the colors is adjustable according to the user's preference.

1 Select the "Picture Adjust" → "Color Management" menu, and press the [OK] button.

2 Set "Color Management" to "On", and adjust to the preferred color.

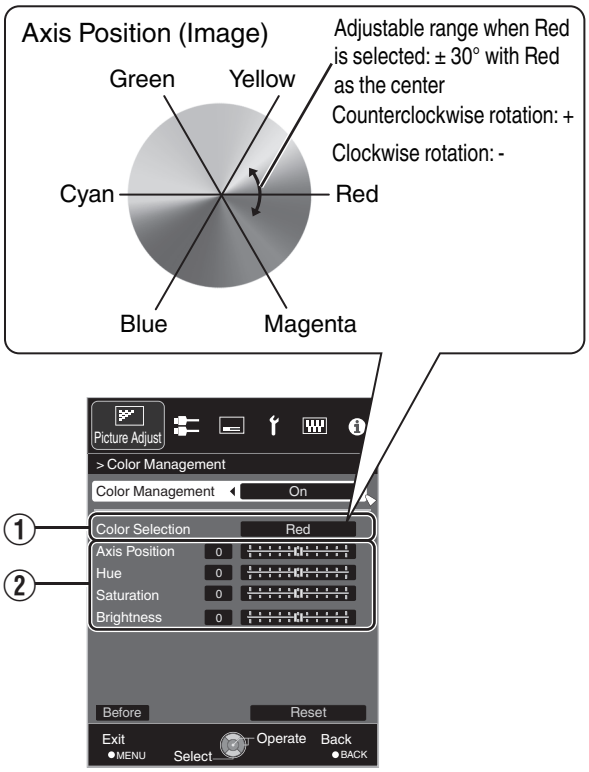
① Select "Color Selection", and press the ◀ ▶ keys to select the color to adjust

- For color adjustment, select the color from the following: "Red", "Orange", "Yellow", "Green", "Cyan", "Blue", "Magenta".

② Adjust the selected color

Item	Setting Range	Description
Axis Position	-30 to 30	Fine-tune the position of the central axis of the selected color.
Hue	-30 to 30	Adjusts the hue (color tone).
Saturation	-30 to 30	Adjusts the color saturation (vividness). -30 (dull) to +30 (vivid)
Brightness	-30 to 30	Adjusts the brightness. -30 (dark) to +30 (bright)

- Selecting "Reset" resets all the adjustment data.
- Pressing the [HIDE] button enables you to check the image before adjustment.



3 Press the [MENU] button to exit

Color Temp.

For setting the color temperature of the video image.

Preset

Setting	Description
5500K, 6500K, 9500K	Increasing the value enhances the blue tone of the video image, while decreasing the value enhances the red tone.
High Bright	Color temperature that gives priority to brightness.
Custom 1 to Custom 3	The color temperature of video images can be adjusted manually and saved as one of the three customized settings.

Custom

Setting	Description
Gain Red, Gain Green, Gain Blue	Adjusts each color in the bright parts of the video image. • Setting range: -255 (reduces the red/green/blue tone) to 0 (enhances the red/green/blue tone)
Offset Red, Offset Green, Offset Blue	Adjusts each color in the dark areas of the video image. • Setting range: -50 (reduces the red/green/blue tone) to +50 (enhances the red/green/blue tone)

Gamma

You can adjust the output value of the projected image with respect to the video signal input.

Setting	Description
Normal	Recommended setting for normal viewing.
Custom 1 to Custom 3	Adjustable to a preferred gamma setting.

4K e-shift

You can turn on/off the e-shift device.

- Setting values: On (Activate), Off (Stop)

Clear Motion Drive

For reducing the after-image, which occurs in a fast-moving scene.

- Pressing the [C.M.D.] button each time switches the mode in the following sequence: “Off”→“Mode1”→“Mode2”→“Off”...

Setting	Description
Off	No black insertion.
Mode1	Black insertion weak.
Mode2	Black insertion strong.

* C.M.D. is the abbreviation for Clear Motion Drive.

Contrast

For adjusting the difference in brightness to produce an image with contrast.

- Setting range: -50 (little difference in brightness) to +50 (large difference in brightness)

Brightness

For adjusting the brightness of the video image.

- Setting range: -50 (darker) to +50 (brighter)

Color

For adjusting the color density of the video image.

- Setting range: -50 (lighter) to +50 (deeper)

Tint

For adjusting the hue of the video image.

- Setting range: -50 (reddish) to +50 (greenish)

Reset

For restoring the image quality adjustment settings to the factory default.

Input Signal

Input Level

For setting the dynamic range (gradation) of the video input.

- If the dynamic range is not appropriate, the bright areas become overexposed, and the dark areas become underexposed.

Setting	Description
0-255 (PC)	Select this setting if you are inputting PC signals (dynamic range: 0 - 255).
16-235 (Video)	Select this setting if you are inputting video signals (dynamic range: 16 - 235).

Color Space

For setting the color space of the input signal.

Setting	Description
YCbCr(4:4:4)	Select this setting when inputting YCbCr(4:4:4) video signals.
YCbCr(4:2:2)	Select this setting when inputting YCbCr(4:2:2) video signals.
RGB	Select this setting when inputting RGB video signals.

Hide

In the Dual mode, you can hide one of the images to check the operation of e-shift.

Setting	Description
Hide1	Hides the input image of HDMI1.
Hide2	Hides the input image of HDMI2.
Off	Does not hide the input images.

* This function is different from that of the Hide button on the remote control.

Mask

For hiding the peripheral area of the image with a mask (black strip).

■ Off

■ On

Mask: black strip around the periphery

Setting	Description
Off	Not masked.
2.5%	Masks about 2.5% of the peripheral area of the image.
5%	Masks about 5.0% of the peripheral area of the image.
Custom	Masks about 0% to 5% of the four sides of the image.

Picture Position (Horiz./Vert.)

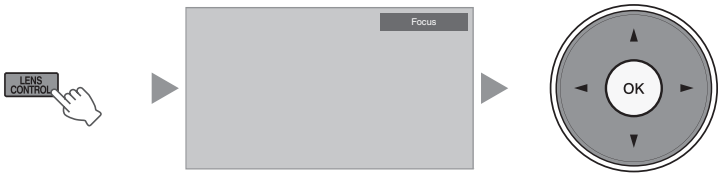
Adjust the position if the edges of the image are partially missing due to the timing of horizontal and vertical synchronization signals.

Lens Control ZG

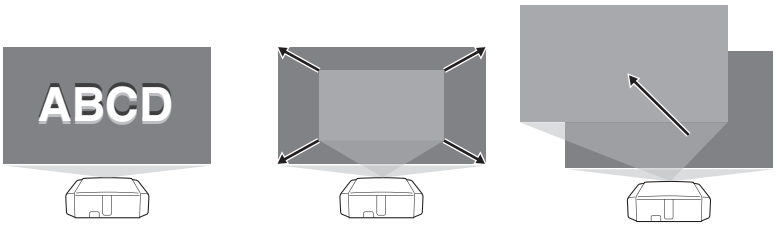
Focus / Zoom / Shift

For adjusting the lens according to the projection position

① Press the [LENS CONTROL] button, and use the [▲▼◀ ▶] keys to adjust Focus, Zoom (screen size), and Shift (screen position)



- Pressing the [LENS CONTROL] or [OK] button each time switches the mode in the following sequence: “Focus”→“Zoom”→“Shift”→“Focus”...



Focus Adjustment | Zoom (Screen Size) Adjustment | Shift (Screen Position) Adjustment

② Press the [BACK] button once, or the [MENU] twice, to end adjustment.

Image Pattern

Setting	Description
On	Displays the lens adjustment pattern.
Off	Displays external signals, and does not display the lens adjustment pattern.

Lock

Setting	Description
On	Locks the lens to prevent any erroneous operation on the adjustments. • Operation of the lens control feature is disabled when “On” is selected.
Off	Does not lock the lens.

Lens Center

Returns the lens position to the center.

Pixel Adjust

Adjust

For setting the adjustment feature to “On” or “Off”.

Adjust Area

Setting	Description
Whole	Adjusts the entire image.
Zone	Enables fine adjustment of each zone by dividing the screen into 11 vertical x 11 horizontal zones.

Adjust Color

For selecting the color to adjust (“Red” or “Blue”).

Adjust Pattern Color

For setting the adjustment pattern color to “White” or “Yellow / Cyan”.

Adjust(Pixel)

When “Adjust Area” is set to “Whole”, adjustment can be made by moving in units of one pixel on the screen of the color selected in “Adjust Color”.

➡ “Operation procedure for Whole Adjust (Pixel)”（p. 33）

* Adjustment cannot be made when “Adjust Area” is set to “Zone”.

Setting	Description
H (Horizontal)	Setting range: -2 (moves red/blue to the left) to +2 (moves red/blue to the right)
V (Vertical)	Setting range: -2 (moves red/blue downward) to +2 (moves red/blue upward)

Adjust(Fine)

When “Adjust Area” is set to “Whole”, adjustment can be made by moving in units of 1/16 pixel on the screen of the color selected in “Adjust Color”.

➡ “Operation procedure for Whole Adjust (Fine)”（p. 34）

When “Adjust Area” is set to “Zone”, the screen is divided into 11 vertical x 11 horizontal zones, and fine adjustment of each zone is possible.

➡ “Operation procedure for Zone Adjust”（p. 35）

Setting	Description
H (Horizontal)	Setting range: -31 (moves red/blue to the left) to +31 (moves red/blue to the right)
V (Vertical)	Setting range: -31 (moves red/blue downward) to +31 (moves red/blue upward)

Reset

Restores all pixel adjustment data to the factory default.

Operation procedure for Whole Adjust (Pixel)

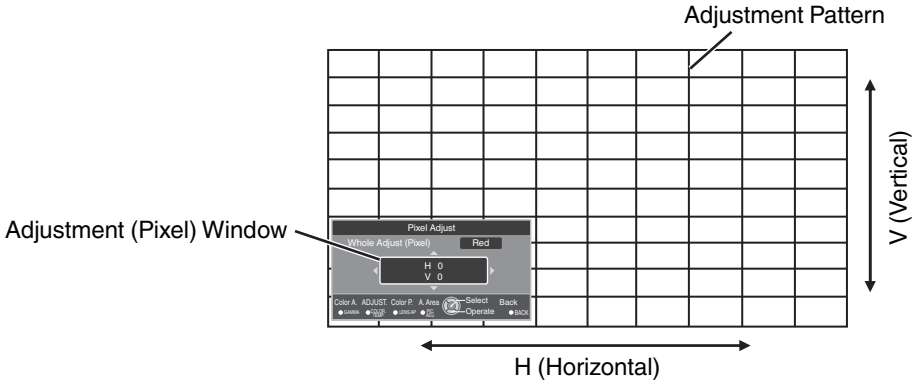
For making general adjustments to slight color fringing in the horizontal/vertical directions of the video image.

① Set “Adjust Area” to “Whole”

② Select “Adjust Color” and “Adjust Pattern Color”

③ Select “Adjust(Pixel)”, and press the [OK] button

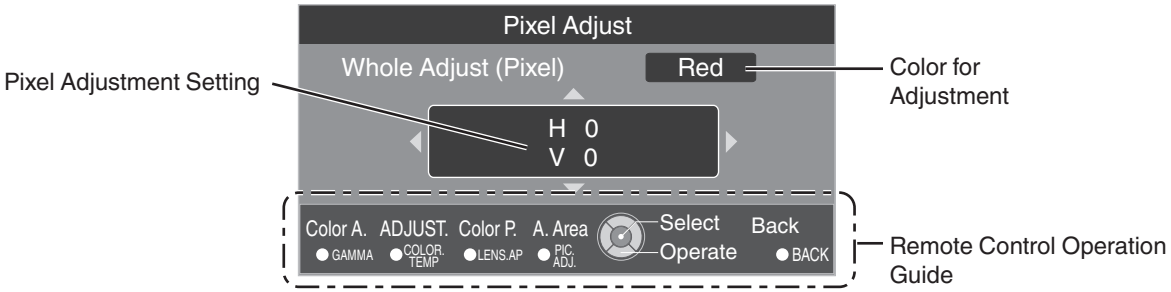
- The selected adjustment pattern and Adjustment (Pixel) window are displayed.



④ Press the [OK] button to enter the Adjustment mode

⑤ Use the [▲▼◀▶] keys to move and adjust the pixels in the vertical and horizontal directions across the entire screen.

- The adjustment setting appears at the center of the Adjustment (Pixel) window.



⑥ After adjustment is complete, press the [BACK] button to exit the Adjustment mode

Remote Control Operation Guide

Button Name	Description of Operation
[GAMMA]	Changes “Adjust Color”.
[COLOR TEMP.]	Switches between “Adjust(Pixel)” and “Adjust(Fine)”. • Switches to “Adjust(Pixel)” when “Adjust Area” is set to “Zone”.
[LENS.AP]	Changes “Adjust Pattern Color”.
[PIC ADJ.]	Switches “Adjust Area”. • A zone cursor appears on the adjustment pattern when the “Zone” setting is selected.

Operation procedure for Whole Adjust (Fine)

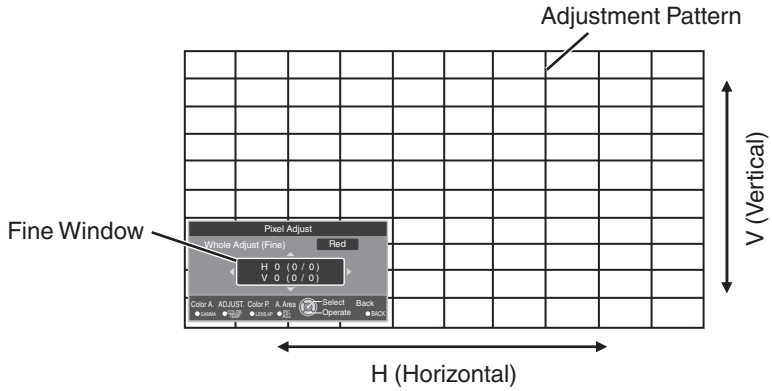
For making general adjustments on the misalignment of the entire screen using “Adjust(Pixel)”, followed by making fine adjustments.

① Set “Adjust Area” to “Whole”

② Select “Adjust Color” and “Adjust Pattern Color”

③ Select Adjust(Fine), and press the [OK] button

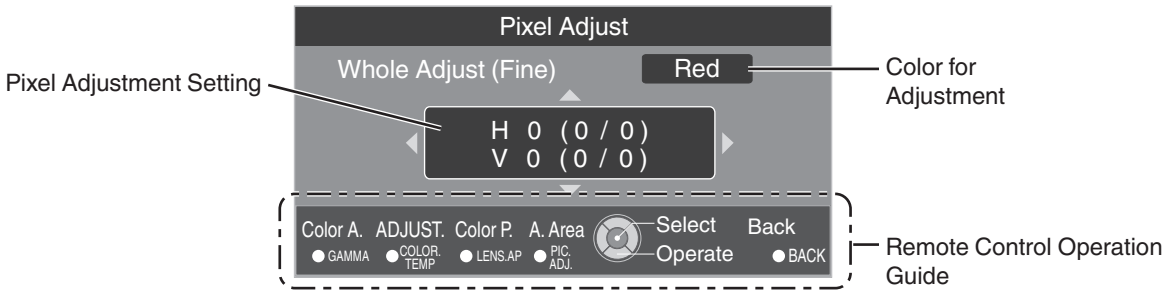
- The selected adjustment pattern and Fine window are displayed.
- The adjustable range may be smaller depending on the pixels being adjusted on the entire screen.

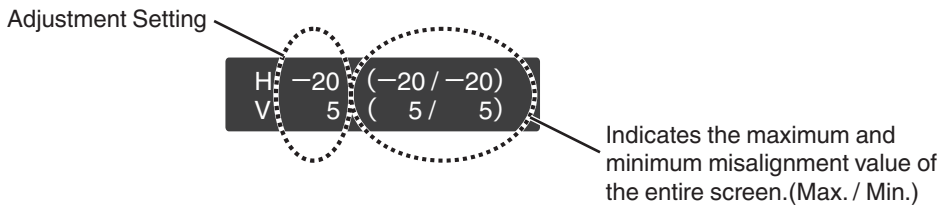


④ Press the [OK] button to enter the Adjustment mode

⑤ Use the [▲▼◀▶] keys to move and adjust the pixels in the vertical and horizontal directions across the entire screen.

- The adjustment setting appears at the center of the Fine window.





⑥ After adjustment is complete, press the [BACK] button to exit the Adjustment mode

MEMO

- If both the maximum overall screen misalignment of H (horizontal direction) and V (vertical direction) are “31”, you cannot select a value that is larger than the displayed setting even when the adjustment setting is lower than the maximum value.
- If the minimum overall screen misalignment is “-31”, you cannot select a value that is smaller than the displayed setting even when the adjustment setting is higher than the minimum value.

Operation procedure for Zone Adjust

For fine-tuning misalignments on a part of the screen after adjusting the overall screen misalignment using “Adjust(Pixel)” and “Adjust(Fine)”.

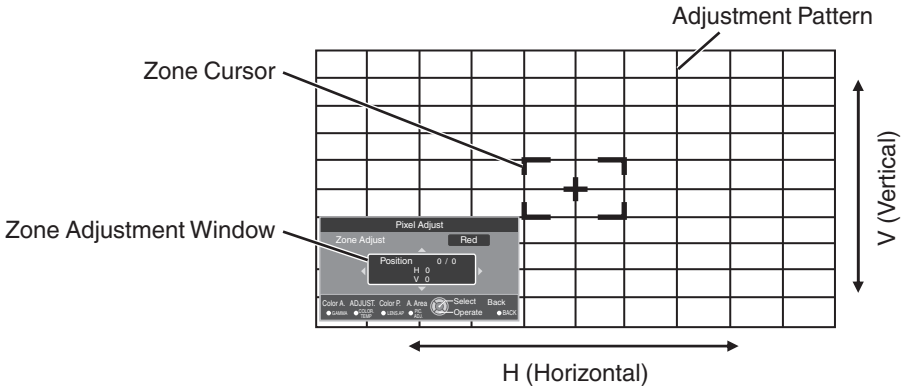
- The screen can be divided vertically and horizontally into 10 sections for partial adjustments to be made.

① Set “Adjust Area” to “Zone”

② Select “Adjust Color” and “Adjust Pattern Color”

③ Select Adjust(Fine), and press the [OK] button

- The selected adjustment pattern and Zone Adjustment window are displayed.
- The adjustable range may be smaller depending on the pixels being adjusted on the entire screen.

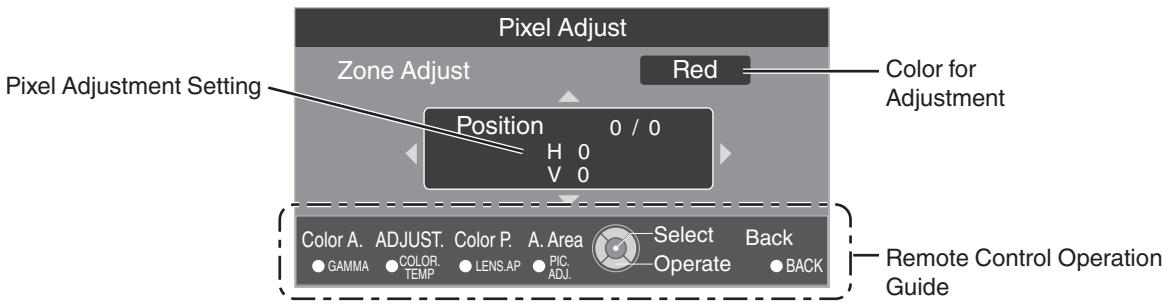


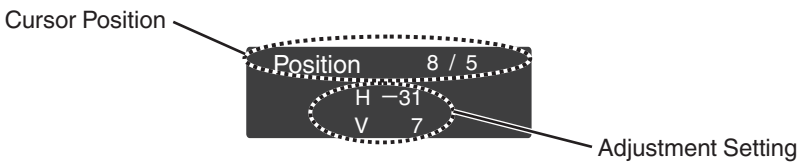
④ Press the [▲▼◀ ▶] keys to move the cursor to the point to be adjusted

⑤ Press the [OK] button to enter the Adjustment mode

⑥ Use the [▲▼◀ ▶] keys to move and adjust the pixels in the vertical and horizontal directions across the entire screen.

- The adjustment setting appears at the center of the Zone Adjustment window.





⑦ After adjustment is complete, press the [BACK] button to exit the Adjustment mode

Installation Style

For setting to “Front”, “Ceiling Mount (F)”, “Rear”, or “Ceiling Mount (R)” according to the installation status of the projector.

- “Front” or “Ceiling Mount (F)” is set when projector is installed in the front with respect to the screen.
- “Rear” or “Ceiling Mount (R)” is set when projector is installed in the rear with respect to the screen.

High Altitude Mode

Set to “On” when using the projector at a location of low atmospheric pressure (higher than 900 m above sea level).

Display Setup

Back Color

For setting the color of the background to “Blue” or “Black” when there is no input signal.

Menu Position

For setting the display position of the menu.

Signal Display

Setting	Description
On	Displays the input terminal and input signal type when input is switched.
Off	Not displayed.

Logo

Setting	Description
On	Displays the “D-ILA” logo for 5 seconds during startup.
Off	Not displayed.

Function

Off Timer

For setting the timing to power off the unit automatically (“1 Hour”, “2 Hours”, “3 Hours”, or “4 Hours”) when it is not operated for a period of time.

Network

Setting		Description
DHCP Client	On	Obtains the IP address automatically from the DHCP server inside the connected network.
	Off	For configuring the network settings manually.
IP Address		For configuring the IP address.
Subnet Mask		For configuring the subnet mask.
Default Gateway		For configuring the default gateway.
MAC Address		Displays the MAC address of the unit.
Set		Applies the network settings.

Glossary of Network Terminology

DHCP : Abbreviation for Dynamic Host Configuration Protocol. This is a protocol for the network to assign an IP address automatically to the connected device.

IP Address : Numeric characters for identifying the device that is connected to the network.

Subnet Mask : Numeric characters that define the bit count used for the network address that is a segment of the IP address.

Default Gateway : Server for communicating beyond the network that is divided by the subnet mask.

MAC Address : Abbreviation for Media Access Control address. This is a number that is unique to each network adapter. Each of the network adapters is assigned with a unique MAC address.

Remote Code

For changing the remote control code.

- You need to configure the remote control according to the settings of this unit.
  On the remote control unit, press the [MENU] and [BACK] buttons at the same time for three seconds or longer to switch the code.
  - The backlight of the remote control blinks 3 times: change the remote control code to “A”
  - The backlight of the remote control blinks 2 times: change the remote control code to “B”

Setting	Description
A	Change the remote control code from “B” to “A”.
B	Change the remote control code from “A” to “B”.

Lamp Reset

For resetting the lamp time to “0”.

➡ “Resetting the Lamp Time”（p. 41）

Information

During video signal input

Setting	Description
Input	Displays video input terminal.
Source	Displays the input source.
Deep Color*	Displays the color bit depth of the input video signal. • Displayed when Deep Color information is received from the source device.
Lamp Time	Displays the lamp time.
Soft Ver.	Displays the firmware version.
PS Ver.	Displays the version of image quality data.
Unit ID	Adds an ID to the projector.

During PC signal input

Setting	Description
Input	Displays video input terminal.
Resolution*	Displays the image resolution.
H Frequency*	Displays the horizontal frequency.
V Frequency*	Displays the vertical frequency.
Deep Color*	Displays the color bit depth of the input video signal. • Displayed when Deep Color information is received from the source device.
Lamp Time	Displays the lamp time.
Soft Ver.	Displays the firmware version.
PS Ver.	Displays the version of image quality data.
Unit ID	Adds an ID to the projector.

* During Dual input, Deep Color, Resolution, and H/V Frequency are not displayed.

Replacing the Lamp

The lamp is a consumable item. If the image appears dark or the lamp goes out, replace the lamp unit.

- When the lamp replacement time approaches, the user is notified with a message displayed on the screen and by the indicator. (p. 59)

Lamp Replacement Procedure

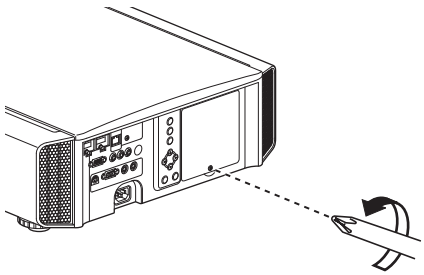
CAUTION

- Do not insert your hands into the lamp compartment. This could cause significant deterioration in the performance of the equipment, or lead to injury and electric shock.
- Do not replace the lamp immediately after the unit has been used. Allow a cooling period of at least one hour before replacement. The temperature of the lamp is still high, and may cause burn injuries.
- Do not subject the lamp unit to shock. Doing so may cause lamp blowout.
- Do not use a flammable air duster to clean the internal parts of the unit. Doing so may cause fire.
- Use only genuine replacement parts for the lamp unit. Also, never attempt to reuse an old lamp unit. This may cause the unit to malfunction.
- Do not touch the surface of a new lamp. Doing so may shorten the lamp life and cause lamp blowout.
- When replacing the lamp, be careful not to injure yourself as the lamp may be broken.
- When replacing the lamp of a projector suspended from the ceiling, work at height is required. This is a dangerous operation. Please consult our service center.

1 Remove the power plug from the outlet

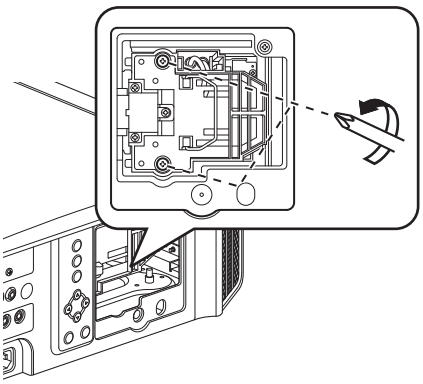
2 Remove the lamp cover

- Remove the screw with a ⊕ screwdriver



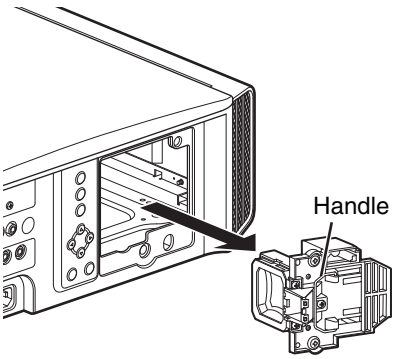
3 Loosen the screws of the lamp unit

- Loosen the screws with a ⊕ screwdriver.



4 Pull out the lamp unit

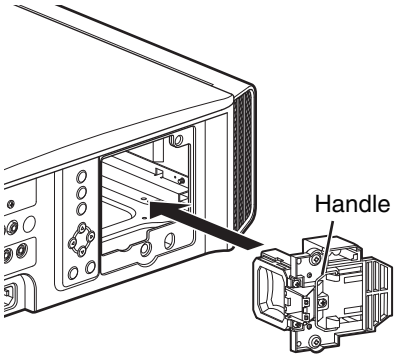
- Grasp the handle and pull out the lamp unit.



5 Replace the lamp

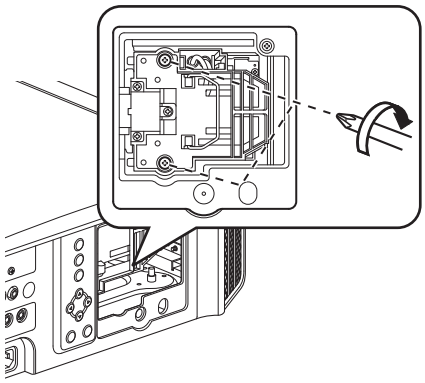
- For more details, refer to “Replacing the Attachment”p. 42.

6 Install the new lamp unit



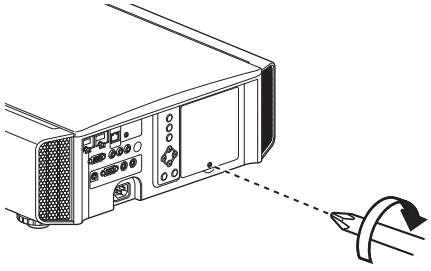
7 Tighten the screws of the new lamp unit

- Tighten the screws with a ⊕ screwdriver.



8 Attach the lamp cover

- Insert the two tabs at the top and bottom of the lamp cover into the unit.
- Tighten the screws with a ⊕ screwdriver.



MEMO

Usable lamp life

- When the lamp is used with “Lamp Power” set to “Low”, the lamp life on this unit is approximately 4000 hours. This is the average usable time and not a guaranteed value.
- The lamp life may not reach 4000 hours depending on the operating conditions.
- When the lamp has reached the end of its usable life, deterioration progresses rapidly.
- When the video image appears dark, when the color tone looks unnatural, or when the image flickers, replace the lamp unit with a new one promptly.

Purchasing a lamp unit

Please consult your authorized dealer or nearby service center.

- Lamp unit
  Product no.: PK-L2313U

* Lamps with a different product number or those for other projector models cannot be used.

Information about the lamp

An ultra-high pressure mercury lamp with a high internal pressure is used in the projector.

Due to the characteristics of this lamp, it may blow out with a loud noise or go out when it is subject to shock or after using for a prolonged period of time (the time before the lamp blows out or goes out varies considerably with each lamp as well as the operating conditions).

After replacing the lamp

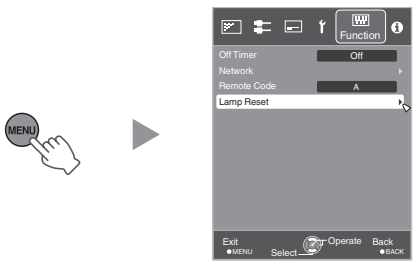
- Do not place the removed lamp unit at a place that is within reach by children or anywhere near inflammable items.
- Dispose used lamp units in the same way as fluorescent lamps. Follow the regulations of your local community for disposal.
- Reset the lamp time.

Resetting the Lamp Time

Resetting the lamp time from the menu screen

1 Press the [MENU] button to display the menu

2 Select “Function”→“Lamp Reset” from the menu



3 On the “Reset Lamp Time?” screen, select “Yes” and press the [OK] button

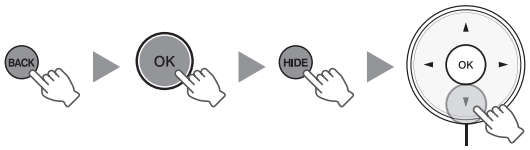
- The lamp time is reset to zero.

Resetting the lamp time using the remote control

1 Insert the power plug into the power outlet

2 Make sure that you operate the remote control in the Standby mode (the power plug is inserted into the outlet, but the power is not turned on)

- Press in the order as shown.
- Make sure that you press a button within two seconds after the last button is pressed. Press the last button for at least two seconds.



Press for 2 seconds or longer

- The “LAMP” indicator and “STANDBY/ON” indicator blink alternately for three seconds. After that, the unit switches to the Standby mode.

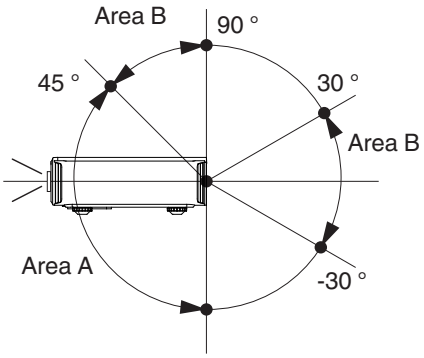
MEMO

- Reset the lamp time only when you have replaced the lamp.
  If the lamp time is reset while a lamp is in use, you may lose track of the timing for replacing the lamp. Doing so may result in using the lamp beyond the estimated limit, thereby causing lamp blowout.

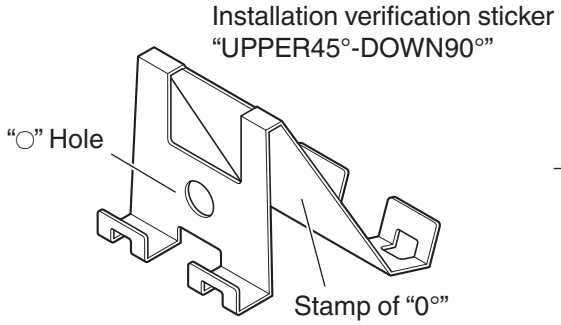
Replacing the Attachment

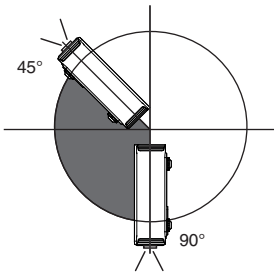
Attachment and the placement area

- At the time of shipment, the lamp comes with an Area A attachment (○ mark and "0°" marking). For Area A, make use of the lamp that is attached at the time of shipment. Also, attach an installation verification sticker to the lamp cover to prevent its use in an incorrect posture.
  For details on how to attach the installation verification sticker, please refer to p. 46.
- For use in Area B, replace the Area A attachment with the supplied attachment (+ mark and "90°" marking). In this case, change the installation verification sticker as well.
- After the replacement, keep the removed sticker and attachment together.
- Use in areas other than Area A and Area B is prohibited.

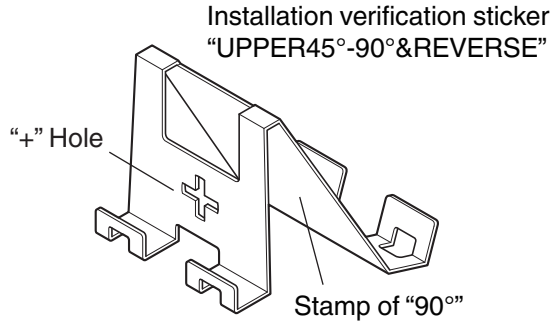


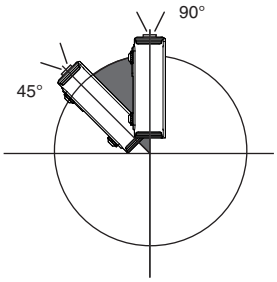
Area A Attachment

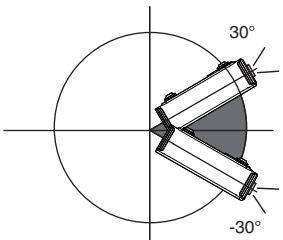




Area B Attachment







Lamp attachment removal procedure

1 Bend the clasp coupling of the lamp attachment vertically (see Figure 2)

- If you remove it without bending it vertically, it will be difficult to install the next time.

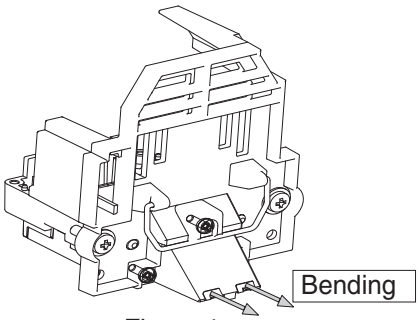


Figure 1

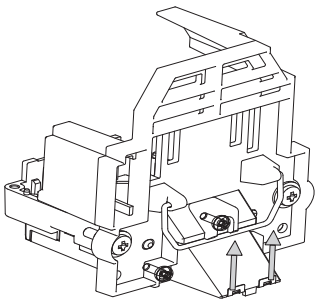


Figure 2

2 Remove the clasp coupling of the lamp unit and the lamp attachment in the direction of the arrow

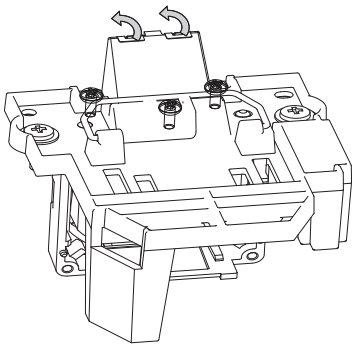


Figure 3

3 Make sure that the clasp is removed from the lamp attachment

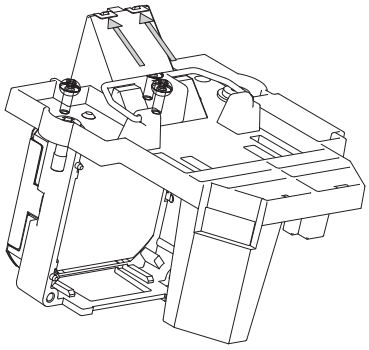


Figure 4

4 Remove the clasp coupling of lamp attachment on the reverse side and the lamp unit

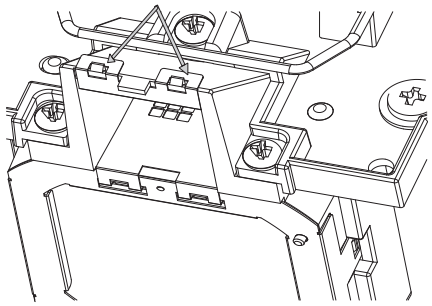


Figure 5

Lamp attachment replacement procedures

1 Insert the “a” section of the lamp attachment into the “A” section of the lamp unit. Hang the lamp attachment into the clasp-shaped part of the lamp unit

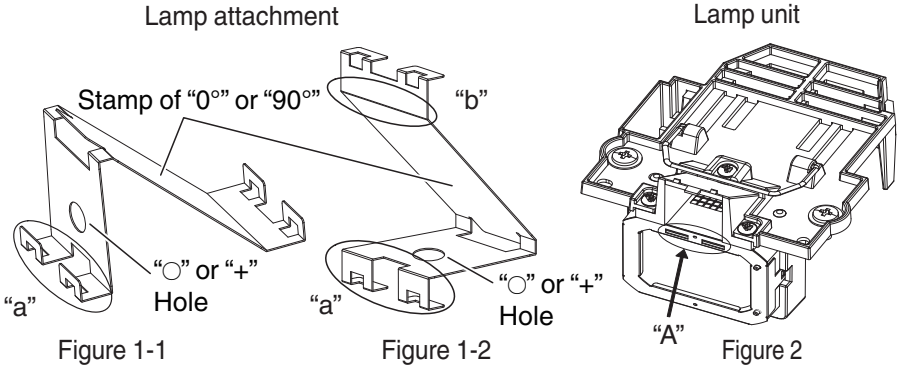


Figure 1-1 Figure 1-2 Figure 2

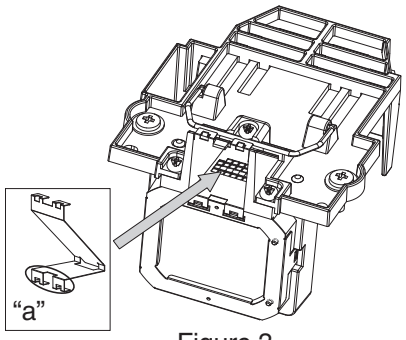


Figure 3

CAUTION

In case the lamp attachment is bent in any direction other than stated in the written instructions, or if it is modified, or remodeled, the lamp attachment will be damaged or break off. This may lead to failure of the main unit of the projector. Moreover, in case it is repeatedly installed and removed, it may be possible that the “a” section of the clasp section breaks off. In this case, please purchase and use a new replacement lamp attachment. As the folding section of the “b” section is fragile, please be careful when bending it in the direction of the arrow.

2 Fit the “b” section of the lamp attachment (see Figure 1-2) into the clasp-shaped part of the lamp unit by pressing the former into the latter

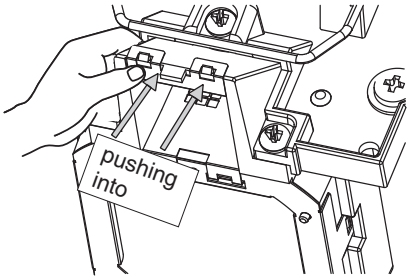


Figure 4

3 As shown in Figure 5, make sure that the lamp attachment is coupled with the clasp of the lamp unit

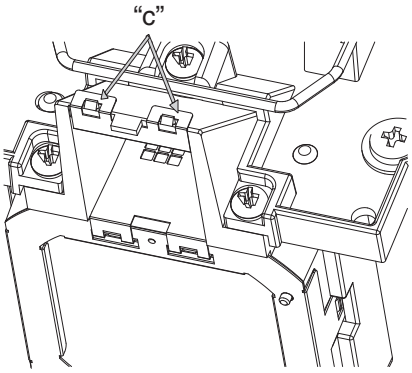


Figure 5

4 Bend the “c” section of the lamp attachment (see Figure 5) by pressing it in the direction of the lamp unit

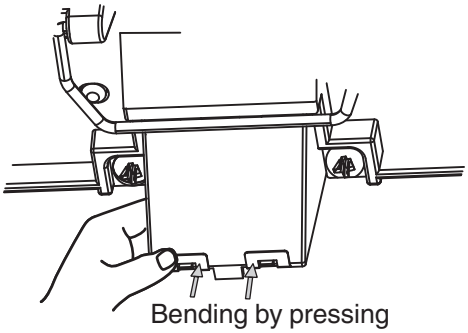


Figure 6

5 As shown in Figure 7, make sure that the lamp attachment is coupled with the clasp of the lamp unit

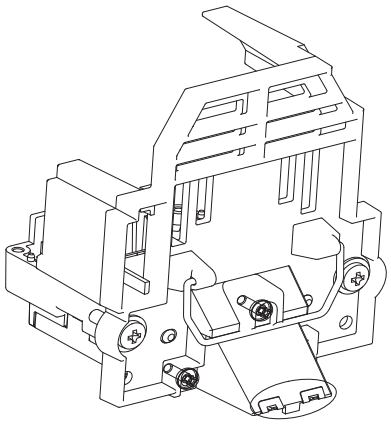


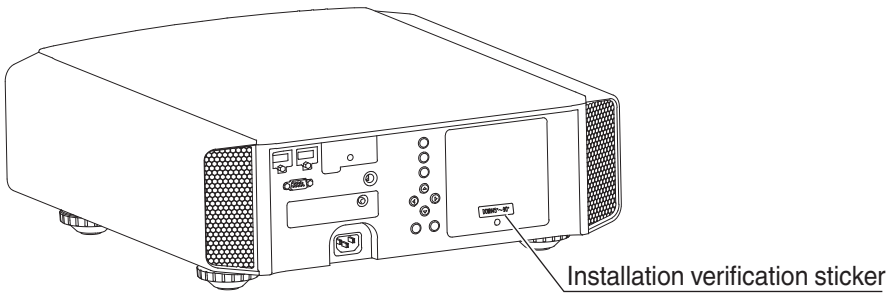
Figure 7

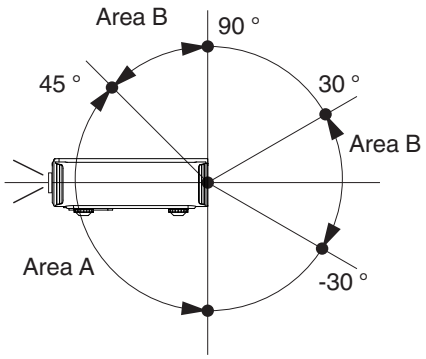
- When replacing the lamp, please remove the lamp attachment and put it to the new lamp.

Attachment of the installation verification sticker

1 After replacing the lamp, attach the “installation verification sticker” on the lamp cover

- Attach the installation verification sticker at the bottom right of the lamp cover.





In the case of installation in the “Area A”

Installation Verification Sticker “UPPER45° -DOWN90°”

In the case of installation in the “Area B”

Installation Verification Sticker “UPPER45° -90°&&REVERSE”

When the lamp attachment is removed, peel off the attached verification sticker and keep it for further use.

Maintaining the Cabinet and Remote Control (Sold Separately)

- Gently wipe off dirt on the cabinet with a soft cloth.
- If it is extremely dirty, wet a cloth in water, wring dry and use it to wipe off the dirt, followed by wiping again with a dry cloth.
- Pay attention to the following as the cabinet may deteriorate in condition or the paint may come off.
  - Do not wipe with thinner or benzine
  - Do not allow prolonged contact with rubber or plastic products
  - Do not spray volatile chemicals such as insecticide

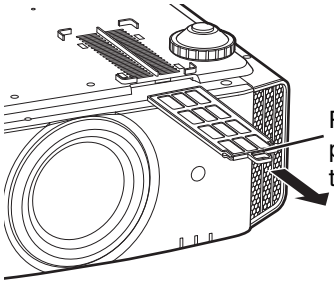
Cleaning and Replacing the Filter

Clean the filter regularly Otherwise, the air intake efficiency may deteriorate, and malfunction may occur.

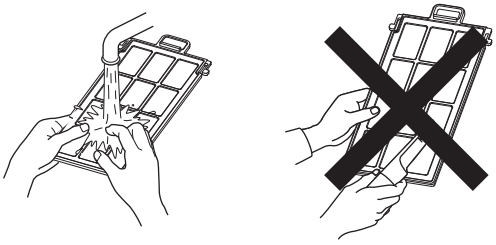
CAUTION

- Make sure that you pull out the power plug from the outlet before cleaning or replacing the filter.
- Before turning this unit upside down and placing it on the floor or a table, make sure that you lay a soft rag in advance to prevent the projector from being scratched.

1 Remove the inner filter

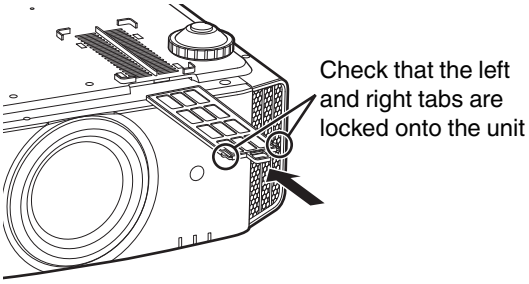


2 Clean the filter



- Wash the filter with water and dry it in a shaded area.
- If the filter is extremely dirty, clean it with a neutral detergent. Put on rubber gloves when using a neutral detergent.
- After washing the filter with water, make sure that it is completely dry before reinstalling. Otherwise, electric shock or malfunction may occur.
- Do not clean the filter with a vacuum cleaner or air duster. The filter is soft and may be easily damaged.

3 Reinstall the inner filter



If the filter is damaged or too dirty to be cleaned

- Replace with a new filter. A dirty filter will dirty the internal parts of the unit and cause shadows to appear on the video image.
- To purchase a new filter or when there is dirt in the internal parts of the unit, consult your authorized dealer or nearby service center.
- Inner filter (exchangeable filter)
  Product no.: PC010661199

Troubleshooting

Before sending the unit to your authorized dealer for repair, please check the following points.

The following symptoms are not malfunctions.

You do not need to worry about the following symptoms if there is no abnormality on the screen.

- A part of the top or front surface of the unit is hot.
- A creaking sound is heard from the unit
- An operating sound is heard from the inside of the unit.
- Color smear occurs on some screens

This unit is a digital device. This unit may become unable to operate normally due to external static or noise. Perform the following operations when such malfunctions occur.

① If the unit is in the Standby mode, pull out the power plug, followed by inserting it again

② Press the ⏻/I [STANDBY/ON] button on the main unit to turn on the power again

If "High Altitude Mode" is set to "On", the fan spins at a higher speed when "Lamp Power" is set to "High" and produces a louder sound than normal.

Power is not supplied

Check	Action	Refer to
Is the power cord disconnected?	Insert the power cord (plug) firmly.	p. 21
Is the lamp cover properly shut?	If the unit is in the Standby mode, remove the power plug and close the lamp cover properly. After that, insert the plug again.	p. 40
Is the lamp in the Cool-down mode?	After exiting the Cool-down mode, turn on the power again.	p. 23

Power shuts down automatically

Check	Action	Refer to
Has "Off Timer" been configured?	Set "Off Timer" to "Off".	p. 37
Are the air inlets and exhaust vent blocked?	Leave proper clearance when installing the unit	p. 10, 11 p. 15
Is the filter dirty?	Clean the filter.	p. 48

Video image does not appear

Check	Action	Refer to
Is the correct external input selected?	Select the correct external input terminal.	p. 22
Is the power of the video source equipment turned on?	Turn on the power of the video source equipment and play the video.	p. 19
Is the video source equipment properly connected?	Check to ensure that the video source equipment is properly connected.	p. 19
Are the correct signals being output from the video source equipment?	Configure the video source equipment correctly.	p. 19
Is the cable in use an HDMI-certified cable?	Use an HDMI-certified high-speed cable. Also, use as short a cable as possible.	p. 19
Is the video image temporarily hidden?	Press the [HIDE] button	p. 22

Video image looks unnatural

Colors are unnatural

Check	Action	Refer to
Is the color space of the input signal correctly set?	The color may turn out unnatural when the input signal is different from that in the projector setting. Set the “Color Space” for “Input Signal” correctly.	p. 29
Is the image correctly adjusted?	Adjust “Color” and “Tint” accordingly.	p. 28, p. 28
Is the video source equipment properly connected?	Check to ensure that the video source equipment is properly connected.	p. 19

* The video image may appear slightly reddish immediately after starting up. This is not a malfunction.

Video image is fuzzy

Check	Action	Refer to
Is the focus correctly adjusted?	Adjust the focus.	p. 31
Is the unit placed too near or too far away from the screen?	Set the unit at a correct distance from the screen.	p. 57

Projected image is dark

Check	Action	Refer to
Is the lamp near exhaustion?	Check the lamp time in the “Information” menu. Prepare a new lamp unit or replace as soon as possible when the lamp is near exhaustion.	p. 38 p. 39
Is the aperture closed?	Adjust the Aperture.	p. 25
Is “Lamp Power” set to “Low”?	Set “Lamp Power” to “High”	p. 25

Video images are missing

Check	Action	Refer to
Has screen mask been configured?	Set “Mask” to “Off”.	p. 30
Is the display position misaligned?	Alter the “Picture Position” value so that the entire image appears on the screen.	p. 30

Remote control does not work

Check	Action	Refer to
Are the batteries correctly loaded?	Match the polarities (⊕ ⊖) correctly when loading the batteries.	p. 14
Are the batteries exhausted?	Replace with new batteries.	p. 14
Is there an obstructing object between the remote control and remote sensor?	Remove any obstructing object.	p. 14
Is the remote control held too far away from the unit?	Hold the remote control closer to the sensor during use.	p. 14

Noise is heard

Check	Action	Refer to
Is the exhaust vent blocked? Is the unit used near a heater or air-conditioner?	Check the installation condition of the projector. When the surrounding temperature of the projector is high, the fan revolution speed increases to protect the projector unit, hence a louder operating sound.	p. 15

There are small black or colored dots on the screen

The D-ILA device is manufactured using high-precision technologies, but there may be some (less than 0.01%) missing pixels or pixels that remain permanently lit. This is not a malfunction.

When the following messages appear...

Message	Description	Action
	• No device is connected to the input terminal • The input terminal is connected but there is no signal	Input the video signals.
	A video signal that cannot be used with this unit has been input (The names of input terminals such as “HDMI-1” and “HDMI-2” will be displayed in yellow).	• Input video signals that can be used. (p. 59) • In the Dual mode, switch to HDMI1 or HDMI2 and check whether the signals can be input.

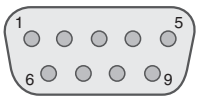
External Control

You can control this unit by connecting it to a PC using an RS-232C null modem cable (D-sub 9-pin).
The projector can be controlled by connecting it to a PC through the computer network with a LAN cable for control commands to be sent to the projector.

- Please use it after you have gained proper understanding from professional books or consulting the system administrator.

RS-232C Specifications

This Unit



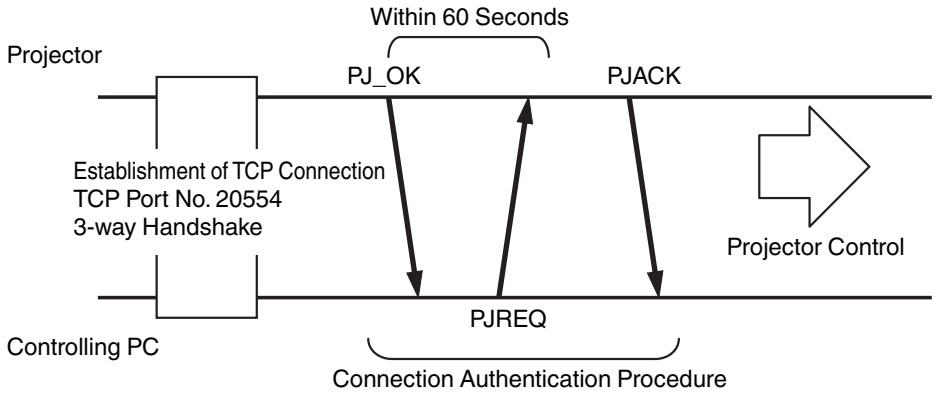
Pin No.	Signal	Function	Signal Direction
2	RxD	Receive data	PC → This unit
3	TxD	Transmission data	This unit → PC
5	GND	Signal ground	—
1, 4, 6 - 9	N/C	—	—

- PC refers to the controller, such as a personal computer.

Mode	Non-synchronous
Character length	8 bit
Parity	None
Start bit	1
Stop bit	1
Data rate	19200 bps
Data format	Binary

TCP/IP Connection

Before controlling via LAN, it is necessary to establish connection of the TCP layer by a “3-way handshake”, followed by sending out “PJREQ” and receiving “PJACK” within 60 seconds after the projector sends out “PJ_OK” for connection authentication.
If you are unable to complete sending within 60 seconds, or when “PJ_NG” or “PJNAK” is received, check the operating status of the projector, followed by performing the steps again starting from establishment of a TCP connection.



Command Format

The command between this unit and the computer consists of “Header”, “Unit ID”, “Command”, “Data” and “End”.

- Header (1 byte), Unit ID (2 bytes), Command (2 bytes), Data (n bytes), End (1 byte)

Header

This binary code indicates the start of communication.

Binary Code	Type	Description
21	Operating command	PC → This unit
3F	Reference command	PC → This unit
40	Response command	This unit → PC
06	ACK	This unit → PC (returns to PC after the command is accepted without error)

Unit ID

This is a code that specifies the unit. The binary code is fixed at “8901”.

Command and data

Operating command and data (binary code)

Command	Type	Description
0000	Connection check	Check whether communication is enabled between this unit and the PC during standby.
5057	Power supply	During standby 31: Turns on the power When power is on 30: Turns off the power (Standby mode)
4950	Input	When power is on 36: HDMI 1 37: HDMI 2
5243	Remote control	Sends the same code as the supplied remote control. • “Remote Control Code”p. 54

Operating command and data (binary code)

Command	Type	Description
5057	Power supply	During standby or when power is on 30: Standby mode 31: When power is on 32: In the Cool-down mode 33: Starting up 34: When error occurs on this unit
4950	Input	When power is on 32: Dual 36: HDMI 1 37: HDMI 2

End

This code indicates the end of communication. The binary code is fixed at “0A”.

Remote Control Code

Binary code is sent during communication.

- The following applies to the case when the remote control code is “A”. In the case of “B”, add “36” to the beginning of the code.

Remote Control Button Name	Binary Code
STAND BY	37 33 30 36
ON	37 33 30 35
HDMI 1	37 33 37 30
HDMI 2	37 33 37 31
Dual	37 33 34 44
LENS CONTROL	37 33 33 30
Aperture	37 33 32 30
HIDE	37 33 31 44
▲	37 33 30 31
▼	37 33 30 32
▶	37 33 33 34
◀	37 33 33 36
OK	37 33 32 46

Remote Control Button Name	Binary Code
MENU	37 33 32 45
BACK	37 33 30 33
NATURAL	37 33 36 41
DYNAMIC	37 33 36 42
USER	37 33 44 37
C.M.D.	37 33 38 41
INFO	37 33 37 34
GAMMA	37 33 37 35
C. TEMP	37 33 37 36
PIC. ADJ.	37 33 37 32

Communications Example

This section shows the communication examples of RS-232C.

Operating command

Type	Command	Description
Connection check	PC → This unit: 21 89 01 00 00 0A This unit → PC: 06 89 01 00 00 0A	Connection check
Power (On)	PC → This unit: 21 89 01 50 57 31 0A This unit → PC: 06 89 01 50 57 0A	When power is turned on from the Standby mode
Power (Off)	PC → This unit: 21 89 01 50 57 30 0A This unit → PC: 06 89 01 50 57 0A	When power is turned off (Standby mode) from power-on mode
Input (HDMI 1)	PC → This unit: 21 89 01 49 50 36 0A This unit → PC: 06 89 01 49 50 0A	When video input is set to HDMI 1
Remote control (MENU)	PC → This unit: 21 89 01 52 43 37 33 32 45 0A This unit → PC: 06 89 01 52 43 0A	When the same operation as pressing the [MENU] button on the remote control is performed

Reference command

Type	Command	Description
Power (On)	PC → This unit: 3F 89 01 50 57 0A This unit → PC: 06 89 01 50 57 0A This unit → PC: 40 89 01 50 57 31 0A	When information on the power-on state is acquired
Input (HDMI 1)	PC → This unit: 3F 89 01 49 50 0A This unit → PC: 06 89 01 49 50 0A This unit → PC: 40 89 01 49 50 36 0A	When information on HDMI 1 input is acquired

Specifications

Product Name		D-ILA Projector
Model Name		DLA-VS2400ZG, DLA-VS2400G
Display Panel/Size		D-ILA device *1, 2 0.7" (1920 x 1080 pixels) x 3 (total no. of pixels: approx. 6.22 million)
Projection Lens		2.0x power zoom lens (1.4:1 to 2.8:1), motorized zoom and focus ZG
Light-source Lamp		230 W ultra-high pressure mercury lamp [model no.: PK-L2313U] Average lifespan: 4000 hours (“Low” mode)
Screen Size		Approx. 60" to 200" (Aspect ratio of 16:9) ZG
Projection Distance		Refer to p. 57. ZG
Input Compatibility Signal		Refer to p. 59.
Display Resolution		3840 x 2160 pixels
HDMI Input Terminal		Dual, HDMI 19-pin x 2 (HDCP-compatible) *3
Control Terminal	RS-232C Terminal	1 system, D-sub 9-pin (male) (external control)
	Remote Terminal	1 system, stereo mini jack (remote control)
	LAN Terminal	1 system, RJ-45 jack
Power Requirements		AC 110 V to 240 V, 50 Hz/60 Hz
Power Consumption		360 W (during standby: 7 W)
Operation Environment		Temperature: 5°C to 35°C; humidity: 20% to 80%; storage temperature: -10°C to 60°C
Installation Height		Below 5,000 ft (1524 m)
Dimensions (Width x Height x Depth)		Approx. 455 mm x 179 mm x 472 mm (excluding feet and protrusions)
Mass		14.3 kg (ZG) 13.1 kg (G)
Accessories		Refer to p. 9.

*1 D-ILA is the abbreviation for Direct drive Image Light Amplifier.

*2 D-ILA devices are manufactured using extremely high-precision technology with a pixel effectiveness of 99.99%. Only 0.01% or less of the pixels are either missing or would remain permanently lit.

*3 HDCP is the abbreviation for High-bandwidth Digital Content Protection system. The image of the HDMI input terminal may not be displayed in some cases due to changes in the HDCP specifications.

- Design and specifications are subject to change without prior notice.
- Please note that some of the pictures and illustrations may have been abridged, enlarged or contextualized in order to aid comprehension. Images may differ from the actual product.
- This unit is a “JIS C61000-3-2-compliant device”.

About Trademarks and Copyrights

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Screen Size and Projection Distance

When a 16:9 screen is used ZG

Screen Size			Projection Distance	
Diagonal (Model)	Width (mm)	Height (mm)	Wide-end (m)	Tele-end (m)
60	1328	747	1.78	3.66
70	1549	872	2.09	4.28
80	1771	996	2.4	4.89
90	1992	1121	2.7	5.51
100	2214	1245	3.01	6.13
110	2435	1370	3.31	6.75
120	2656	1494	3.62	7.36
130	2878	1619	3.92	7.98
140	3099	1743	4.23	8.60
150	3320	1868	4.53	9.22
160	3542	1992	4.84	9.84
170	3763	2117	5.14	10.45
180	3984	2241	5.45	11.07
190	4206	2366	5.75	11.68
200	4427	2490	6.06	12.30

When a 4:3 screen is used ZG

Screen Size			Projection Distance	
Diagonal (Model)	Width (mm)	Height (mm)	Wide-end (m)	Tele-end (m)
60	1219	914	2.22	4.49
70	1422	1067	2.60	5.24
80	1626	1219	2.98	6.00
90	1829	1372	3.36	6.75
100	2032	1524	3.74	7.51
110	2235	1676	4.11	8.26
120	2438	1829	4.49	9.02
130	2642	1981	4.87	9.77
140	2845	2134	5.25	10.53
150	3048	2286	5.63	11.28
160	3251	2438	6.00	12.04

* Projection to a 4:3 screen larger than 163" is equivalent to a size that is larger than 200" in the 16:9 format, and is beyond our guarantee coverage.

When a 2.35:1 screen is used ZG

Screen Size			Projection Distance	
Diagonal (Model)	Width (mm)	Height (mm)	Wide-end (m)	Tele-end (m)
60	1402	597	1.95	3.91
70	1636	696	2.28	4.56
80	1870	796	2.60	5.21
90	2103	895	2.93	5.86
100	2337	995	3.26	6.51
110	2571	1094	3.58	7.16
120	2805	1193	3.91	7.81
130	3038	1293	4.23	8.47
140	3272	1392	4.56	9.12
150	3506	1492	4.88	9.77
160	3740	1591	5.21	10.42
170	3973	1691	5.53	11.07
180	4207	1790	5.86	11.72
190	4441	1890	6.19	12.37
200	4674	1989	6.51	13.02

Types of Possible Input Signals

Video (HDMI1, HDMI2)

Digital Video Signal	480p/60 Hz, 576p/50 Hz, 720p/50 Hz, 720p/60 Hz, 1080p/50 Hz, 1080p/60 Hz

Video (Dual)

Digital Video Signal	1080p/50 Hz, 1080p/60 Hz

- In the DUal mode, both HDMI1 and HDMI2 need to be synchronized at 1080p/60 Hz or at 1080p/50 Hz.

PC Signal (HDMI1, HDMI2)

No.	Designation	Resolution	fh [kHz]	fv [Hz]	dot CLK [MHz]	Total No. of Dots [dot]	Total No. of Lines [line]	No. of Effective Dots [dot]	No. of Effective Lines [line]
1	VGA 60	640×480	31.500	60.000	25.200	800	525	640	480
2	VGA 59.94	640×480	31.469	59.940	25.175	800	525	640	480

Indicator Display on the Main Unit

Meaning of the lighting figures

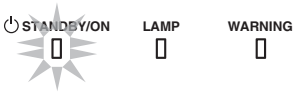
The indicator lights up.

The indicator appears blinking.

Operation mode display

Displays using the different colors and solid/blinking light of the “STANDBY/ON” indicator.

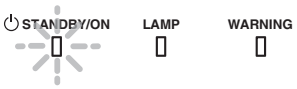
“STANDBY/ON” lights up (red)
In standby state



“STANDBY/ON” lights up (green)
During lamp startup

All lights off
During projection

“STANDBY/ON” blinking (red)
In the Cool-down mode



“STANDBY/ON” blinking (green)
When the video image is temporarily hidden (HIDE is on)

Estimated timing for lamp replacement

Displays using the solid/blinking light of the “LAMP” indicator. The “STANDBY/ON” indicator, which shows the operating mode of the unit, is displayed simultaneously as described above.

“LAMP” lights up (orange)

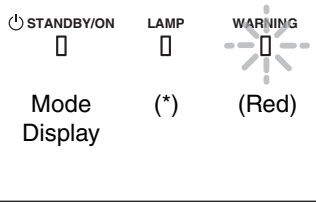
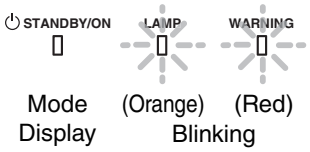
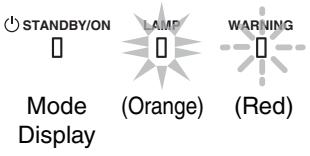
When lamp replacement is near
(lamp time has exceeded 3900 hours)

Warning display

You can tell the details of a warning from the (repeated) displays of the “WARNING” and “LAMP” indicators. The “STANDBY/ON” indicator, which shows the operating mode of the unit, is displayed simultaneously as described above.

The Warning mode is activated once the message is displayed. Projection is interrupted, and the cooling fan is turned on for about 120 seconds.

The power cannot be turned on again while cooling is in progress. Check the following after cooling is complete.

Indicator Status (Solid/Blinking)	Blinking Frequency	Description	Check and Countermeasure
	x1	Abnormality in the power supply	• Check that nothing is blocking the air inlets. • Check that the external temperature is normal. Countermeasure: Leave the unit unoperated until it cools down. After that, turn on the power again.
	x2	Cooling fan stopped abnormally	
	x3	Internal temperature is abnormally high	
	x4	External temperature is too high	
	x5	Abnormal circuit operation	
	x1	Abnormal circuit operation	
	x2		
	x3		
	x4	Abnormal operation of the automatic lens cover	• Check that nothing is blocking the auto lens cover. Countermeasure: Turn on the power again.
	x1	Lamp does not light up and unit is unable to project	• Check that the lamp unit and lamp cover are correctly installed. Countermeasure: Turn on the power again.
	x2	Lamp goes out during projection	
	x3	Lamp cover is removed	

If the Warning mode is activated again, wait for the cooling fan to stop, followed by pulling out the power plug from the outlet.

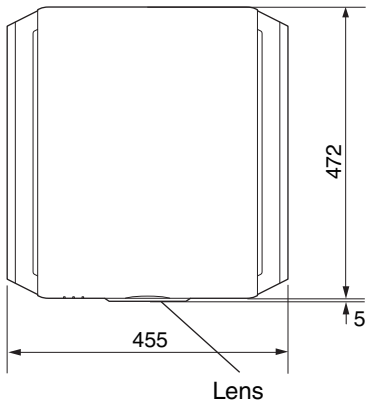
Request for repair at your authorized dealer or a nearby service center.

(*) If the scheduled time for lamp replacement is exceeded, the indicator may light up.

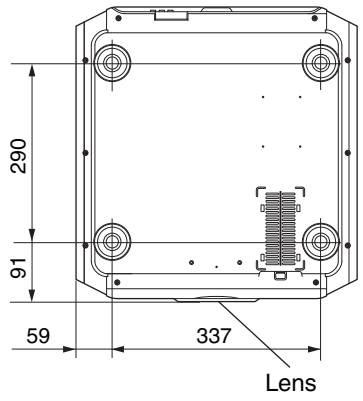
Dimensions

(Unit: mm)

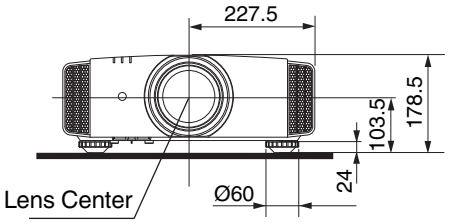
Top Surface



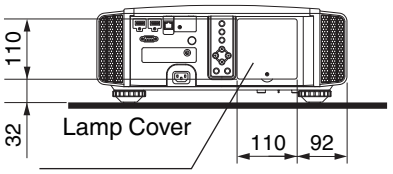
Bottom Surface



Front



Rear Surface



- The dimensions are identical for all the models.

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DLA-VS2400ZG
DLA-VS2400G
D-ILA Projector

JVC

Information

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